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Dear Colleagues,

On behalf of the Organizing and Scientific Committee, I am pleased to welcome to the **XXX International Congress of Audiology (ICA)** joint meeting with the XXV International Meeting of Audiology (EIA), organized by the *International Society of Audiology (ISA)* and the *Brazilian Academy of Audiology (ABA)*.

During the Congress, the latest advances in research and clinical application in the audiological field will be reviewed. Great care was taken to elaborate a program with a selection of high standard oral and poster presentations.

The XXX International Congress of Audiology will explore the themes of **Hearing Health Care and Latest Technologies, Globalization of Standards and Education in Audiology** and **Hearing Loss Prevention**, through research presentations, invited lectures, interactive workshops, clinical rounds and panel discussions led by pre-eminent speakers.

Since 1960, Brazil has started the first training program in communication disorders at the University of São Paulo, but only ten years later, the first graduate course in Audiology was launched. The availability of graduate training not only raised the standard of professional care, but also expanded job opportunities and the scope of practice for audiologists. The progress achieved places Brazil in a leadership position in Latin America and other Portuguese speaking countries with regards to prevention, diagnosis, treatment, and rehabilitation of hearing loss.

The ICA 2010 will be an excellent opportunity for you to update your knowledge and share your findings.

The scientific program is combined with an exciting social event. Among the different activities a **concert**, a **sightseeing excursion** and a **carnival gala dinner** are planned.

Finally, I would like to leave a piece of advice: work hard, divulge the latest advances in research and clinical application in the audiological field, but take your time to enjoy São Paulo city, the largest metropolis in South America and share the Brazilian hospitality, taste our national drink "**caipirinha**", our famous black beans "**feijoada**", try our **samba music**, well known all over the world and feel free to come back whenever you feel like.



Iêda Chaves Pacheco Russo, Ph.D.
ISA President

O Encontro Internacional de Audiologia (EIA) é uma conquista dos profissionais brasileiros nesta área.

Criado em 1985, para arrecadar fundos para a campanha do SOS pela reconstrução do Teatro Universitário (TUCA) da Pontifícia Universidade Católica de São Paulo, que teve fundamental importância na luta dos direitos humanos e democráticos ao longo da história do Brasil.

A partir daí a evolução foi constante. No ano passado conseguimos fazer no 24º EIA de Bauru a pesquisa com os participantes que nos auxiliou a conhecê-los e apontou novos desafios tais como: a necessidade de descentralização das ações da ABA; a participação da ABA nas capacitações profissionais em diferentes regiões do país e também utilizando plataformas online; atuação da ABA na formulação de regulamentações; comitês; grupos de trabalho e representações regionais visando, principalmente, segundo os participantes que a ABA promova o avanço do ensino e da pesquisa em Audiologia: procurando servir na orientação de sua consolidação e aperfeiçoamento, promovendo o intercâmbio de estudos científicos na área da Audiologia e elaborando recomendações e pareceres no que se refere a atuação profissional em audiologia no Brasil.

E assim tem sido o EIA, hoje o evento oficial da Academia Brasileira de Audiologia, que tem auxiliado na consolidação das pesquisas na área, uma vez que oferece aos pesquisadores os resultados prévios de seus trabalhos antes de suas publicações. Também vem cumprindo com a tarefa de formação de recursos humanos, quando oferece espaço para os novos talentos da área apresentarem suas pesquisas e experiências clínicas.

Neste EIA em especial estamos recebendo os participantes internacionais da *International Society of Audiology* organizando conjuntamente o *Congresso Mundial* desta associação que é o *International Congress of Audiology (ICA)*. Esta conquista permeou anos de preparo e foi um trabalho contínuo das últimas diretorias da ABA. Coube a atual diretoria da ABA a operacionalização do evento e a responsabilidade civil. É com tranquilidade e orgulho que podemos dizer, cumprimos o combinado, estamos honrando o nome da ABA com a adesão de todos os nossos associados e outros membros da comunidade científica brasileira. Com o número de brasileiros inscritos no evento, até o momento, mais de 700 participantes, e 405 trabalhos nacionais inscritos, temos o orgulho de dizer que o Brasil está mostrando a sua Audiologia e buscando a internacionalização do conhecimento com a parceria com a *ISA*, aspecto tão importante no mundo globalizado de hoje.

É importante citar que esta é a 25ª edição do EIA e estamos comemorando nossas "bodas de prata". Isto demonstra o resultado de um desafio que se apresentou em 1985 e hoje representa um evento

The International Meeting of Audiology (EIA) is an achievement of Brazilian professionals in this area.

Created in 1985 to raise funds for the SOS campaign for the reconstruction of University Theater (TUCA) of Catholic University of São Paulo, which had fundamental importance in the fight for human rights and democracy throughout the history of Brazil. Since then the trend has been constant. Last year we were able to conduct a research at the 24th EIA in Bauru/SP/Brazil with participants who helped us to know and pointed out new challenges such as the need for decentralization of the ABA and using online platforms. They agree with the ABA goals and actions aiming the formulation of rules, committees, working groups and regional offices for the advancement of teaching and research in Audiology, the way for its consolidation and improvement.

And so it has been the EIA, today the official congress of the Brazilian Academy of Audiology, which has helped to consolidate the research in the area since the researchers can discuss the previous results of their work before they were published. It also comes with fulfilling the task of training human resources, it offers space for new talent in the area to present their research and clinical experience.

In this EIA, we are receiving international participants from the International Congress of Audiology (ICA), which was a joint effort of the International Society of Audiology (ISA). This achievement permeated years of preparation and was a continuous work of the last directors of the ABA. It fell on the ABA board to bring this event to reality. It is with ease and pride we can say, the task has been met, we are honoring the name of the ABA with the support of all our members and other members of the Brazilian scientific community. With the number of Brazilians entered in the event so far, around 800 participants and 405 national papers, we are proud to say that Brazil is showing its Audiology and seeking the internationalization of knowledge in partnership with ISA, which is so important in today's globalized world.

It is important to mention that this is the 25th edition of the EIA and we are celebrating our "silver anniversary". This shows the result of a challenge that presented itself in 1985 and today represents a consolidated event. And as we celebrate, we can not forget the people who were instrumental in this achievement. The proposal came from Dr. Robert Keith of the USA, Paulo Pizarro from Portugal and our inspiring José Barajas Pratt that encouraged us and inspired us to assume this challenge.



consolidado. E, ao comemoramos, não podemos esquecer as pessoas que foram fundamentais para esta conquista. A proposta surgiu do Dr. Robert Keith dos USA, Paulo Pizarro de Portugal e o nosso inspirador Dr. José Barajas de Prat que nos incentivou e nos animou em assumirmos esse desafio. Publicamente agradecemos a você José. Nos primeiros cinco anos veio a participação da Profa. Dra. Luiza Ficker que exerceu a função de secretária geral e a equipe de docentes da área da Audiologia da Pontifícia Universidade Católica de São Paulo. Depois veio a era de Bauru com a Profa. Dra. Adriane Mortari Moretti, Profa. Dra. Katia Alvarenga e a Dra. Regina Borletto Amantini, além dos docentes do Departamento de Fonoaudiologia e profissionais do Centro de Pesquisas Audiológicas do Hospital de Reabilitação de Anomalias Craniofaciais da Universidade de São Paulo, Campus Bauru. Daí o EIA começou a viajar para outras regiões do país com o apoio incondicional do Dr. Arnaldo Márcio Costa no Rio de Janeiro e Dra. Sônia Bortoluzzi no Rio Grande do Sul junto com o corpo docente e discente da Universidade Federal de Santa Maria, dando a conotação que o EIA pertencia ao Brasil e não apenas a um grupo universitário. Assim, surgiu a necessidade da fundação da ABA e o EIA como seu evento anual.

Parabéns Audiologia Brasileira.

Obrigada *Internacional Society of Audiology* pelo o reconhecimento da nossa competência.

Obrigada participantes nacionais e internacionais pela presença. Vocês são as pessoas que enriquecem esta área.

Sejam bem vindos a São Paulo e um ótimo ICA/EIA.

Profa. Dra. Maria Cecilia Bevilacqua
Presidente da Academia Brasileira de Audiologia
Presidente do 25º EIA



Publicly, thank you to Jose.

During the first five years the EIA had the participation of Dr Luiza Ficker who served as secretary general with the staff of Audiology department of the Catholic University of São Paulo. Then came the Bauru Era with Dr. Adriane Mortari Moretti, Dr. Katia Alvarenga and Dr. Regina Borleto Amantine in addition to the Department of Speech Pathology and Audiology of the University of Sao Paulo, Bauru Campus.

EIA began to travel to other parts of the country with the backing of Dr. Arnaldo Marcio Costa in Rio de Janeiro and Dr. Sonia Bortoluzzi in Rio Grande do Sul with the support of the Universidade Federal de Santa Maria, giving the connotation that the EIA belonged to Brazil and not just a university group. Thus, the founding of the ABA and the EIA as its annual event was the natural result of all those years.

Congratulations Brazilian Audiology.

We are grateful to the International Society of Audiology by the recognition of ABA.

We are grateful to the participants for national and international presence. You are the people who enrich this area.

Welcome to Sao Paulo and a great ICA/EIA 2010.

Prof. Dr. Maria Cecilia Bevilacqua

President of the Brazilian Academy of Audiology
President of the 25th EIA

Executive Committee

Chairman: Iêda Chaves Pacheco Russo
Treasurer: Kátia de Almeida
Secretary: Maria Angelina Nardi de Souza Martinez
Maria Cecília Bevilacqua - President ABA
Ana Cláudia Fiorini - Former President ABA
Eliane Schochat - Former President ABA
Altair Cadrobby Pupo - Treasurer ABA
Renata Motta Mamede Carvalho - Scientific Committee

ABA Board

- Maria Cecília Bevilacqua
- Maria Angelina Nardi de Souza Martinez
- Sheila Andreoli Balen
- Altair Cadrobby Pupo
- Silvana Maria Monte Coelho Frota
- Ana Claudia Mirândola Barbosa Reis

Scientific Committee

- Adriane Lima Mortari Moret
- Alda Cristina de Carvalho Borges
- Altair Cadrobby Pupo
- Ana Cláudia Fiorini
- Ana Cláudia Mirândola Barbosa Reis
- Beatriz Cavalcanti de Albuquerque Caiuby Novaes
- Carla Marcondes César Affonso Padovani
- Diná Olivetti de Carvalho Hubig
- Dóris Ruthy Lewis
- Eliane Schochat
- Iêda Chaves Pacheco Russo
- Kátia de Almeida
- Kátia de Freitas Alvarenga
- Lilian Cássia Bórnica Jacob
- Liliane Desgualdo Pereira
- Maria Angelina Nardi de Souza Martinez
- Maria Cecília Bevilacqua
- Maria Cecília Martinelli Iório
- Renata Motta Mamede Carvalho
- Sheila Andreoli Balen
- Silvana Maria Monte Coelho Frota
- Alessandra Giannella Samelli
- Alessandra Spada Durante
- Carla Gentile Matas
- Daniela Gil
- Maria Francisca Colella dos Santos

Congress Secretariat

R.Hamam Eventos
Rua Tácito de Almeida, 148 – Perdizes
01251-010 – São Paulo – SP
Tel.: (11) 3676-0688 / Fax: (11) 3676-0689
ica2010@audiologiabrasil.org.br
www.rhamam.com.br

Board

Ieda Pacheco Russo – president
Jose Juan Barajas de Prat – president- elect
William Noble – last president
George Mencher – secretary-general
George A. Tavartkiladze – assistant secretary general

Members of large:

Kajsa-Mia Holgers – representing affiliated Societies
Robert Cowan – representing general assembly

Editors

Ross Roeser- International Journal of Audiology
Dennis L. Burrows - AUDINEWS
Viktor Koci - Website

5 . ABOUT THE CONGRESS

The International Congress of Audiology (ICA) is a biennial congress held in different parts of the world to discuss important issues regarding audiology.

This year the meeting will be held from March 28th to April 1st 2010 and will take place in the city of São Paulo – Brazil, the largest metropolis in South America, concurrently with the annual Brazilian congress: **XXVth EIA – International Meeting of Audiology**

The ICA 2010 is jointly organized by *the International Society of Audiology (ISA) and the Brazilian Academy of Audiology (ABA)*.

The history of the event last editions shows the importance of the meetings:

- » ICA 2000 – XXV International Congress of Audiology – Hague (NED)
- » ICA 2002 – XXVI International Congress of Audiology - Melbourne (AUS)
- » ICA 2004 – XXVII International Congress of Audiology - Phoenix (USA)
- » ICA 2006 – XXVIII International Congress of Audiology - Innsbruck (AUT)
- » ICA 2008 – XXIX International Congress of Audiology - Hong Kong (CHN)

Since 2002 the Brazilian Academy of Audiology (ABA) has been responsible to organize. **The International Meeting of Audiology**, an annual event dedicated to professionals in the area of Audiology that has started back in 1985. It is the most important scientific event of the area of Audiology in Brazil.

Last editions:

- » 24º EIA - Bauru/SP 2009
- » 23º EIA - Itajaí/SC 2008
- » 22º EIA - Natal/RN 2007
- » 21º EIA - Bauru/SP 2006

Founded in May of 2001, the Brazilian Academy of Audiology (ABA), aims at developing audiology as a science within the country and abroad, through education and culture, according to the principles of democratic participation, freedom and social justice.

ABA is a non-profit civil society, which congregates professionals, graduate and undergraduate students, and researchers within the audiology field, with court in São Paulo, SP, for legal purposes.

MISSION:

"To congregate the scientific community, committed to collective competence as a guarantee of interaction, formation, research and public policies, aiming at strengthening and democratizing the field of audiology".

GOALS:

I – To promote the advancement of teaching and research on audiology, to serve the guidance of its consolidation and improvement, as well as to stimulate new experiences;

II – To guarantee the exchange and cooperation among institutions, professionals, students and researchers on audiology;

III – To create means for the diffusion and interchange of scientific studies in the field of audiology, broadening the publications in the area;

IV – To fight for greater participation of academic and scientific communities in the formulation and development of audiology in the country;

V – To contribute to the professional qualification and improvement of the working conditions of audiology professionals across the country, particularly at the graduate level;

VI – To promote the interchange and cooperation among associations and congener entities;

VII – To perform apt activities to keep its scientific, technical and social representation goals for the professional category, such as publications, congresses, seminars and meetings;

VIII – To stimulate the scientific improvement of the faculty, researchers and audiology professionals, (assumindo que ele quis dizer "devido ao seu papel como qualificadores de profissionais) due to their involvement in the formation and training of professionals in the field.

IX – To elaborate recommendations and opinions, as far as the professional performance in audiology is concerned

7. SOCIAL PROGRAMME

28th March 2010
Opening Ceremony
6.00 pm – 7.00 pm
Auditorium
Cocktail
7.00 pm – 9.00 pm
Exposition Area
Price: free of charge

29th March 2010
Concert
7.30 pm
Auditorium
Price: free of charge

30th March 2010
Sightseeing tour
2.00 pm – 8:00pm
Price: free of charge. Book this excursion at the
registration desk on Monday

31st April 2010
Gala Dinner & Carnival Night
7.30 pm – 11:00pm
Price: US\$ 75. Book this activity at the registration desk

1st April 2010
Closing Ceremony
12.45 pm – 1.30 pm
Price: free of charge

CONGRESS LOCATION

Shopping Mall & Convention Center Frei Caneca
Rua Frei Caneca, 569 , 5th floor
Consolação São Paulo SP
CEP 01307-001
Tel.: +55 (11) 3472 2000 / +55 (11) 3472 2000
Latitude: 23°33'13"S
Longitude: 046°39'09"W

CONGRESS SECRETARIAT

Frei Caneca Convention Center - 5th Floor

BADGES

Each participant will receive a name badge upon registration. For security reasons all participants are requested to wear their badge during the congress activities and social events.

OFFICIAL LANGUAGE

The official language of the congress is English.

The simultaneous translation to Portuguese will be available.

The pre-congress will be just in Portuguese.

CERTIFICATE OF ATTENDANCE

All participants will receive a certificate of attendance at the registration.

SMOKING POLICY

The Frei Caneca Convention Center is a non-smoking facility.

PEOPLE WITH SPECIAL NEEDS

Every effort has been made to ensure that people with special needs have been catered for. If you require any specific assistance please contact the registration desk to enable us to make your stay in São Paulo a pleasant and comfortable experience.

TIME DIFFERENCE

GMT – 3

CLIMATE

In March the temperature in Sao Paulo range is usually between 17°C (60°F) and 30°C (80°F). It's mainly sunny but a few thunderstorms is possible.

CURRENCY

Real (R\$) is the official currency in Brazil which is pegged to the US dollar at 0,57

BANKS

Automatic Banks are available at the Shopping Mall area.

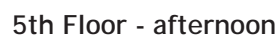
EMERGENCY

Please contact the Congress Secretariat in case of emergency. For emergency or accident, please call 190.

WiFi ZONE

It's not free but it's available to buy at the Congress Venue.

5th Floor - morning



PROGRAM

PRE-CONGRESS - 4th FLOOR LECTURES IN PORTUGUESE

Time	Room A	Room B
10:30 - 12:00	Forum: Hearing in Children	Forum: Hearing Aids
12:00 - 13:30	Lunch	
13:30 - 15:00	Forum: Auditory Rehabilitation	Forum : Noise
15:00 - 16:30	Forum: Public Policies	Forum: Advanced Audiologic Diagnosis

CONGRESS - 5th FLOOR LECTURES IN ENGLISH

28th March (Sunday)				
	Auditorium			
18:00 - 19:00	Oppening Ceremony			
19:00 - 21:00	Welcome Cocktail			
29th March (Monday)				
Time	Auditorium			
8:30 - 9:30	Topic: Hearing Health Care and latest technologies - Keynote Address		-	
9:30 - 10:45	Round Table Discussion			
10:45 - 11:15	Coffee-break / POSTER SESSION I			
11:15 - 12:15	Grand Round: The Central Auditory Nervous System in 3D			
12:15 - 13:45	Lunch		ISA Affiliated Societies Meeting	Lunch
	Room A	Room B	Room C	Room D
13:45 - 15:00	Round Table: HA satisfaction: outcome measurements	Conference: Updating of the electrophysiological response in the newborns	FP1 Hearing Health	Workshop Siemens
15:00 - 16:15	FP2 ISA Scholarship	FP3 Behavioral, electroacoustic and eletrophisiological hearing evaluation	FP4 Hearing Health	Workshop Politec
16:15 - 16:45	Coffee-break/ POSTER SESSION I			
16:45 - 18:00	FP5 Cochlear Implants	FP6 Behavioral, electroacoustic and eletrophisiological hearing evaluation	FP7 Hearing aids and assistive listening devices	Conference: Cochlear Implants. New trends. Our experience.
19-30	Social Program: Concert			
	-			
30th March (Tuesday)				
Time	Auditorium			
8:30 - 9:30	Topic: Globalization and Education Standard in Audiology - Keynote Address		-	
9:30 - 10:45	Round Table Discussion			
10:45 - 11:15	Coffee-break			
	Auditorium		Room C	Room D
11:15 - 12:30	Round Table: Teleaudiology		FP8 Hearing Science and Auditory Processing	Workshop GN Resound
	ABA Assembly		Lunch	
14:00 - 19:00	Social Program: Sightseeing Tour			
31st March (Wednesday)				
Horário	Auditorium			
8:30 - 9:30	Topic: Hearing loss prevention - Keynote Address		-	
9:30 - 10:45	Round Table Discussion			
10:45 - 11:15	Coffee-break / POSTER SESSION II			
11:15 - 12:15	Grand Round: Audiology in Latin America			
12:15 - 13:15	Lunch		Lunch	
	Sala A	Sala B	Sala C	Sala D
13:15 - 14:45	Round Table: Auditory Neuropathy/ Dyssynchrony	FP9 Hearing Health	FP10 Hearing Health	Humanitarian Audiology Meeting ISA Affiliated Societies Meeting
14:45 - 16:15	FP11 Cochlear implants	FP12 Auditory rehabilitation	FP13 Hearing Health	Short Course - Evaluating Auditory Function Using Physiologic Methods
16:15 - 16:45	Coffee-break POSTER SESSION II			
16:45 - 18:00	FP14 Hearing Health	FP 15 Hearing aids and assistive listening devices	FP16 Hearing Health	FP17 auditory rehabilitation
18:00 - 19:30	ISA General Assembly			
19:30	Social Program: Gala Dinner & Carnival Night			
1st April (Thursday)				
Horário	Room A	Room B	Room C	Room D
9:00 - 10:30	Round table: Global Burden Disease	FP18 Vestibular evaluation and intervention	FP19 Cochlear implants	Short Course (2nd part) Evaluating Auditory Function Using Physiologic Methods
10:30 - 11:00	Coffee-break			
11:00 - 12:30	Round Table Discussion: Cochlear Implants Clinical and Surgical Aspects	Conference: Central Auditory Processing Disorders	FP20 Auditory Processing	Fp21 Hearing aids and assistive listening devices
12:30 - 13:30	Closing Ceremony			

11. DETAILED PROGRAMME

PRE-CONGRESS 4th FLOOR LECTURES IN PORTUGUESE

28th March (Sunday)		
Time	Room A	Room B
10:30 - 12:00	Forum: Hearing in Children	Forum: Hearing Aids
COORD	Dóris Lewis	Maria Cecilia Bevilacqua Thelma Costa Sonia Bortoluzzi Deborah Ferrari Isabela
12:00 - 13:30	Lunch	
13:30 - 15:00	Forum: Auditory Rehabilitation	Forum : Noise
COORD	Adriane Mortari Moret Luiza Ficker Maria Angelina Martinez	Ana Cláudia Fiorini
15:00 - 16:30	Forum: Public Policies	Forum: Advanced Audiologic Diagnosis
COORD	Maria Cecilia Bevilacqua Érica Pizaneschi Carla Daher Andréia Ribeiro	Kátia Alvarenga

CONGRESS 5th FLOOR LECTURES IN ENGLISH

		28th March (Sunday)		
Time	Auditorium			
18:00 - 19:00	Oppening Ceremony			
19:00 - 21:00	Cocktail			
29th March (Monday)				
Time	Auditorium		Room C	Room D
8:30 - 9:30	Keynote Address : Hearing Health Care and latest technologies <i>Maria Cecilia Bevilacqua</i>			
9:30 - 10:45	Round Table Discussion: Hearing Health Care and latest technologies Coordinator: ANDREW SMITH David McPherson, Bradley McPherson, DeWet Swanepoel, Maria Cecilia Bevilacqua			
10:45 - 11:15	Coffee-break / POSTER SESSION I			
11:15 - 12:15	Grand Round: The Central Auditory Nervous System in 3D Coordinator: Eliane Schochat Frank Musiek, Nora Neustadt			
12:15 - 13:45	Lunch			
	Room A	Room B	Room C	Room D
13:45 - 15:00	Grand Round: Hearing Aids Outcomes	Conference: Updating of the electrophysiological response in the newborns	FP1 Hearing Health	Workshop
COORDINATOR	Kátia de Almeida		Alessandra Durant	
	Cecília Martinelli	Dr Barajas	Aline de Moraes Arieta	Siemens
	Lena Wong		Andrzej Senderski	
	Raymond Hull		Denise Costa Menezes	
			Ludmila Teixeira Fazito Rezende	
			Laryssa Guimaraes Raimundo	
			Ana Marcela Lobo	
15:00 - 16:15	FP2 ISA Scholarship	FP3 Behavioral, electroacoustic and eletrophysiological hearing evaluation	FP4 Hearing Health	Workshop
COORDINATOR	David McPherson	Francisca Colella	Lilian Jacob	
	Camron Meikle	Melina Willems	Luciana Cardoso Assuiti	Politec
	Danielle Glista	Maria Paula Roberto	Alice Penna de Azevedo Bernardi	
	Carol Rocha	Ashwini	Jaqueline Medeiros de Mello	
	Josée Lagacé	Thierry MORLET	Leny Estévez Meirelles de Barros	
	Tonya Michelle Dornback	kaushlendra	Yolande van der Westhuizen	
		Zurab Gamgebeli		
16:15 - 16:45	Coffee-break / POSTER SESSION I			
16:45 - 18:00	FP5 Cochlear Implants	FP6 Behavioral, electroacoustic and eletrophysiological hearing evaluation	FP7 Hearing aids and assistive listening devices	Conference: Cochlear Implants. New trends. Our experience.
COORDINATOR	Robert Cowan	Renata Mamede Carvalho	Diana Lournagaray	
	Andrzej Senderski	Richard Harris	Louise Hickson	Norma Pallares
	Deborah Mawman	Richard Harris	Meymaneh Jafari	
	Martin Eisendle	Bradley McPherson	Meymaneh Jafari	
	Ilona Anderson	Damares Plácido Moreira de Souza	Luciana de Araujo Machado	
	King Chung	Ivan Grynko	Susan Abdi	
	Branka Mikic	Berninger Erik	Susan Abdi	
		Cristiane Fregonesi Dutra Garcia		
19:30	Social Programme: Concert			

30th March (Tuesday)				
Time	Auditorium			
8:30 - 9:30	Keynote Address Globalization of Standards and Education in Audiology John Durrant			
9:30 - 10:45	Round Table Discussion: Globalization of Standards and Education in Audiology Coordinator: JOHN DURRANT George Tavartkiladze, DeWet Swanepoel, Kajsia-Mia Holgers, Angelina Martinez			
10:45 - 11:15	Coffee-break			
11:15 - 12:30	Auditorium	Room C	Room D	
	Grand Round: Teleaudiology	FP8 Hearing Science and Auditory Processing	Workshop	
COORDINATOR	Deborah Ferrari	Alessandra Samelli	GN Resound	
	DeWet Swanopoei, Sergio Daré Junior, Wanderleia Blasca	Fátima Cristina Alves Branco Barreiro		
		Adrian Fuente		
		David L. McPherson		
		David L. McPherson		
		GEORGE TAVARTKILADZE		
		Jacek Smurzynski		
	ABA General Assembly	Lunch		
14:00 - 19:00	Social Programme: Sightseeing Tour			

11. DETAILED PROGRAMME

31st March (Wednesday)				
Time	Auditorium			
8:30 - 9:30	Keynote Address : Hearing loss prevention <i>Thais C. Morata</i>			
9:30 - 10:45	Round Table Discussion: Hearing loss prevention coordinator: THAIS MORATA Kathleen Campbell, Peter Thorne, Adrian Davis			
10:45 - 11:15	Coffee-break / POSTER SESSION II			
11:15 - 12:15	Grand Round: Audiology in Latin America Beatriz Novaes			
COORDINATOR	Diana Larnagaray, Pedro berruecos, Adrian Fuente			
12:15 - 13:15	Lunch			
	Room A	Room B	Room C	Room D
	Grand Round: Auditory Neuropathy	FP9 Hearing Health Ana Cláudia Fiorini	FP10 Hearing Health Daniela Gil	Humanitarian Audiology Meeting
13:15 - 14:45	Dóris Lewis	Neodete Körbes	Izabella dos Santos	
COORDINATOR	Linda Hood, Osmar Mesquita Neto	Thelma Alcantara Paranhos Lima	Luciana da Mata Lupoli	
		Bamini Gopinath	Adrian Fuente	
		Thais C. Morata	David L. McPherson	
		JACQUELINE GIRÃO DE ANDRADE	Meymaneh Jafari	
		SILVANA MARIA SOBRAL GRIZ	M. Valeria Schmidt Goffi Gomez	
		SILVANA MARIA SOBRAL GRIZ	M. Valeria Schmidt Goffi Gomez	ISA Affiliates Societies Meeting Short Course (1st part) Evaluating Auditory Function Using Physiologic Methods
14:45 - 16:15	FP11 Cochlear implants	FP12 Auditory rehabilitation	FP13 Hearing Health	
COORDINATOR	Norma Pallares	Beatriz Mendes	George Mencher	Dóris Lewis
	M. Valeria Schmidt Goffi Gomez	Maria Emilia de Melo	PEDRO BERRUECOS	Linda Hood
	M. Valeria Schmidt Goffi Gomez	priscila feliciano de oliveira	PEDRO BERRUECOS	Thierry Morlet
	Fabio de Alencar Rodrigues Junior	Katia Miriam de Melo Silveira	Samara Esmeraldo Araujo	
	Robert Cowan	Katia Miriam de Melo Silveira	Samara Esmeraldo Araujo	
	Robert Cowan	Cibele Cristina Boscolo	Carla Regina Camarinha Silva	
	Bianca Miguel Jorge	JACQUELINE GIRÃO DE ANDRADE	Suelen de Almeida Cazellatto	
	Dr. Kurt STEPHAN	Ana Claudia Moreira Almeida Verdu	Sheril Ivia Woehl	
16:15 - 16:45	Coffee-break / POSTER SESSION II			
16:45 - 18:00	FP14 Hearing Health	FP 15 Hearing aids and assistive listening devices	FP16 Hearing Health	FP17 auditory rehabilitation
COORDINATOR	Carla Gentile	Katia de Almeida	Adrian Fuentes	Luiza Ficker
	M. Valeria Schmidt Goffi Gomez	CLÁUDIA A RAGUSA MOURADIAN	Marcela de Oliveira Neves Nogueira	Cristina Maria de Jesus Costa Felix
	MEYER-BISCH Christian	Anna C S Kam	CLEIDE FERNANDES TEIXEIRA	Maria Stella Credidio Justo
	Maria Cristina silva simonek	Josef Chalupper	CLEIDE FERNANDES TEIXEIRA	Carolina Ana Garbe
	Carla Marcondes Cesar A Padovani	Josef Chalupper	Denise Costa Menezes	Fernanda de Lourdes Antonio
	Marcela de Oliveira Neves Nogueira	Ronald Brouillette	Denise Costa Menezes	Ana Claudia Moreira Almeida Verdu
		Thomas A Powers		
18:00 - 19:00	ISA General Assembly			
19:30	Social Programme: Gala Dinner & Carnival Night*			

1st April (Thursday)				
Time	Room A	Room B	Room C	Room D
9:00 - 10:30	Grand Round: Global Burden Disease	FP18 Vestibular evaluation and intervention	FP19 Cochlear implants	Short Course (2nd part) Evaluating Auditory Function Using Physiologic Methods
COORDINATOR	Maria Cecília Bevilacqua	Katia Alvarenga	Carla Padovani	Dóris Lewis
	Andrew Smith, Adrian Davis	Aidilma Silva Ferreira	Piotr Skarzynski	Linda Hood
		Bahram Jalaei	Maria Jaqueline Dias dos Santos	Thierry Morlet
		Bruna Holanda Tonini	M. Valeria Schmidt Goffi Gomez	
		Bruna de Franceschi Schirmer	Martin Eisendle	
		Karina Harumi Tanimoto	Robert Cowan	
		Tathiany Pichelli	Kleine-Punte Andrea	
		Daniela Affonso Moreira		
10:30 - 11:00	Coffee-break			
11:00 - 12:30	Grand Round: Cochlear Implants Clinical and Surgical Aspects Orozimbo Alves Costa	Conference: Central Auditory Processing Disorders	FP20 Auditory Processing Eliane Schochat	FP21 Hearing aids and assistive listening devices Deborah Ferrari
COORDINATOR	Robert Cowan, George Tavardkildaze, Rubens de Brito	David McPherson	Elena Zaidan	Lena L N Wong
			Andrzej Senderski	Todd Fortune
			Angela Ribas	Bayer
			Iris Arweiler	Elizabeth Convery
			Carla Cristina Backes	Jenny Smith
			Fabiola Ferrer Del Nero Mecca	Simara Lopes Cruz
			Mônica Pires de Castro Mendonça	Ilona Anderson
			Anna C S Kam	CLÁUDIA A RAGUSA MOURADIAN
12:30 - 13:30	Closing Ceremony			

Forum: Public Policies**28th, March – Room A - 15:00 to 16:30pm****Coordinator: Maria Cecília Bevilacqua****Érica Pizaneshi, Carla Daher, Andréia Ribeiro**

HEARING HEALTH PUBLIC POLICIES

*Bevilacqua MC**Full Professor of the Speech Pathology and Audiology Department / FOB/University of São Paulo USP-Campus Bauru, Audiological Research Center /HRAC/USP-Bauru SP - Brazil*

With the publication of Decrees 2.073/GM, SAS 587 and 589, the assistance to the hearing impaired, in Brazil, has come to a new reality, with the establishment of a National Hearing Health Policy.

The qualitative leap accomplished with the Decrees of 2004 was the guaranteed assistance network to the hearing impaired, at the national level. Recent discussions with groups of professionals and entities involved, as in Forums of Public Policies, held at the International Audiology Meeting of 2009 and, Scientific Seminar of Public Policies, and Hearing Health Services and Systems, held by the Speech Pathology Department and Audiology /FOB/USP/Bauru, are leading the professionals in the area to a reflection towards the identification of new needs and the search of solutions, so as to settle this National Hearing Health Policy.

In 2009, during our Forum of Public Policies, held at the International Audiology Meeting, the discussed and approved actions, were:

- 1 - Request of a technical chamber with the Health Ministry to analyze the proposal of technological updating for types of HAs A, B and C;
- 2 - Implementation of basic hearing health actions by high complexity services, emphasizing the training of health agents, and family health strategies, as well as identifying and divulging the hearing risks;
- 3 - Actions regarding auditory rehabilitation: to operate the concept of follow-up and auditory rehabilitation; expand the speech therapy assistance network, qualifying professionals for such, in direction 003; request a worthy value for speech therapy.
- 4 - A study on the number of services and places necessary to expand the cochlear implant services.
- 5 - Use of life quality indicators for impact assessment
- 6 - Test with 3 models of HAs to be replaced by suitable prescriptive methods and by objective electro-acoustic measurements:
- 7 - Request a meeting of Health Ministry with supervisors to determine the guidelines and organize the network;
- 8 - Public consultation by ABA on basic priority actions to be presented to the supervisors.

In 2010, during the 30th International Congress of Audiology/ 25th International Audiology Meeting, to be held in the city of São Paulo, a new discussion will be proposed on Public Policies in the area of the hearing impaired, with other needs to be discussed, aiming at the maximum quality assistance to this population.

During this Forum, the assessment of Federal Policies, proposed in the area, will be approached, not only emphasizing the health area, but also will analyze what is proposed to the hearing impaired in terms of education, owing to the need of interaction between the two sectors. Advances in the discussions, such as the provision of FM systems to the hearing impaired population inserted in schools, will be addressed and discussed by the professionals.

Other issues related to these matters will be discussed as well.

Forum: Hearing Aids**28th , March – Room B - 10:30 to 12:00am****Coordinators: Maria Cecília Bevilacqua, Thelma Costa, Sonia Bortoluzzi
Deborah Ferrari, Isabela****HEARING AID, COCHLEAR IMPLANT AND SEMI-IMPLANTABLE DEVICES***Bevilacqua; M.C1.; Costa; T.R.S.2; Bortholuzzi; S.M.F.3**1 Universidade de São Paulo – Campus USP Bauru**2 Pontifica Universidade Católica de São Paulo**3 Universidade Federal de Santa Maria - RS*

The Hearing Aid forum, now termed HA, Cochlear Implant, Semi-implantable Devices and Acoustic System/accessibility Forum”, aims, mainly, at discussing, elaborating and establishing norms to standardize procedures in these areas, as a clinical routine of the country. These Forums are attended by specialists in the field, for wide discussions, elaboration and conclusion of these resolutions, which as norm, are kept in the site of the Brazilian Audiology Academy (ABA) for public consultation and suggestions.

The expansion of Health Care Programs, more specifically the actions which the Hearing Health Decree proposes for routine assistance to the hearing impaired population, as well as the search for optimal quality in the procedures and their results, has guided the discussions of the last forums to other themes of the area, for the compilation of protocols which determine procedures to be utilized in the fitting of HAs in children and adults.

Taking into account the specificities that involve the assistance to the pediatric population, this forum will approach, too, procedures used with children presented with minimum hearing loss, solutions for children in the waiting list, who need a surgical treatment, as well as new procedures which must be included in the hearing programs to be provided by the Government’s Hearing Health programs, such as: FM, and other hearing auxiliary systems. Along with the elaboration of procedural norms, one of the themes broadly discussed in recent forums, to be addressed, is the quality of the professionals working in this field, mainly, in the fitting of HAs in children and adults. The establishment of permanent professional education strategies, as well as the solid participation of councils, the Ministry of Health in the regulation of the work and professional qualification, will be one of the goals of this Forum. It will be open to other issues concerning HAs and others electronic devices in this area.

29th March (Monday) - AUDITORIUM - 8:30 - 9:30am

Keynote topic: Hearing Health Care and latest technologies

Keynote speaker: Maria Cecília Bevilacqua

Resumed CV:

MARIA CECÍLIA BEVILACQUA. Ph.D.

B.A., Speech Pathology and Audiology, 1970; B.A., Psychology, 1977; M.A., Audiology, 1978; Ph.D., in Educational Psychology, 1985; Full Professor, Audiology, 1990 at Pontificia Universidade Católica de São Paulo/Brazil and in 2005 at Department of Audiology and Speech Pathology (FOB) at University of São Paulo, Campus Bauru/Brazil

OTHER BIOGRAPHICAL INFORMATION

1. *Elected President of Brazilian Academy of Audiology from 2009 to 2011;*
2. *Consultant to the National Council for Scientific and Technological Development (CNPq); Coordination for Refinement of Graduated Students (CAPES) and Foundation for Research Support in the State of São Paulo (FAPESP);*
3. *A member of WWHearing since the foundation in 2003;*
4. *A nominated member of the Technical Chamber in Hearing Health with the Health Ministry since June 2005;*
5. *Nominated Chairman of the Audiology and Speech Pathology Department at the University of São Paulo, on April 7th, 2005;*
6. *General Coordinator for the International Audiology Meeting since 1985;*
7. *A founding member of the Brazilian Academy of Audiology, November, 2001*
8. *A member of the Commission of Specialists in Audiology and Speech Pathology with MEC, Ministerial Decree # 972, of 08/11/1997;*
9. *Publish scientific papers, book chapters and books regularly.*



Abstract:

Since the end of the last decade, the concern in relation to hearing aspects of the world population has grown, worldwide, owing to the increase in the estimates of hearing loss prevalence, in the last years. The impact of this increase on the economy of the country is high, because of the huge expenditure to treat the hearing impaired population. In this very same period, with the advent of new technologies such as digital hearing aids, cochlear implants, semi-implantable electronic devices, and more advanced assistive technologies such as the FM system, were introduced in the market, increasing the treatment costs. Consequently, another concern has emerged: create quality public services with a rational use of public resources and minimize the economic impact on the services of complementary health. A growing world movement to assess health actions has been seen among the initiatives to plan and manage the practices of this sector, so as to provide relevant information for the decision making and service quality improvement process. This assessment aims at reorganizing the performance of actions and services, expanding them so as to encompass the needs of their public, rationalizing the use of financial resources. In Brazil, the Attention Policy to the Hearing Impaired was instituted by the Health Ministry, in 2004, settling the assistance in relation to the provision of HAs. Since upon the creation act, no instrument was available to guide the supervisors in the assessment of these services, rendering difficult its consolidation. As for cochlear implants (CI), through the Public Health System (SUS), the whole process for the CI surgery has been free of charge, since 1993 (HM, Decree # 126, 1993). Only in 1996 and 1999, two decrees (# 211, 1996 and # 1.278/GM, 1999) regulated this procedure, establishing norms for a cadastre of Centers/Nuclei to perform Cochlear Implants and the criteria for their indication and contraindication. The actions to assess the quality of these services are not much discussed in this area, thus a deeper study of this issue is necessary, given the high cost of this device. Another issue currently discussed in the country is the regulation to dispense the Modulated Frequency System (FM). Aspects such as who would be in charge to elaborate policies for the provision of these equipments and to allot resources to buy them: Health Ministry or Education Ministry, have been discussed, but little progress has been made. Meanwhile, the population in need of these devices to improve their school achievement is the one most affected.

Round Table Discussion: Hearing Health Care and latest technologies**Coordinator: ANDREW SMITH****David McPherson, Bradley McPherson, DeWet Swanepoel, Maria Cecilia Bevilacqua**

David L. McPherson
Brigham Young University, Utah USA

Abstract:

During the past decade there have been renewed efforts and interests in the delivery of hearing health care throughout the world. The challenge facing audiology can be approached from both a risk/benefit and cost/benefit standpoint. That is, societies where audiology is well established and given governmental priorities face rising health care cost issues with advancing technologies; whereas, developing societies and societies where government priorities are not consistent with the rising awareness of hearing health care issues have difficulty implementing high-end technologies. This dichotomous global inequity brings a dimension to hearing health care that should provoke those of us devoted to the hearing professions to develop and bring innovative and high technological solutions to the global community at costs that benefit the community and not the industry per se.

There are six areas that need to be considered as we deliver health care and technology to the global community: Training, community education, identification, diagnosis, intervention, and long-term care. There are both low and high technological solutions for each of these areas and, within societies, the application of technology does not, and generally is not, uniform across the six areas. This Keynote Address will discuss the options in each of these areas discussing implementation and outcomes which include current hearing health care models and the use of technology across the spectrum to achieve specific goals in each of the areas.

Bradley McPherson PhD
Head, Division of Speech and Hearing Sciences, University of Hong Kong

Abstract:

The World Health Organization (WHO) has commenced a campaign to provide more people with hearing loss in developing countries with access to affordable, appropriate hearing aids and hearing aid fitting services. The WHO has consistently pointed out that only a very small minority of those in need of amplification devices in developing countries are fitted with any type of hearing aid. This presentation gives an overview of emerging hearing health care technology and systems that may, in the future, better serve the needs of individuals with hearing impairment in developing countries. The major implications of such new technology and systems for the organisations that support the majority of the world's people with hearing handicap – those who live in developing countries – are outlined.

30th March (Monday) - AUDITORIUM - 8:30 – 9:30am

Keynote topic: Globalization of Standards and Education in Audiology

Keynote speaker: John Durrant

Resumed CV:

John D. Durrant, Ph.D.

Born in the US, Prof. Durrant is B.F.A. in Speech and Hearing Therapy, Master in Audiology and Speech Science at the Ohio State University; Ph.D in Audiology and Physiological Acoustics at the Northwestern University. He has been teaching in the fields of communication disorders, otolaryngology and hearing science, working at different American Universities as the School of Medicine - Temple University, Ohio State University and University of Pittsburgh.



He has also been a Visiting Researcher and Invited Professor at Claude Bernard Université in Lyon, France. He has published many papers in several international magazines and he is member of prestigious scientific and professional associations as the Acoustical Society of America (ASA), the American Academy of Audiology (AAA), the American Speech-Language-Hearing Association (ASHA) and International Society of Audiology (ISA). At the present moment, Prof. Durrant is Adjunct Professor of Speech and Hearing Science and Vice-Chair of the Department of Communication Sciences and Disorders at the University of Pittsburgh.

Abstract:

Challenges of the Globalization of Standards and Education in Audiology

The name, "International Society of Audiology", rightfully may be taken to imply solidarity of interest in an academic and professional area and, at least at face value, implies a homogeneous sector of healthcare. While the former seems broadly true, the latter is far less certain on multiple planes—background of practitioners, scope of practice, standards of practice, and professional autonomy. Audiology, as a clinical field, developed from a relatively limited scope of practice, yet rapidly expanded and since has enjoyed increasingly global interest and development as a field. Still, further growth is needed to meet global hearing healthcare needs, likely requiring various models of service development and delivery to meet such needs. This session is devoted to the imperative issues of education and standards in audiology. The point of departure will be an overview of the origins of audiology as a clinical science from the perspective of a former student of Carhart who works in the region that serendipitously gave birth to audiology as a profession. The presentation will proceed with exploration of perhaps the most contentious aspect of the field—in whose hands does audiology belong? Both the roots of the profession and the complexities of autonomy inevitably impact the issues of what are appropriate educational requirements for practitioners and effective standards of practice. Current scopes of practice under the audiology banner (internationally) will be considered, along with the potential impact of the growing diversity of services. Additional factors for the future of globalization of the profession include socioeconomic barriers to adequate training and service development, as well as the pervasive need for and/or potential barrier(s) to common standards of instrumentation calibration and methods of practice. These and various other topics will be highlighted with the intention, as well, to challenge expert participants of the subsequent roundtable discussion, as follows (and as time permits): How accessible are audiology services today for individuals around the globe, especially for those of limited means? Are universal hearing healthcare priorities realistic? What is a good model by which to expand services into underdeveloped regions? Are national professional organizations a help or barrier to globalization? Are national standard organizations a help or barrier to globalization? How can technological advances both empower and be a liability to globalization? What should be the relative role(s) of ISA and/or ISO in globalization, versus (perhaps) selective partnering of like-minded professionals among subsets of countries? Ultimately, the goal for this session is neither to find immediate solutions nor to stir up controversy, rather to stimulate a healthy self-appraisal of audiology as a clinical field. It is anticipated that only through such openness can frank and productive international communication occur and lead to further development of audiology in a truly global community effort.

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Round Table Discussion: Globalization of Standards and Education in Audiology

Coordinator: JOHN DURRANT

George Tavartkiladze, DeWet Swanepoel, Kajsa-Mia Holgers, Angelina Martinez

31st March (Tuesday) - AUDITORIUM - 8:30 – 9:30am

Keynote topic: Hearing Loss Prevention

Keynote speaker: Thais Morata

Resumed CV:

Audiologist, with a Master's degree at PUC-SP, Doctoral degree at the University of Cincinnati and post-docs in occupational health in the United States and Sweden.



Works with hearing loss prevention since 1982. Her studies focus on different approaches to prevent hearing loss and on the effects of the occupational exposure to noise and chemicals on hearing, topic of her doctoral dissertation. Since then, she has coordinated studies with different institution worldwide. Currently she works at the National Institute for Occupational Safety and Health (NIOSH, USA) and is an Associate Editor of ISA's International Journal of Audiology.

Abstract:

Hearing Loss Prevention: how can we get there?

On September 2009, Dr. Thomas Frieden, the Director of the US Centers for Disease Control and Prevention, reminded staff at the National Institute for Occupational Safety and Health that while the gap between what we know and what we do not know in public health is huge, the gap between what we already know and what we actually do in practice (the "know-do gap") is also immense. He challenged us to make every effort to minimize both gaps. This challenge is very relevant to hearing loss prevention. While there is still much we need to learn, there is much we already know about preventing hearing loss which is not being effectively implemented among those at risk. This session will highlight the latest information on hearing loss prevention, including the whole-life approach to prevention, newly-recognized risk factors, implementation of national policies, and the effectiveness of prevention initiatives. The presentation will also discuss methods for minimizing the "know-do gap." Neil Pakenham-Walsh, from the International Network for the Availability of Scientific Publications, notes that addressing the "know-do gap" requires clearly identifying the "we" in our discourse — are we "a farmer in Nepal, doctor in Nairobi, health educator in New York, the World Health Organization, the biomedical community, the Catholic Church, or the President of South Africa?" He also indicated that gaps exist "between what a profession as a whole knows and what individual professionals know to be relevant to their practice and between people's awareness of health risks and their actual behaviour" ("Learning from one another to bridge the 'know-do gap,'" BMJ, 2004, 329: 1189). We, the participants of this conference, healthcare providers, researchers, publishers, information professionals, policy-makers, need to reach all. The promotion of health can only be accomplished through the organized efforts and informed choices of individuals, organizations (both public and private), communities, and society as a whole. We, through our professional societies, publications and conferences like this one, are constantly improving this exchange of information and expediting progress. In the traditional realms of information exchange, we excel. Still, we need to do better. We need to explore new avenues. In order to achieve the ultimate goal of hearing loss prevention as part of a public health mission, all of us who are involved in the creation, exchange, and use of health knowledge — healthcare providers, researchers, publishers, policy-makers — need to excel in broadly informing, communicating, and educating both ourselves and those we serve. We need to explore the new communication tools and social media, such as Wikipedia, Facebook, Twitter, Orkut, and whatever "next new thing" comes along. If "blogging" and "tweeting" are what it takes to minimize the "know-do gap," then we must blog and tweet to ensure that everyone has the same opportunity to keep informed, to benefit from continuing professional development and education, and to communicate this information to our target populations. We need to teach, we need to learn, and we need to apply what we learn to achieve shared goals in hearing loss prevention.

Round Table Discussion: Hearing loss prevention**Coordinator: THAIS MORATA****Kathleen Campbell, Peter Thorne, Adrian Davis****Pharmacologic Protective Agents for Noise- and Drug-Induced Hearing Loss****Kathleen C.M. Campbell, PhD****Professor & Director of Audiology Research Southern Ill. Univ. School of Medicine**

In the future, we may be able to prevent or reduce permanent noise- and drug-induced hearing loss by administering protective agents. Current research suggests that a variety of pharmacologic agents may be given before or in some cases even after a toxic cochlear exposure and prevent permanent hearing loss. Some of these protective agents may be given orally while others need to be injected or administered to the round window. Some agents have only been tested in animals while others are in or approaching clinical trials. Therefore in the not too distant future, audiologists may be involved in determining when otoprotective agents should be used in their patient populations. Consequently they should be aware of the various agents being developed. Further many of the protective agents are derived from or contained in foodstuffs. Therefore this research suggests a role of nutrition in preventing hearing loss.

This presentation will review current research in otoprotective agents for drug- and noise- induced ototoxicity including Dr. Campbell's own research with D-methionine as an otoprotective agent. However an overview of the various types of otoprotective agents currently being developed will be provided. Dr. Campbell owns several patents for protective agents which are now in clinical trials. Her patents are owned by her employer and licensed by Molecular Therapeutics. However she also collaborates and assists others developing various types of otoprotective agents.

Towards a Hearing Loss Prevention Programme in New Zealand**Peter R Thorne,****Section of Audiology, School of Population Health, University of Auckland, Auckland, New Zealand**

Hearing impairment affects up to 15% of the population in New Zealand and, like other nations there are concerns that the prevalence will rise substantially with the aging population. New Zealand has challenges with significant prevalence disparities in the population with a greater prevalence of hearing loss among Maori and Pacific populations. In addition, because of the publicly-funded workplace compensation and "no-fault" accident insurance scheme there is government pressure to limit the increasing cost of rehabilitation for occupational noise-induced hearing loss. This all supports the need to develop hearing loss prevention strategies, nationally. This presentation will outline some of the measures being undertaken or proposed nationally in an attempt to prevent hearing loss in New Zealand as well as reduce its impact through the development of appropriate health services. These efforts involve a number of combined or linked initiatives involving government agencies, private health services and NGOs. The government has recently introduced a Newborn Hearing Screening and Early Intervention Programme which is nationally coordinated and is now being implemented across the country. There is considerable focus on reducing the incidence of noise-induced hearing loss with a number of short and long term initiatives. These include improved workplace interventions through government agencies and education programmes targeting the public and school-aged children to raise awareness of the effects of noise exposure on hearing. The latter programmes are being developed and coordinated through a number of NGOs, including the National Foundation for the Deaf. Many of these programmes are being informed by several large multidisciplinary research programmes being undertaken on the epidemiology of hearing loss in New Zealand and the nature and efficacy of current hearing conservation programmes in the workplace. An increasing focus on hearing loss prevention in the community is facilitated by the inclusion of the audiology department at the University of Auckland within a School of Population Health, which has greatly enabled research collaborations with epidemiologists, health economists and Maori and Pacific population health specialists. An important focus will be the evaluation of any strategies put in place.

Hearing Loss Prevention**Adrian Davis****University of Manchester**

Hearing Loss Prevention should be a life-long goal. To address this vision and make it a reality we need



a good understanding of the natural history of hearing loss and how it can be prevented. Concentrating on noise as an example, this talk will examine our current understanding of its impact so that we can see what is needed to be done to transform our understanding of Hearing Loss Prevention in action!

Noise is newsworthy, with many commentators and indeed professionals indicating that there is more noise nowadays or that there is about to be an avalanche of hearing loss, due to the very high prevalence of listening to personal music players. These dominant messages are not in fact backed up by the evidence that has been published about noised impact on hearing.

Noise is of course a major public health challenge and reinforces the inequalities in hearing due to socioeconomic factors ! It is major because it is all pervasive in our societies at a level that can seriously affect population health. Hearing Loss in adults aged 18 – 59 is the 7th largest burden of disease worldwide (Health is Global, DH 2007 http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_072697).

The SCENIHR report on personal music players (PMP) emphasised the potential risks of social noise now that the access to digital music was incredibly high in the population (http://ec.europa.eu/health/ph_risk/committees/04_scenihhr/docs/scenihhr_o_017.pdf).

Martin (<http://www.ohsu.edu/ohrc/staff/martin/martin.html> ;<http://www.dangerousdecibels.org/>) presents a vision and implementation kit for a health promotion package that features some interesting and low cost ideas. There is a clear need to evaluate this approach to hearing loss prevention and to see what the advantages and pitfalls might be to taking this approach forward on a whole population basis.

A major issue for the field is that, in the face of the large increases in risk to hearing (and tinnitus) due to increasing PMP use, there is a lack of data concerning:

- a) the current PMP use pattern, duration and output level and exposure of users to other high level sound sources.
- b) the contribution of noise to hearing difficulties and cognitive and attention deficits in children and young people.
- c) long-term studies using more sensitive measures (e.g. otoacoustic emissions) to assess the impact of PMPs on hearing and identify the potential sub-groups more 'at risk' (e.g. genetic sub-groups and environmental sub-groups such as those who commute to work or school in noisy surroundings).
- d) biological basis of individual susceptibility to noise and the benefits from pharmacological treatment.

(http://ec.europa.eu/health/ph_risk/committees/04_scenihhr/docs/scenihhr_o_017.pdf)

Clearly as these new issues emerge there is a need for early identification of risk, whether at an environmental or individual level. But overall there is a real need to think about how we can bring about a new and more successful paradigm for hearing loss prevention than we currently have. The talk will challenge professionals to think creatively about how hearing loss prevention can succeed and what is needed to put these ideas into practice!

Grand Round: The Central Auditory Nervous System in 3D
29th , March – Auditorium - 11:15am to 12:15pm
Coordinator: Eliane Schochat
Frank Musiek, Nora Neustadt

A 3-D Tour of the Central Auditory Nervous System
 Frank E. Musiek, University of Connecticut

This presentation will show the functional neuroanatomy of the Central Auditory Nervous System in 3-D. Starting at the brainstem level, the vascular anatomy will be profiled along with the cranial nerves as they exit the brainstem. Also included will be the auditory anatomy of the pons, midbrain and thalamus. Auditory pathways projecting from the thalamus to the cortex will be highlighted as well as key cortical and interhemispheric structures. Saggittal, coronal and transverse views will be shown of auditory structures. This 3-D presentation will offer views into the central auditory nervous system that are seldom seen and will provide a unique perspective on clinical correlates to the neuroanatomy of hearing.

Grand Round: Hearing Aids Outcomes
29th , March – Auditorium – 1:45pm to 3:00pm
Coordinator: Kátia de Almeida
Cecília Martinelli, Lena Wong, Raymond Hull

Assessment of outcomes in the developing World
 Lena L N Wong
 HKU, University of Hong Kong

Because of linguistic and cultural differences, many issues have to be considered when adapting self-reported assessment tools for use in the developing World. This presentation will discuss some of these issues, provide examples that are based on research in the Chinese and illustrate how they should be handled. Item selection and factor structure Because of cultural differences, items should be carefully selected to ensure relevance to the culture. While many live in the cities, the majority is living in rural areas. An example would be an item on whether an individual is able to hear well at the drive-through window, as measured on the Profile of Hearing Aid Performance and drive-through windows are not common in many societies. These items should be deleted. On the other hand, conversation on public transport, which is not included in measurement tools designed in the United States, should be added. Daily activities may differ across cultures, and therefore, an individual's needs and importance of communication. While findings in previous research would allow researchers in Western societies to assign items to scales apriori, factor analysis should be used when adapting a self-report measure, in order to ensure that the items are categorized into relevant scales. For example, some items on original PHAP were assigned to other scales in Hong Kong users, probably because of the crowded living environment and small living space. Item wording and test administration Test items should be worded to suite the reading level of a specific population. Reverse scoring may not be appropriate because these items may be confusing to individuals with low education level and they may even distracted from responding to the items. Culture also affects our concept of aging and treatment efficacy. For example, hearing impairment may be regarded by Chinese elderly people as part of their elderly character, and the responsibility of successful conversation may be passed from the elderly with a hearing impairment to his/her communication partner. Based on our research experience, items that focus on severity of hearing loss did not yield results that reflect actual hearing difficulty; instead, frequency of difficulty should be measured. Subject sampling Low-cost and inappropriately fitted hearing aids may provide insufficient or sometimes even distorted amplification, adversely affecting outcomes. However, with improved living standard over the years and the reduction in the cost of advanced technology, "better" hearing aids are fitted. In order for outcomes to be compared across studies, subject characteristics should be described carefully. Low literacy level in the developing World may deter individuals from participation in a research that would require responses in a paper-pencil format, or travel to a laboratory away from home. Different modes of test administration should be considered and evaluated for consistency in outcomes.

Grand Round: Teleaudiology
30th , March – Auditorium - 11:15am to 12:15pm
Coordinator: Deborah Ferrari
DeWet Swanopoel, Sergio Daré Junior, Wanderleia Blasca

DeWet Swanopoel
 University of Pretoria, South Africa

Permanent hearing loss is a leading global health care burden, with 1 in 10 people affected to a mild or greater degree. A shortage of trained healthcare professionals and associated infrastructure and resource limitations mean that hearing health services are unavailable to the majority of the world population. Utilizing information and communication technology in hearing health care, or tele-audiology, combined with automation offer unique opportunities for improved clinical care, widespread access to services, and more cost-effective and sustainable hearing health care. Tele-audiology demonstrates significant potential in areas such as education and training of hearing health care professionals, paraprofessionals, parents, and adults with hearing disorders; screening for auditory disorders; diagnosis of hearing loss; and intervention services. Global connectivity is rapidly growing with increasingly widespread distribution into underserved communities where audiological services may be facilitated through telehealth models. Although many questions related to aspects such as quality control, licensure, jurisdictional responsibility, certification and reimbursement still need to be addressed; no alternative strategy can currently offer the same potential reach for impacting the global burden of hearing loss in the near and foreseeable future. This presentation will provide a systematic overview of current empirical evidence on audiology related telehealth services and the scope of future possibilities.

Brazilian National Telehealth Program
 Daré Junior, S
 Medicine School of University of São Paulo

Brazilian National Telehealth Program was launched in 2007 as a pilot project, and since February 24th, 2010 it has been officially considered as a Program by the Brazilian Ministry of Health. The Program will be composed by a network of partners Institutions called the Brazilian Telehealth Network. The pilot project began with nine states of Brazil (Amazonas, Ceara, Goias, Minas Gerais, Pernambuco, Rio de Janeiro, Santa Catarina, Rio Grande do Sul, and Sao Paulo) under the coordination of the Office of Labour and Education Management in the Health System (SGTES), from the Ministry of Health. On each state a University Center is responsible for implementing at least one hundred connections to reach Family Health Teams. The Sao Paulo Telehealth Nucleus is under the coordination of the Faculty of Medicine of the University of Sao Paulo. The aims of the Brazilian National Telehealth Program are to improve the quality of the health care professionals of the Family Health Program, broaden the resolvability of the clinical cases, and strengthen the Family Health Strategy. To accomplish these objectives some actions were put in operation, for example, the Formative Second Opinion. The Formative Second Opinion is considered a structured response to the questions asked by the health care professionals located in the Basic Health Units in Brazil. The responses are based upon the best clinical and scientific evidence available, and the access is through the website www.telessaude.org.br. Another action is the production and availability of quality material with the purpose of permanent education. In 2008 a multiprofessional group from the University of Sao Paulo met in order to produce some material and promote permanent distance education concerning breastfeeding. Telebreastfeeding was born, and through a system called Cybertutor developed by the Discipline of Telemedicine of the Faculty of Medicine of the University of Sao Paulo we are able to give access to texts, images and videos about breastfeeding. Telebreastfeeding was made available to the health care professionals of the Family Health Teams through the site of Sao Paulo Telehealth Nucleus.

Telebreastfeeding is a part of Brazilian National Telehealth Program, and it represents a multiprofessional team effort of pediatricians, speech language pathologists/audiologists, dentists, nurses, nutritionists and journalists, which brought their invaluable contribution to this subject.

Round Table: Audiology in Latin America
31st , March – Auditorium - 11:15am to 12:15pm
Coordinator: Beatriz Novaes
Diana Lournagaray, Pedro Berruecos, Adrian Fuente

Diana Lournagaray
 Research associate, National Center for Audiology, Canada, Argentina

The mission of Early Hearing Detection and Intervention Programs is to minimize or eliminate communication disorders resulting from hearing loss.

The goal of programs is to identify congenital hearing loss in children before three months of age and to assure enrollment in appropriate early intervention services before six months of age as well to follow up all the children that are on risk of acquiring hearing loss with late onset.

In Argentina the 25.415 law stated early detection and intervention for all infants since 2001.

This has changed positively the situation in the country and permit audiologists and all the professionals who are related to infancy hearing problems have more accessibility to work.

It will be described the situation in public health and private environments in audiology in Argentina and the urgent need to develop the implementation of complete programs for Universal Screening, Early Detection and Intervention instead of Individual efforts, implementing screening at hospitals, clinics all over the country trying to achieve the goals.

An overview of the evidence based protocols used will be explained: screening, diagnosis, intervention, habilitation, rehabilitation, follow up, information for families, including training of professionals, quality management and program effectiveness

The big challenge for Argentina and Latin American countries is the implementation of family centered evidence based scientific programs where audiologists can promote high standards of quality services, giving the best opportunities for the children and their families.

Pedro Berruecos
 Coordinator of the National Program of Hearing Health, Mexico

This paper is centered in the efforts to accomplish a Latin American Consensus on Newborn Hearing Screening in the region. Since the middle of 2007, a group was integrated with experts representing the three main Latin American areas -South America, Central America/Caribbean and North America- , working in Puerto Rico, Guatemala, Panamá, Argentina, Brazil, Colombia and Mexico.

After a careful analysis of different International consensus criteria, an adaptation to the specific peculiarities of the Latin American area was made, adding the features considered as needed in the region. After that, 50 statements were grouped by themes in the following manner: 1) Basic principles; 2) Justification; 3) Objectives, parameters and goals; 4) Methodology and assessment of outcomes; 5) Monitoring and tracking and 6) Professional, Ethical and institutional commitments.

The Lickert Scale was used asking the seven participants to qualify each one of the 50 statements from 0-10, being "0" a total disagreement and "10" a total agreement. A statement with 70 points (100%) was considered as "totally" agreed by consensus; with 63-69 (> 90%), as a "tacit" consensus and with 53-62 (> 75%), as a "simple" consensus. Statements with less of 52 points were subjected to a second discussion stage. 94% of the statements were texts agree by more of 75% of consensus and in a third step, only three required an additional discussion. The three were subsequently agreed by consensus, after making the necessary changes in the phrasing of the statement.

The final document can be the basis for a real development of NHS in Latin America. If the simple, tacit or total consensus corresponded to 94% of the statements, some minor disagreements or doubts cannot stop the dissemination of the final text but be eventually the reason to a more detailed discussion. It is possible also that considering the different special professional, social, economic or politics characteristics of our countries, some of our colleagues will be obliged, based in this work, to made some adjustments considered as appropriate. Nevertheless, we feel, finally, that the document already called "Latin American Consensus on NHS" is already of a particular importance in the context of the Auditory Health programs in our region.

Adrian Fuente
UQ postdoctoral fellow, University of Queensland, Australia

Occupation hearing loss in Latin America

Occupational hearing loss still remains as one of the most preventable hearing health conditions in Latin America and the rest of the world. Overall, more than four million disability-adjusted life years (DALYs) have been lost to Noise-induced hearing loss. However, the term occupational hearing loss comprises not only NIHL, but also hearing losses induced by other work-related ototoxic agents such solvents and metals. Latin America represents a vast territory and indeed the reality of occupational hearing loss is different from country to country. Hearing conservation programs (HCP) have been successfully run in some countries. Are the citizens of Latin American countries aware of the deleterious effects of noise and other ototoxic agents at work?, are the local governments making efforts to prevent occupational hearing loss?, are workers who have acquired SIHL eligible for compensation?, is research on occupational hearing loss taking place in Latin American countries?. These questions and the challenges for audiologists and local governments will be addressed.

Round Table: Auditory Neuropathy
31st , March– Room A - 13:15pm to 14:45pm
Coordinator: Dóris Lewis
Linda Hood, Osmar Mesquita Neto

Auditory Neuropathy/Dys-synchrony: Patient Variation and Issues for Management
Linda J. Hood, Ph.D.
Vanderbilt University, USA

Patients with auditory neuropathy/dys-synchrony (AN/AD) present clinical challenges related to accurate evaluation and management. Otoacoustic emissions, auditory brainstem responses, and middle-ear muscle reflexes are valuable tools in clinical differentiation. Patients demonstrate broad variation in auditory and other characteristics, though patients consistently have difficulty in understanding speech, particularly in noise. Various mechanisms underlie AN/AD and discoveries related to the genetics are providing one form of insight into the observed variation. Management strategies should consider individual variation and the possibility for change over time. In children, language development is a key factor and calls for partnering of several professions to fully understand a patient's needs and assure comprehensive management. Many patients are successful cochlear implant users while success with amplification is more variable. Patient variation in the context of evaluation and management strategies will be discussed.

Round Table: Global Burden Disease
1st , April – Room A - 9:00 to 10:30am
Coordinator: Maria Cecília Bevilacqua
Andrew Smith, Adrian Davis

Professor Andrew Smith
London School of Hygiene and Tropical Medicine

The GBD2005 project aims to estimate the disease burden associated with more than 200 diseases and their disabling sequelae as well as the size of disease burden that can be attributed to major risk factors. Expert groups are currently collecting as much information as possible on: (a) the occurrence of diseases and sequelae (prevalence and incidence) and other epidemiological disease parameters (remission, mortality risk, average duration, severity distribution); (b) prevalence of exposure to risk factors; and (c) the risk of disease by level of exposure.

From the 'raw' data collected during the systematic reviews, estimates will be derived for 21 World regions by age and sex with uncertainty intervals. This requires a number of imputations to deal with missing values and to check available estimates, especially for diseases, for internal consistency. Dedicated software is used to: (a) determine common age patterns; and (b) impute regional estimates from the data supplied by the Expert Groups from their systematic reviews. It will produce an internally consistent set of epidemiological parameters describing a disease and its disabling sequelae. There is also a Comparative Risk Assessment which uses similar techniques to derive regional estimates of risk factor exposure.

For the first time, through this new initiative, the work on Global Burden of Disease will include an expert group on hearing loss. The group was formed in 2008 and consists of 2 sub-groups, one working on sequelae and definitions and the other working on systematic review. This presentation will briefly describe



the overall purpose, value and processes of the GBD initiative; this will be followed by a description of the development and general functioning of the Hearing Loss Expert Group and its importance to audiologists and to health programme planners in governments and elsewhere.

Professor Adrian Davis
University of Manchester

The GBD project started to look at hearing impairment from a common perspective for all age groups. It aimed to estimate the prevalence and incidence of substantive hearing impairment across all WHO regions as a function of age. In order to do this from a common base the current schemes for describing hearing impairment were reviewed. The group finally decided on a metric that described hearing impairment, for both adults and children, from the basis of the averaged threshold across the frequencies 0.5, 1, 2 & 4kHz on the better ear, but for the first time allowing unilateral hearing impairment as a hearing problem. Starting from very good hearing at -10 dB HL to + 4.9 dBHL average threshold in the better ear, the divisions that have been used were in 15 dB HL bands up to 95 dB HL+. This mild hearing impairment is at 20 – 34.9 dB HL and moderate starting in the category 35 – 49.9 dB HL, with moderate to severe being at 50 – 64.9 dB HL. Generally, the model indicates that hearing impairment was greater among men than women, low-income countries than high-income countries, Sub-Saharan Africa and Latin America than other regions and greater in 1990 than in 2005. The overall prevalence of moderate or worse hearing impairment in the world was estimated preliminarily in the range 7 – 8% decreasing to 3 – 4% for moderate to severe hearing impairment. A separate survey is being conducted that asks populations to compare different problems that people have eg mild hearing impairment vs mild memory loss vs mild problems in walking. This will eventually help determine the estimated global disability priorities. A clear picture emerges that audiological data are scarce and that there is a need for more consistent long term data collection in respect of prevalence and incidence.

Conference: Updating of the electrophysiological response in the newborns
29th March – Room B – 13:45 - 15:00pm
José Juan Barajas de Prat.

Dr. José Juan Barajas de Prat.
 Fundación Dr. Barajas. Tenerife. Universidad de La Laguna Canary Islands. Spain.

The electrophysiological techniques has been use for many years in order to establish auditory pathways integrity and indirectly the hearing status of the subject.

The Auditory Brain Stem Evoked Potentials (ABRs) is the most robust electrophysiological test in order to asses hearing sensitivity. In general these responses are obtained by a click as stimulus and the response come from the whole part of the cochlear partition. This lack of frequency selectivity is a seriously limitation for clinical application such a hearing aid fittings. The Auditory Steady-State Responses (ASSR) is a procedure that may provide a quick and objective electrophysiological hearing thresholds at different frequencies. In this presentation we will review the characteristics of ASSR in the newborns and infants and its clinical applications. Auditory long latency responses (ALR) can be elicited in the newborns. These responses are elicited with an stimulus long enough that admit certain frequency selectivity and can provide some interested clinical information from Hearing aid users and Cochlear implant patients

Conference: BrainStem Implant in Argentina
29th March – Room D – 16:45 - 18:00pm
Norma Pallares Garcia

Norma Pallares (MA).
 Universidad del Salvador. Centro de Implantes Cocleares "Prof. Diamante". Buenos Aires. Argentina.

The areas of expansion or new trends in relation with Cochlear Implants (CI) are specially related to the age at implantation and changes in the audiological criteria.

- 1 -CI in children under 12 months of age. Research shows CI can be performed safely in these children, but it is necessary appropriate diagnostic, surgery, programming and intervention. Receptive and expressive language in these children grows at rates similar to normal hearing children (Miyamoto et al, 2003, 2005, Dettman et al, 2007, Holt and Svirsky, 2008) but as additional disabilities can be present, a cautious prognostic is necessary.
- 2- Adolescents and adults with prelingual deafness, results in these patients are actually better than before, due to new technology, new surgical approaches, new strategies and new rehabilitation techniques. Counselling is critical for outcomes and device usage (Waltzman, 2008). We studied speech perception results in 35 adults prelingually deaf patients with CI including the incidence of somatosensorial stimulation with CI activation.
- 3- Geriatric Population. These patients obtain significant benefit from CI but research show a trend to worse performance in noise compared with younger patients. (Waltzman et al, 2008). We studied speech perception results in 23 patients of this group after CI tune up.
- 4- Auditory Neuropathy/Spectrum Disorder (ANSD). CI is a viable option. Research show different results from good performance to poor realization. (Shallop et al, 2001, Gibson and Halit, 2007). Our experience show variable results in 12 ANSD CI patients. Comparing performance of this group with a control group we observed that in both groups speech perception was improving along different time's evaluated although the control group was better.
- 5- Bilateral CI. Simultaneous or Sequential in adults and children. Results show better performance in quiet and noise, better localization, improved ease of listening and quality of life. (Dunn et al, 2008, Zeitler et al, 2008). Our experience consists of 35 bilateral CI patients, adults and children, simultaneous or sequential.
- 6- Multiply-handicapped patients. In our experience with 106 multi handicapped CI children (out of 422 paediatric patients), the disabilities observed were cerebral palsy (25%), developmental delay (13%), motor disorders (15%), cognitive disorders (9%), severe visual disorders (5%), and other deficits like language disorders, epilepsy and attention deficits. Our results suggest that all these children obtain different degrees of benefit from CI depending on type and extent of associated disability. The rate of progress is slower than in deaf children without other disabilities (Halt and Kirk, 2005, Wiley et al, 2005). Currently all of them use fully the device and parents' reports show better quality of life. In relation with speech perception after more than 12 months of CI use, some of them (N=32) are in Speech Perception (CID,1994) category 1 and 37 had access to category 6.

Conference: Central Auditory Processing Disorders
1st April – Room B – 11:00am -12:30pm
David McPherson

Evaluating Auditory Function Using Physiologic Methods**1st Part - 31st March (Wednesday) - Room D - 14:45 - 16:15pm****2nd Part - 1st April (Thursday) - Room D - 9:00 - 10:30am****Coordinator: Dóris Lewis****Linda J. Hood, Thierry Morlet**

Linda J. Hood, Ph.D., Vanderbilt University, USA and Thierry Morlet, Ph.D., Associate Research Scientist, A.I. duPont Hospital for Children, USA

Physiological measures of auditory function are powerful objective methods that can be used to obtain information about neural integrity and peripheral auditory sensitivity. They are particularly important in identifying, quantifying and managing hearing losses in infants and children. A clinical test strategy that includes middle-ear measures and otoacoustic emissions (OAE) provides information about middle-ear, cochlear outer hair cell, and reflex arc integrity. Auditory evoked potentials that assess neural activity at the level of the brainstem are valuable as indirect methods of quantifying hearing sensitivity in pediatric patients. Quantifying the degree and configuration of hearing loss should include the ability to determine sensitivity for each ear individually and for individual frequency regions. Appropriate approaches include frequency-specific auditory brainstem responses (ABR) and auditory steady state responses (ASSR). These objective methods are suitable for infants and young children as well as other patients who cannot provide appropriate behavioral responses. To use these approaches appropriately, it is important to understand maturational characteristics, relationships to behavioral thresholds, and strengths and limitations of each technique. These factors will be discussed in this presentation.

FREE PRESENTATION ABSTRACTS

SESSION: FP1 - 1 DATE: 29/3/2010 TIME: 13H45 - 15H00

HEARING IN NOISE TEST(HINT BRAZIL)IN WORKERS EXPOSED TO NOISE WITH SENSORINEURAL HEARING LOSS**Authors**

ALINE DE MORAES ARIETA, EVERARDO ANDRADE DA COSTA

Institution

1. UNICAMP, UNIVERSIDADE ESTADUAL DE CAMPINAS

Abstract

Introduction: the hint - brazil (hearing in noise test, version in portuguese of brazil) is a test of recognition of speech in noise, which simulates resembled auditive situations to the daily ones. Added to the national audiological routine, it constitutes an important diagnostic tool to evaluate the auditive incapacities, particularly for patients of sensorineurals disacusias in high frequencies, which predominates in our way.objective: evaluate the results of the hint in workers with sensorineurals auditive losses exposed to the noise and compare them with the results of workers not exposed. Method: the hint contains 240 representative sentences of the daily speech, short, phonetic balanced, of easy understanding and with the same degree of difficulty. They are distributed in 12 lists of 20 sentences each, presented with earphones, in four situations: with sound frontal and without noise; with sound frontal and noise frontal, noise to the right and noise to the left. Fourteen examed workers had been exposed to the occupational noise for more than one year, with average auditive thresholds in 3, 4 and 6 khz greater than 25 db hl, with an average age of 39,5 years (standard deviation 9,5). These results had been compared to the ones of 25 workers with auditive thresholds within the limits acceptable and not exposed to the noise occupational, with average age of 27,6 years (standard deviation 5,5). Results: the found average values in the workers with hearings losses had been: 36,2 db with sound frontal (srt); signal to noise ratio (s/r) of -3,5 db with noise frontal, -9,8 db with noise to the right; -9,6 db with noise to the left. The obtained average values in exposed workers had not been: 27,9 db with sound frontal (srt); relations signal/noise (s/r) of -5,0 db with noise frontal, -12,2 db with noise to the right; -12,5 db with noise to the left. Conclusion: comparativly there had been significant difference between exposed and not exposed workers.

SESSION: FP1 - 2 DATE: 29/3/2010 TIME: 13H45 - 15H00

HEARING SCREENING IN SCHOOL AGE CHILDREN IN POLAND - RESULTS FROM 2008 AND 2009**Authors**SKARZYNSKI HENRYK¹, KOCHANEK KRZYSZTOF¹, SKARZYNSKI PIOTR, HENRYK^{2,1}, SENDERSKI ANDRZEJ^{1,2}, BRUSKI EUKASZ²**Institution**

1. IFPS, Institute of Physiology and Pathology of Hearing, Poland

2. ISO, Institute of Sense Organs Kajetany, Poland

Abstract

It is recommended to conduct hearing screening in school age children especially in areas with non well developed health care system however there is still debate concerning methods and organization of such a screening. The hearing screening program conducted last 2 years in Warsaw- capital of Poland and in rural areas of eastern Poland was aimed to detect children with conductive or sensory hearing loss in children from first grade of elementary schools and to raise the awareness of the parents and teachers about the consequences of delayed detection of hearing disorders and about the possibilities of early therapeutic intervention. The hearing screening was conducted by means of the Senses Examination Platform and screening device Audiometer S using air conduction pure tone audiometry for frequencies ranging from 250 Hz to 8 kHz. Additionally, to assess higher auditory functions the Polish Dichotic Digits test was used. Parents filled out audiological questionnaire and additionally during the testing children were asked few questions. Eastern Poland results: In the period of three months 95320 children from 50541 elementary schools in 6 rural areas of eastern Poland were screened. 13, 1 % of children did not pass the pure tone audiometry screening test, 15 % of children did not pass the speech in noise test and dichotic digits test. After careful analysis of the results of individual tests for further diagnostic evaluation we referred 8432 children. We will present results of the detailed analysis of all audiometric tests and audiological questionnaire and we will discuss the organization and cost effectiveness of the hearing screening program in school age children. We also present the sensitivity and specificity of the screening program based on follow up data from Warsaw region.

SESSION: FP1 - 3 DATE: 29/3/2010 TIME: 13H45 - 15H00

THE RELATION BETWEEN HIGH FAIL RATES IN HEARING SCREENING AND SOCIOECONOMIC/DEMOGRAPHIC CHARACTERISTICS OF A POPULATION ATTENDED IN A NEWBORN HEARING SCREENING (NHS) PROGRAM**Authors**

SILVANA MARIA SOBRAL GRIZ, NATHÁLIA RAPHAELA PESSOA VAZ CURADO, DENISE COSTA MENEZES, ADRIANA RIBEIRO DE ALMEIDA E SILVA, CAMILA PADILHA BARBOSA, EMANUELLE QUEIROZ DOS SANTOS TENÓRIO, ANA KAROLLINA DA SILVEIRA, DENISE ALMEIDA

Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO

Abstract

Introduction: A hearing impairment may cause problems in language development. However, when a hearing loss is early detected and appropriate intervention is offered, chances for improvement in language are greater. This is why Early Hearing Detection and Intervention (EHDI) programs have been widely implemented in hospitals. In order to such programs to be effective some aspects may be considered. Socioeconomic and demographic characteristics of the population attended in the hospital are probably related to the mother and her newborn. Main Purpose: The present study aimed to identify socioeconomic and demographic characteristics of the population attended in the Newborn Hearing Screening (NHS) program in the Federal University of Pernambuco Hospital and correlate those characteristics with screening results. Method: a total of 847 mothers of newborns submitted to the NHS program have participated in the study. They all answered to an interview before their newborns' hearing had been tested. Socioeconomic and demographic aspects as: age of the mothers, marital status, degree of education, occupation, personal and family income, residence location and conditions, family immovable, and pregnancy follow-up were analyzed according to hearing tests results. Results: Statistic analyses have shown a significant relation between three variables (family income, mothers' degree of education and residence location) and fail result in hearing screening. It seems that the family income interferes in living conditions, alimentation, leisure and health, and lack of education may be associated to lack of information about health care. According to residence location, it can be observed in this study that it may be related to health assistance because the families who live in the urban area have easier access to more complex hospitals than those families who live in the interior of the state. Other socioeconomic and demographic variables are also discussed in the study, even though their relation with hearing testing results was not statistically significant. Conclusions: Results show the need of health promotion in the studied population, once high level of fail results in hearing screening are related to aspects of public health. Key-words: hearing screening, public health, neonate

SESSION: FP1 - 4 DATE: 29/3/2010 TIME: 13H45 - 15H00

KNOWLEDGE OF THE PEDIATRICIAN ABOUT THE HEARING NEONATAL SCREENING: ANALYSIS OF THE INFLUENCE OF TRAINING AND EXPERTISE PROFILE.**Authors**

LUDMILA TEIXEIRA FAZITO, JOEL ALVES LAMOUNIER, RICARDO NEVES GODINHO, MARIA DO CARMO BARROS DE MELO, JOÃO NEVES MEDEIROS

Institution

1. UFMG, Universidade Federal de Minas Gerais

Abstract

To identify the possible factors related to the knowledge of the pediatricians about the neonatal hearing screening is extremely necessary to establish a better divulgation of the adequate procedures to the early detection and diagnosis of hearing problems in newborns. Objective: Compare the knowledge of adequate procedures and conducts to the realization of the neonatal hearing screengin relating to the average of graduation time, nature of the graduation institution, kind of specialization, and nature of working environment. Methods and Materials: cross-section study realized through inquiry with 127 pediatricians. 47 (37%) of them are knowers and 80 (63%) are unknowners. Results: There were no statistics differences between pediatricians knowers and unknowners related to the average of graduation time (p=0,52), nature of the graduation institution (p=0,06), period of residency conclusion (p=0,17), kind of pediatric specialization (p=0,76), nature of work environment (p=0,10), knowledge of which age is possible to evaluate baby's hearing (p=0,18) and knowledge that all of the children must pass through the hearing screening (p=0,07). The other variables researched demonstrate significant statistical difference between knowers and unknowners. Conclusion: There were not specific characteristics in the pediatricians' profile founded that could improve the fact of being knower or unknowner. Informations about the importance of the hearing screening to the development of the oral language of the child and the necessity of all children must pass through the screengin tend to be common knowledge among pediatricians.

SESSION: FP1 - 5 DATE: 29/3/2010 TIME: 13H45 - 15H00

THE KNOWLEDGE OF PEDIATRICIANS IN EARLY INTERVENTION OF HEARING LOSS**Authors**

PRISCILA FELICIANO DE OLIVEIRA, LARYSSA GUIMARAES RAIMUNDO, ANNY CAROLINE ARAGÃO DOS SANTOS, CAMILA ARAUJO, GREICE MARIA SAMPAIO ROCHA, LARISSA COSTA MACEDO, LUANA ARAUJO DOS SANTOS, RAFAELLA MARIA BARROSO CARDOSO, RAQUEL ASSUNÇÃO RIBEIRO

Institution

1. UFS, Universidade Federal de Sergipe

Abstract

Introduction: Hearing takes an important role in human communication. A hearing impairment that is not treated early can lead to an irreversible handicap, so diagnosis of hearing impairment in children helps in a child global development. Technological progress as otoemission acoustic and cochlear implants provides an earlier diagnose and rehabilitation. However some professionals do not realize how much they may contribute to mitigate the sequel caused by hearing impairment. Pediatricians as a member of this process play a fundamental role in a child health promotion. Aim: Investigate pediatricians knowledge about hearing impairment and methods of diagnosis of hearing loss. Methods: 14 pediatricians of Sergipe fulfilled a standardized questionnaire proposed by Barros, Galindo and Jacob (2002). The instrument was sent to 30 physicians of the state. Results: 100% of the population on the study work in hospital, 85,7% in public service and 42,9% in private service. Most of them (78,6%) had knowledge about hearing impairment in college graduation. 71,4% affirmed to search for hearing impairment in the first 6 months of life. Only nine pediatricians (64,3%) had knowledge about diagnostic techniques. 7,2% had knowledge about hearing loss grade and types. Conclusion: The pediatricians have limited knowledge about conducts face to children hearing impairment.

SESSION: FP1 - 6 DATE: 29/3/2010 TIME: 13H45 - 15H00

CHARACTERIZATION OF ACOUSTIC IMITTANCE FINDINGS ON A PRESCHOOL CHILDREN'S GROUP.**Authors**

ANA MARCELA LOBO, ANA CLÁUDIA VIEIRA CARDOSO

Institution

1. UNESP, Universidade Estadual Paulista "Júlio de Mesquita Filho"

Abstract

The young population, mainly preschool and school children, presents greater risk for middle ear disorders. The acoustic immittance is a recommendable method to identify such disorders, due its efficiency, objectivity and fast execution. The sensible use of the acoustic immittance can be a valuable and trustful way to determine which children must be directed for complete clinic evaluation and treatment. The aim of this work was to characterize the acoustic immittance findings on a preschool children's group. Seventy preschool children were evaluated; they were of both genders and their age varied from 3 years to 6 years and 7 months. They were registered on a Municipal School of Children Education in Marília. After visual inspection of the ear, were performed the acoustic immittance evaluation. The equipment used was the GSI-38, with a 226 Hz probe tone and air pressure variation from + 200 daPa - to 400 daPa. The results had been classified in accordance to the following measurements: Static Admittance (Peak Y), Tympanometric Width (TW), Equivalent Ear Canal Volume (Vea) and, Tympanometric Peak Pressure (TPP). The preschoolers presented Static Admittance values on a mean average of 0,5 cc for both ears, with deviation pattern of 0,3 cc; their Tympanometric Width mean average was of 92 daPa for both ears, with deviation pattern of 32 daPa for the right ear and 29 daPa for the left ear; the Equivalent Ear Canal Volume mean average was 0,8 cc for the right ear and 0,7 cc for the left ear, with deviation pattern of 0,3 cc for both ears and; for the Tympanometric Peak Pressure the mean average was - 86 daPa, with deviation pattern of 82 daPa for the right ear and, mean average of - 89 daPa, with deviation pattern of 65 daPa for the left ear. Aiming a better characterization of the studied group was analyzed the values that had occurred more frequently, for Static Admittance was observed the value of 0,3 cc for both the ears, for the Tympanometric Width 90 daPa for the right ear and 85 daPa for the left ear, for Equivalent Ear Canal Volume 0,6 cc bilaterally and, for the Tympanometric Peak Pressure -70 daPa for the right ear and -60 daPa for the left ear. Analyzing the gotten data it can be concluded that the studied group presents a low incidence of middle ear disorders.

SESSION: FP3 - 1 DATE: 29/3/2010 TIME: 15H00 - 16H15

PREVALENCE OF AUDITORY NEUROPATHY SPECTRUM DISORDERS IN SCHOOLS FOR THE DEAF AND THE HARD OF HEARING IN BELGIUM**Authors**

MELINA WILLEMS

Institution

1. UCAHS, University College of Arteveldehogeschool

Abstract

The objective of the present study was to investigate the prevalence of auditory neuropathy spectrum disorders (ANSD) in schools for the deaf and the hard of hearing in Belgium. At the time of the investigation, a total of 436 individuals with permanent childhood hearing loss (> 40dBHL at the better ear), aged 2y6m - 21y11m, attended one of the 8 special schools for the deaf and the hard of hearing in Belgium (Flanders or Brussels Head Capital Region). In order to collect epidemiological data, file study was done on every child according to a strict test protocol. Audiological assessment was conducted afterwards, including tympanometry, acoustic reflex testing, pure tone audiometry, speech audiometry, otoacoustic emissions (OAE) and auditory brainstem responses (ABR). Minimum requirements to be included in this study were normal middle ear function, data on otoacoustic emissions, and auditory brainstem responses. Of all individuals, 34.9% (N=152) was not acknowledged within the final results due to either a lack of essential information, or a deliberate exclusion from participation. The results obtained from the assessment indicated how 10 out of 284 individuals presented a hearing loss of the type ANSD, which in turn suggested an incidence of 3.52%. Not one single file mentioned the existence of ANSD prior to the present assessment. Such an outcome should prompt caregivers to acknowledge this particular type of sensorineural hearing loss. It should furthermore result in recommendations for a more specific test protocol, an adapted rehabilitation program, more careful selection of hearing aids or cochlear implants, and/or extra or alternative devices. All epidemiological data regarding the particular type of hearing loss detected in the individuals will be presented, including neonatal hearing screening results, age at detection and diagnosis, start of intervention and/or rehabilitation, type and degree of hearing loss, etiology, type of amplification, type of education, other (related) problems, multiple disabilities, speech and language development, communication mode, and results on the different audiometric tests.

SESSION: FP3 - 2 DATE: 29/3/2010 TIME: 15H00 - 16H15

ELECTROPHYSIOLOGICAL EVALUATION OF HEARING IN CHILDREN WITH DOWN SYNDROME: ANALYSIS OF RESPONSES OF AUDITORY EVOKED POTENTIAL OF BRAINSTEM - ABR RESPONSES**Authors**

MARIA PAULA ROBERTO

Institution

1. USP, Universidade de São Paulo

2. PMSP, Prefeitura do Município de São Paulo

Abstract

INTRODUCTION: Syndromes are considered a risk factor for hearing loss. The high prevalence of Down syndrome in relation to other syndromes emphasize that the committees of the area recommendations are applied in the diagnosis of hearing disorders. As a way to minimize the damage in oral and written communication due to a late diagnosis, an early hearing assessment is indicated. The assessment of the auditory brainstem response - ABR has been the most common instrument of audiological evaluation in children with the syndrome. **OBJECTIVE:** This study aims to characterize the findings of electrophysiological evaluation of hearing in individuals with Down syndrome. **METHOD:** Auditory brainstem response - ABR by air conduction (click stimulus from 2000 to 4000 Hz) was used as a way to access the integrity of the auditory pathway to the brainstem. All 29 children with clinical diagnosis of Down syndrome (DS) delivered by a specialist in pediatric genetics for the Audiology department of a clinic, located in the city of São Paulo, from 1997 to 2002 were included. **RESULTS:** The sample was equally distributed by gender (51.7% fem, and 48.3% male) and ages between 22 days and 3 years and 11 months (mean age of 5.54 m). 82.76% of the sample were under 6 months of age. Among the 29 children assessed, 20 were identified with normal results of ABR (68.97%), and the remaining 9 with altered results (31.03%). The normal accounted for 55% of girls and 45% of boys evaluated. Thus, the remaining 45% of girls had abnormal results, as well as 56% of boys. Regarding the electrophysiological thresholds in the right ear 62.07% were less than or equal to 30dB HL, 20.69% from 35 dB HL to 45 dB HL. The remaining 17.24% represented individuals with thresholds above 50 dB HL, associated to the presence of hearing loss. In the left ear the percentages were respectively 58.62%, 17.24% and 24.14%. 23 children (79.31%) showed no difference in the threshold value obtained between the ears. **CONCLUSION:** The results of this study showed that there was no difference between normal and abnormal according to gender. The difference in threshold values obtained between the ears was not statistically significant. In view of 20.69% of children with thresholds between 35 dB HL and 45 dB HL, and considering the importance of early audiological diagnosis confirmation we suggest that the detection of evoked auditory brainstem response by air conduction, is supplemented by bone conduction research. This would provide conclusion about the influence of the conductive component in this population. **Keywords:** Auditory Brainstem Response, ABR, Down Syndrome, Hearing. São Paulo: Master's Thesis - Department of Preventive Medicine - Faculty of Medicine, University of São Paulo

SESSION: FP3 - 3 DATE: 29/3/2010 TIME: 15H00 - 16H15

TEST-RETEST RELIABILITY OF THE MULTIFREQUENCY AND MULTICOMPONENT TYMPANOMETRY**Authors**

KAUSHLENDRA KUMAR, ASHWINI GUTTEDAR, CHRISTINA JEAN VIVARTHINI, DR. JAYASHREE BHAT, PEARL D'COSTA

Institution

2. manipal university, kasturba medical college

Abstract

Tympanometry is the measurement of the acoustic immittance of the ear as a function of ear canal air pressure. Multifrequency and Multicomponent tympanograms have been shown to provide clinically useful information in a variety of patient populations. However, for a test to be widely accepted as a clinical tool, the results should be repeatable or vary slightly within limits of measurement error. To date, there are no published studies investigating the test-retest reliability of the multicomponent and multifrequency tympanometry on large number of population. The aim of the current study is to examine the test-retest reliability of the multicomponent and multifrequency tympanometry in a group normal adult. The present study included 50 normal hearing adult subjects (50 ears) in the age group of 18 to 35 years of age with normal immittance findings and no otological or neurological history with two months gap between the test and the retest sessions. Pure tone audiometry was followed by immittance, first with multicomponent tympanometry for 226, 678 and 1000 Hz probe tones and then with multi-hertz tympanometry using sweep frequency and sweep pressure methods. Four comparison methods for resonant frequency was used which were positive tail method, negative tail method, $f'B$ and $f'fá$ method. The results revealed significant difference between two test retest sessions for $f'B$ and no significant differences for other measures. The data also shows high correlation and test retest reliability between the two sessions for positive tail measurement method and low correlation and test retest reliability for the $f'B$ measurement. The results of the present study are well supported by the existing literature. The Positive tail measurement method used for the resonant frequency measure was having highest test retest reliability in the present study which suggests an appropriate method of choice for clinical use among the other methods.

SESSION: FP3 - 4 DATE: 29/3/2010 TIME: 15H00 - 16H15

AUDIOLOGICAL CHARACTERISTICS OF INFANTS AND CHILDREN WITH ENLARGED VESTIBULAR AQUEDUCT**Authors**MORLET THIERRY¹, O'REILLY ROBERT¹, MORLET SHANDA¹, DUCKWORTH LAURIE², HORLBECK DREW², JOSEPHSON GARY²**Institution**

1. AIDHC, A.I. duPont Hospital for Children

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Abstract

Enlarged vestibular aqueduct (EVA) is the most common radiological abnormality seen in children with sensorineural hearing loss (SNHL). EVA can be associated with other congenital ear anomalies, such as a hypoplastic cochlea. SNHL onset may occur from birth to adolescence, usually during childhood and may be precipitated by various factors such as head trauma. Hearing loss is often progressive and can fluctuate. Vestibular and balance disorders can also be associated. Children with an EVA present with a wide variety of audiometric thresholds and physiologic measurement. Interestingly, not all children with bilateral EVA show bilateral SNHL, and SNHL onset on the opposite side of the unilateral EVA can be seen. The diagnosis of EVA is usually realized after the SNHL and/or vestibular disorder is diagnosed by radiologic assessment, but can sometimes be realized incidentally in children with no hearing or vestibular symptoms yet who receive an imaging study for an unrelated reason. This study presents the audiological characteristics of 50+ pediatric patients diagnosed with EVA. The main finding is that a significant proportion of these children present the same clinical characteristics as patients diagnosed with auditory neuropathy spectrum disorder, i.e., present otoacoustic emissions (OAEs) or cochlear microphonic, absent or elevated middle ear muscle reflexes (MEMRs), and absent or abnormal auditory brainstem response (ABR) unrelated to the degree of their audiometric thresholds. These findings reinforce the fact that appropriate hearing screening in newborn, infant and children should not solely involve OAEs as they may be normal despite abnormal MEMRs and ABRs. They reinforce also the need for imaging studies whenever objective and behavioral testing do not match. Hearing fluctuation and management including cochlear implantation will be discussed.

SESSION: FP3 - 5 DATE: 29/3/2010 TIME: 15H00 - 16H15

ASYMMETRICAL SPEECH PROCESSING IN HUMAN AUDITORY BRAINSTEM LEVEL

Authors

KAUSHLENDRA KUMAR, CHRISTINA JEAN VIVARTHINI K, ASHWINI GUTTEDAR, PEARL EDNA D'COSTA, JAYASHREE BHAT, AJITH U

Institution

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Abstract

Rapidly changing auditory signals (including speech) are primarily processed in the left auditory areas while tonal stimuli are preferentially processed in the right hemisphere. More research is indicated to strengthen the evidence regarding the contribution of the subcortical auditory pathway to the cerebral asymmetry in processing speech. The present study was conducted to understand the lateral asymmetry in speech processing for the speech evoked ABR in a normal adult. The present study included 30 normal hearing adult subjects. The test stimulus used was a synthesized /da/ syllable and the response peaks (Vth, C, D, E, F, and O) were identified by two experienced audiologists. The results reveal longer latency for the left ear peaks as compared to that of the right ear with significant difference between right and left ear peaks for onset response(Vth), transition response(C), FFR(D,E and F) and offset response(O). The amplitude of Vth, C, fundamental frequency, first formant frequency, high frequency and overall response were larger for the right ear as compared to the left ear with the 't' values showing significant statistical difference between right and left ear. Thus the present study suggests that the processing of speech is better through the right ear as compared to the left ear with respect to the onset response, spectrotemporal measure, fundamental frequency measure, harmonics measure and overall waveform amplitude response.

SESSION: FP3 - 6 DATE: 29/3/2010 TIME: 15H00 - 16H15

BOUNCE AUDIOLOGICAL PHENOMENON: INVESTIGATIONS IN HUMANS VIA EOAE RECORDINGS

Authors

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2. ENT TU, ENT Clinic, Technical University, Dresden

Abstract

Bounce Audiological Phenomenon: Investigations in Humans via EOAE Recordings Zurab Gamgeli, Irina Burdzgla, Matthias Bornitz, Thomas Zahnert, Zurab Kevanishvili Center of Audiology and Hearing Rehabilitation, 33 Chavchavadze Avenue, GEO 0179 Tbilisi, Georgia; Otorhinolaryngological Clinic, Department of Medicine, Technical University, 74 Fetscherstrasse, DE 01307 Dresden, Germany Evoked otoacoustic emissions, EOAEs, were measured in normal-hearing subjects before and after application of continuous pure tones. EOAE magnitude changes were considered to objectify the bounce phenomenon, a hearing alteration subsequent to low-frequency, high-intensity exposures. Conventionally, the event was exhibited in a sequence of EOAE augmentations and reductions, peaking at 1- and 3-min post-exposure intervals, respectively. In experiment 1 at initial effective exposure intensities, 65-75 dB SPL, augmentations prevailed over reductions. At higher levels, 80-95 dB SPL, a symmetric augmentation/reduction pattern was dominated. At highest intensity, 100 dB SPL, reductions occurred without augmentations. In experiment 2 at lower exposure frequencies, 250 and 500 Hz, EOAE modifications were alike. At higher frequency, 2000 Hz, the standard bounce was missing: reductions were not preceded by augmentations. In experiment 3 under 3-, 2-, and 1-min exposure durations the EOAE changes were bipolar and similar. Under 0.5- and 0.25-min durations augmentations were diminished, reductions being abolished or inverted in polarity. In experiment 4 post-exposure EOAE shifts were greater at lower vs. higher test-stimulus intensity, 15 vs. 35 dB HL. In experiment 5 at different test-stimulus frequencies, 250, 500, and 2000 Hz, bounce EOAE manifestations were similar. The phenomenon is debated and its complex nature is reasoned.

SESSION: FP4-1 DATE: 29/3/2010 TIME: 16H45 - 18H00

FOLLOW-UP OF CHILDREN WITH FAILURE IN NEWBORN HEARING SCREENING IN THE UNIVERSITY HOSPITAL OF FEDERAL UNIVERSITY OF SANTA CATARINA IN 2008

Authors

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Institution

1. HU/UFSC, Hospital Universitário Polydoro Ernani de São Thiago

Abstract

Introduction: Neonatal hearing screening is a process to identify children with hearing loss and accompany them in early diagnosis and medical care. These children can properly develop language and communication. Objectives: To analyze the results of the Universal Neonatal Hearing Screening Program at the University Hospital of the Federal University at Santa Catarina (HU/UFSC). To analyze the handling of children who fail the first and second screenings; to study the incidence of hearing loss; to study the ages at which children begin to receive medical attention. Methods: An analysis of all the live newborns in 2008 at the maternity ward of the HU/UFSC, who were submit to the Universal Neonatal Hearing Screening. The children who failed the first screening, who continued in the program and also failed the second exam, had their medical records checked. Results: In 2008, 1,761 newborns were candidates for the TANU. This represents 99% of the potential candidates, including 1,724 newborns (97.9%) tested while in the hospital and 20 tested after they went home. Of those tested, 19.1% did not pass the exams. Of these, 72.1% returned for the second phase. In the third phase, 15 children were candidates, 12 completed the audiological evaluation. One child had a diagnosis of hearing loss confirmed (0.057% of all those screened). The medical care was begun at one year of age. Conclusion: The screening of 99% of newborns and the rate of failure in the first exam reveal the greatest progress in Universal Neonatal Hearing Screening in the four years since its implantation at HU/UFSC. The rate of hearing loss was 0.057% and the medical care was begun later than forecast. Key words: Newborn Screening. Universal Newborn Screening. Newborn. Hearing Loss.

SESSION: FP4 - 2 DATE: 29/3/2010 TIME: 15H00 - 16H15

NEWBORN HEARING SCREENING: JOINING TO THE PROGRAM AND FEEDBACK INDEXES.

Authors

VIVIAM AGUIAR FIGUEIREDO, ALICE PENNA DE AZEVEDO BERNARDI

Institution

1. CEFAC, CEFAC Saúde e Educação

Abstract

Objective: To investigate the adhesion index of a newborn hearing screening program and the main reasons for the non-adhesion. Methods: We analyzed reviews of each distortion product otoacoustic emissions (DPOAE) and palpebral reflex cochlea of 810 neonates who participated of the Newborn hearing test protocol. Infants who passed and did not return to retest was conducted by telephone contact with their mothers and by applying a questionnaire form collected the reasons for non attendance. Results: 761 newborns of 810 (93.95%) passed in test protocol. 49 (6.05%) failed. We found that 29 (59.18%) of mothers of newborns who failed, did not return to retest, whereas 15 (51.78%) were found and 14 (48.28%) answered the questionnaire. The reason why 50% of mothers did not return was because they felt that his son had a good hearing, 21.43% took the child to speech therapist diagnosis, missed 7.14%, 7.14% did not remembered the reason that they not attendance, 7.14% claimed financial problems and 7.14% felt that the child was too old to perform the examination. Conclusion: We concluded that the high dropout rate did not allow the achievement of a program of effective screening with many losses and lack of follow-up of mothers as the importance of early detection of hearing loss. A follow-up contact by telephone to mothers is important to clarify the importance of precece diagnosis.

SESSION: FP4 - 3 DATE: 29/3/2010 TIME: 15H00 - 16H15

CORRELATION BETWEEN HEARING LOSS AND RISK INDICATORS IN A PROGRAM OF NEWBORN HEARING SCREENING.

Authors

JÁQUELINE MEDEIROS DE MELLO MEDEIROS DE MELLO¹, LIDIANE YUMI SAWASAKI SAWASAKI¹, VALTER AUGUSTO DELLA-ROSA DELLA-ROSA², ANA MARIA SILVEIRA MACHADO DE MORAES SILVEIRA MACHADO DE MORAES²

Institution

1. UNINGÁ, Faculdade Ingá - Uningá

2. UEM, Universidade Estadual de Maringá

Abstract

Objective: Analyze the hearing and communication development of babies born in the University Hospital in Maringá who failed in the Newborn Hearing Screening (NHS) in the first evaluation in the maternity and also in the second test, and for this reason were sent to referred to the otorhinolaryngologist and audiological diagnosis. Methodology: the case was constituted by 31 babies who failed in the first and second assessment from the total of 908 newborn. The procedures comprised



two stages, the first step consisted of a survey of protocols of newborn for 19 months, from May 2007 to December 2008. They failed in (NHS), what means that they didn't answer to one or both ears in the examination of otoacoustic emission evoked by transient stimulation (TS) before hospital liberation and 30 days after birth. While in the second stage was established contact with parents and / or responsible for the newborn via telephone, which answered a questionnaire and were asked to bring their children to undertake a further examination of the TS and cochlear-palpebral reflection (CPR). Results: From the parents and/or responsible for the newborn, 18 of them answered the questionnaire, in which it was possible to observe that the majority of children (66.7%) communicated through the speech, which had started about 1 year of age (58.3%), the first words were mum and dad and 58.3% were able to associate two or more words, considering that the age of the children interviewed ranged from 10 to 24 months. All the parents and / or responsible claimed that children understand the information provided by speech. Regarding the importance of (NHS), everyone thought that it was important the procedure performed by University Hospital before hospital liberation due to the importance of precocious diagnosis in hearing deficiency, however, 16.7% of them felt that there should be further information in the procedure performance by the evaluators. From the total, 83.3% reported that they didn't change the family's routine after suspicion of hearing deficiency with their children. Only 8 (25.8%) parents and / or responsible attended to the new test, from these children, 4 (50%) presented bilateral presence of TS associated to the presence of the (CPR). While the same amount of babies presented absence of answers in the TS unilateral associated to the presence of CPR and 3 babies presented absence of TS in both ears with absence of CPR. The 3 cases (9.7%) who responded to the TS bilateral absences by otoscopic changes were children with high risk for developing conductive changes as Down syndrome and cleft palate. A child presented the diagnosis of sensorineural hearing deficiency, which was confirmed by the presence of mutation in the gene *deaf 35*. Conclusion: Parents and / or responsible for the children who were sent to otorhinolaryngologist didn't present, in general, worry with aspects related to HD, which reflects the parents lack of consciousness with the aspects related to the hearing and NHS.

SESSION: FP4 - 4 DATE: 29/3/2010 TIME: 15H00 - 16H15

RESEARCH OF THE GENDER AND ETIOLOGY PREVALENCE OF DEAFNESS OF THE DEAF EDUCATION NATIONAL INSTITUTE STUDENTS IN RIO DE JANEIRO/RJ.

Authors

LENY MEIRELLES, HEIDI BAECK

Institution

1. INES/UVA, Instituto Nacional de Educação de Surdos e Universidade Veiga

Abstract

The research which aims to draw features capable of supporting actions and strategies for prevention, are for decades driven by the severity of the effects of hearing loss. The proposal of this research was to investigate the prevalence of gender and etiology of the deaf students of the Instituto Nacional de Educação de Surdos - INES (Deaf Education National Institute), in Rio de Janeiro/RJ. We aimed to contribute to the knowledge of hearing loss in Brazil, and to investigate the effect that the national campaigns to prevent rubella and meningitis have in the national territory. This study is a retrospective documentary. We evaluated medical records of 297 students with ages ranging from 1.3 months to 23 years. The results showed that the deafness was significantly more prevalent in males ($p < 0.001$). Contrary to what the literature has suggested, the known cause proved prevalent ($p = 0.002$). Among them, meningitis and rubella have shown a higher prevalence, with no statistical difference between the occurrence of this two diseases ($p = 0.170$). There were no associations between cause and gender, and cause and date of birth. In the analysis between the periods before and after the campaign, the findings point to the efficiency of vaccination campaign against rubella in 1997 ($p < 0.001$) and inefficiency of the campaign of meningitis ($p = 0.102$). However, the small sample size for the two diseases in question causes them to be regarded as the initial motive for future studies.

SESSION: FP4 - 5 DATE: 29/3/2010 TIME: 15H00 - 16H15

AUDIOLOGICAL AND OTOLOGICAL SYMPTOMS IN ADULTS WITH HIV/AIDS

Authors

YOLANDE VAN DER WESTHUIZEN, DE WET SWANEPOEL

Institution

1. UP, UNIVERSITY OF PRETORIA

Abstract

Limited thorough research has been done in the field of HIV/AIDS related auditory dysfunction and a significant lack of control-matched studies in this field exists. This study aimed at investigating the prevalence of otological and audiological symptoms in HIV patients, correlating these symptoms with the respective CD4+ counts and comparing the auditory profiles of these participants to a HIV negative, matched control group. A descriptive, cross-sectional and comparative research design was followed. 200 adult HIV patients were tested with an audiological test battery and short case history questionnaire. Results indicated a 19% prevalence of otalgia, 42% tinnitus, 42% vertigo, and 38% prevalence of pruritis of the ear. Upon further investigation, 47% of the sample had abnormal middle ear functioning, 54% had abnormal otoscopy results and between 27 and 51% presented with hearing loss depending on the hearing loss criteria employed. 74% of subjects presented with one or more of these symptoms. The majority of participants with hearing loss had a CD4+ count of less than 200 cells/uL. Significant differences are evident between the test and control group indicating a clear and statistically significant predisposition for hearing loss associated with HIV. The findings confirm the significant impact of HIV on normal auditory functioning and demonstrate a correlation between the stage of HIV infection and auditory status. In lieu of this significant effect on the auditory system as well as increased life expectancy of HIV patients receiving ARV treatment, issues of quality of life of these patients becomes increasingly important to address.

SESSION: FP5 - 1 DATE: 29/3/2010 TIME: 16H45 - 18H00

PARTIAL DEAFNESS TREATMENT AND THE ROUND WINDOW APPROACH FOR PRESERVATION OF RESIDUAL HEARING IN WARSAW COCHLEAR IMPLANT PROGRAM (1992-2010)

Authors

SKARZYNSKI HENRYK¹, LORENS ARTUR¹, POROWSKI MAREK¹, SKARZYNSKI PIOTR^{2,1}, SENDERSKI ANDRZEJ¹

Institution

1. IFPS, Institute of Physiology and Pathology of Hearing, Poland

2. INZ, Institute of Sense Organs, Warsaw, Kajetany, Poland

Abstract

Combined, electric and acoustic stimulation led to a rapid progress in cochlear implantation. Easing the criteria for qualifying patients benefited a new group of patients diagnosed with having residual hearing, thus being partially deaf. The pursuit for proving surgical aspects of the theory of conservation of residual hearing resulted in application of the so-called round window approach in cochlear implantation which was backed by data obtained in patients treated since 1996. These promising and repeatable results inspired us to start a new program of treatment for those with so-called partial deafness. The concept proved to be an optimized form of treatment in patients, with good sound perception in low frequency tones and total deafness in the high frequency range, who received either electric stimulation alone or effective hybrid electric and acoustic stimulation. As a consequence, the proposed six step surgical "round window approach" has become a true answer to the challenging issue of preservation of residual hearing. Practical application of this method by Skarzynski since 2002, in treatment of so called "partial deafness" was proven in outstanding and stable post operative results in adult patients treated with this method. In 2004 the first in the world child with a diagnosed partial deafness was implanted and showed total preservation of residual hearing and then many children followed that unprecedented success. We present basic surgical steps and difficult situations that may be encountered during PDT, as well as long term results of 121 patients, both children and adults, treated in our Centre since introduction of the method. Our experience in cochlear implants we based on 2738 implanted patients. We would like to stress the great influence of the round window approach on cochlear implant surgery, especially in creating a new possibility for preservation of residual hearing, which in return contributed to giving a new chance for better hearing to a large group of patients.

SESSION: FP5 - 2 DATE: 29/3/2010 TIME: 16H45 - 18H00

PRELIMINARY RESULTS OF ELECTRICAL AND ACOUSTIC STIMULATION USING THE MED-EL SONATA FLEX EAS ELECTRODE ARRAY.

Authors

DEBORAH MAWMAN

Institution

1. MRI, Manchester Cochlear Implant Programme

Abstract

Preliminary results of electrical and acoustic stimulation using the Med-El Sonata Flex eas electrode array. Deborah Mawman¹, Simon Llyod², Kevin Green², Simon Freeman², Iain Bruce², Jackie Brough¹, Adam Walker¹, Martin O'Driscoll¹ 1The Manchester Cochlear Implant Programme, The University of Manchester 2Department of Otolaryngology Head-Neck Surgery, Manchester Royal Infirmary This presentation will outline some preliminary results of hearing preservation and speech perception outcomes after implantation with the Med-El Sonata Flex eas electrode array. Fifteen subjects received a Med-El Sonata EAS device between May 2008 and September 2009. They were candidates for cochlear implantation, recruited according to current local selection criteria which are defined as a pre-operative speech discrimination score of iU 50% in the ear to be implanted. The device was implanted according to a i^{soft}± surgery protocol with the aim to preserve residual hearing in the implanted ear. Subjects who retained any residual hearing post operatively were either issued with the Duet 2 speech processor which combines both acoustic amplification and electrical stimulation or the Opus 2 speech processor which combines electrical stimulation with their low frequency residual hearing. Both the hearing preservation results and speech perception outcomes will be presented. Address for correspondence: deborah.mawman@manchester.ac.uk N.B: Preferred method of presentation = 10 minute oral presentation requested.

SESSION: FP5 - 3 DATE: 29/3/2010 TIME: 16H45 - 18H00

DUET 2: THE SECOND GENERATION OF EAS PROCESSORS – RESULTS FROM A DUET TO DUET 2 UPGRADE STUDY

Authors

LORENS ARTUR¹, KLEINE PUNTE ANDREA², EISENDLE MARTIN³

Institution

1. IFPS Warsaw, Institute of Physiology and Pathology of Hearing, Nadarzyn
2. Univ. Hosp. Antwerp, Univ. Dep. of ORL and HNS, Antwerp
3. MED-EL, MED-EL Worldwide Headquarters

Abstract

Objectives EAS is a promising treatment for individuals with a ski-slope type hearing loss who gain minimal benefit from hearing aid amplification, yet still struggle within their everyday environment. Hearing preservation and sufficient use of still existing low frequency hearing have been professional challenges over the past 10 years. Previously, EAS users had to wear a BTE speech processor plus an ITE hearing aid. This was problematic due to two reasons: i) insufficient gain and ii) reduced compliance to wear both devices in one ear. The introduction of the DUET, the first integrated electric and acoustic EAS processor, led to better acceptance and more frequent use of EAS. In 2009 the DUET 2 was launched, matching the design of the Opus 2, featuring a remote control and allowing for more gain in the low frequencies. This study aims at comparing the second generation of EAS processors, the DUET 2 with the DUET. Materials and Methods Eighteen experienced DUET users were recruited for this study. All were tested with a battery of speech perception tests, questionnaires and visual analogue scales. Tests were performed with both the DUET and the DUET 2 at the upgrade interval. Post upgrade, participants wore the DUET 2 and were acutely tested with the DUET. All participants were followed-up up to six months. Results Results from speech perception tests in quiet and noise revealed that participants performed equally well with the DUET 2. Visual analogue scales indicated subjective preference for the DUET 2. Participants appreciated the new features of the DUET 2 audio processor, especially the FineTuner. They also reported to perceive a better sound quality in general and especially when listening to music. Conclusion Earlier studies demonstrated the benefit of integrated processors for EAS users. Although no significant improvements regarding speech perception were shown, the DUET 2 can provide additional advantages over the DUET. Participants reported a better satisfaction and improved sound quality with the DUET 2 as compared with the DUET.

SESSION: FP5 - 4 DATE: 29/3/2010 TIME: 16H45 - 18H00

VALIDATION OF THE LITTEARS® EARLY SPEECH PRODUCTION QUESTIONNAIRE

Authors

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Institution

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2. UM, University of Mainz Medical School's Hospital, Department fo

Abstract

The LittleEARS® Test Battery was designed to assess preverbal auditory and speech and language development of infants and toddlers with normal hearing (NH), cochlear implants (CIs) or hearing aid(s). The battery comprises 3 parts: LittleEARS®Auditory Questionnaire (to assess auditory skills), My LittleEARS® Diary (to record listening and speaking progress) and LittleEARS® Early Speech Production Questionnaire (LEESQP). The LEESQP aims to assess the early milestones of speech production in the first 18 months of chronological and hearing age. The assessment of expressive speech skills includes: 1) reflexive behaviours, 2) crying (when hungry or uncomfortable), 3) early vocalization stages, 4) babbling and 5) jargon through the production of first words. Though the LEESQP is still under development, the first part of the validation phase is complete. A preliminary evaluation of the LEESQP is presented here. A pilot version of the LEESQP with 24 "yes/no" questions was created based on data from a longitudinal study in infants with NH and with CIs, a literature review, professional input and a parent focus group. 600 of these questionnaires were distributed by paediatricians to parents of children with NH in Germany and Austria. Preliminary statistical analyses (including validation) will be performed and professionals' and parents' comments will be reviewed. LEESQP validation and preliminary results for the first 100 respondents will be discussed. Results of parent feedback on this version will allow for modifications of the LEESQP in further versions. Early results with the LEESQP show that it has promise as a tool for assessing early speech production in infants and toddlers.

SESSION: FP5 - 5 DATE: 29/3/2010 TIME: 16H45 - 18H00

MICROPHONE MODE AND WIND NOISE REDUCTION FOR COCHLEAR IMPLANTS

Authors

Institution

1. NIU, Northern Illinois University

Abstract

Wind noise can be a mere annoyance or a debilitating energetic masker to cochlear implant users during outdoor activities. Although the wind noise problem has been known to clinicians for some time and the three cochlear implant manufacturers are in different stages of incorporating directional microphones in their cochlear implants, none of the manufacturers has implemented wind noise reduction strategies. Previous studies have shown that wind noise at the hearing aid microphone output predominately has low frequency energy. In addition, directional microphones usually generate higher amount of wind noise than omnidirectional microphones in the low frequency region but they would yield lower amount of noise in the high frequency region because of their capability to reduce background noise in the far field. The purpose of this study was to examine the effects of using directional and omnidirectional microphone modes in different frequency regions on reducing wind noise interference for cochlear implant users. Prior to wind noise recordings, a hearing aid with four microphone channels was programmed in an anechoic chamber when it was worn on KEMAR (Knowles Electronic Manikin for Acoustic Research). The hearing aid was used because no commercially available cochlear implant could be programmed to different microphone modes in different frequency regions. The hearing aid chosen was programmed to three microphone modes: 1) fully omnidirectional mode (OMNI, omnidirectional in all four channels), 2) fully directional mode (DIR, directional in all four channels), and 3) a combination of directional and omnidirectional mode (COMBO, directional in the lowest channel and omnidirectional in the upper three channels). The hearing aid was programmed to have flat frequency responses and 1:1 compression. The frequency responses in the three microphone modes were also matched. Wind noise was recorded in a quiet wind tunnel in the three microphone modes at a flow velocity of 9.0 m/s when the KEMAR head was turned from 0° to 360°. The flow velocity was in the freeze category in the Beaufort Wind Scale (i.e., 5 in the 13-point scale). The recorded flow noise was then analyzed using MATLAB programs. Wind noise at two head angles (90° and 300°) with different overall level relationships among the three microphone modes were mixed with Hearing in Noise Test (HINT) sentences recorded in sound field. Cochlear implant users listened to the speech in wind noise testing materials. Their speech recognition scores and preferred sound quality ratings were accessed. The results indicated that the COMBO mode yielded the highest speech recognition scores and preferred sound quality ratings in both head angles regardless of the overall levels, indicating that using the omnidirectional microphone mode in the low frequency region and the directional microphone mode in the high frequency region were beneficial. In conclusion, manufacturers need to incorporate flexible signal processing algorithms and to take advantage of both directional and omnidirectional microphone modes to reduce wind noise interference, enhance speech recognition, and improve sound quality for cochlear implant users in wind.

SESSION: FP5 - 6 DATE: 29/3/2010 TIME: 16H45 - 18H00

BIMODAL ADVANTAGE FOR UNDERSTANDING SPEECH IN NOISE

Authors

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Institution

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Abstract

Introduction: Majority of cochlear implantees have got one cochlear implant. Basically they experience the same problems when listening to speech in noise as subjects with single sided deafness. If bilateral cochlear implantation is not available, hearing aid in the opposite ear could improve listening in difficult situations. Objectives: To compare listening to sentences in noise with cochlear implant alone and with a hearing aid in contralateral ear in order to evaluate bimodal advantage. Material and method: A group of 18 cochlear implantees aged 7 to 18 years were tested by open set sentences in noise in two listening conditions, with cochlear implant alone and with bimodal amplification. All of the subjects in the study were prelingually deaf and average hearing age with cochlear implant was 3.2 years. They listened to a 6-8 word sentences in concurrent speech noise with signal to noise ratio of 10 dB. Each subject in this study was his own control. Results: All of the subjects in the study performed considerably better with combination of cochlear implant and hearing aid, than with cochlear implant alone. Conclusion: Bimodal stimulation is extremely useful for listening in difficult situations. Understanding of speech in concurrent noise, especially "party noise" is enhanced greatly when additional hearing aid in the opposite ear is used and it should be strongly advocated for all patients with one cochlear implant.

SESSION: FP6 - 1 DATE: 29/3/2010 TIME: 16H45 - 18H00

DEVELOPMENT OF DIGITALLY RECORDED MONGOLIAN SPEECH AUDIOMETRY MATERIALS

Authors

RICHARD HARRIS, SHAWN NISSEN, VALARIE HASLAM, KRISTEN GILBERT

Institution

1. BYU, Brigham Young University

Abstract

Introduction Speech audiometry is an integral part of audiological evaluations. Presentation of speech audiometry materials using high-quality recorded materials increases test-retest reliability within and across clinical facilities throughout the world. Digitally recorded speech audiometry materials are available in many languages; however recorded materials for the Mongolian language are not available. Objective The purpose of this research was to develop, digitally record, and collect normative data for Mongolian speech audiometry materials for use in measurement of the speech recognition threshold (SRT) and word recognition scores (WRS). For the SRT materials the goal was to develop a list of psychometrically equivalent words equated for both threshold and psychometric function slope. For the WRS materials the goal was to develop three psychometrically equivalent lists (50 words each) and six half-lists (25 words each). Method SRT Materials: A set of 90 commonly used bisyllabic

Mongolian words were recorded by a male and female talker of Mongolian and then evaluated by 20 native Mongolian listeners at intensities ranging from -10 to 16 dB HL in 2 dB increments. A final list of 28 words with relatively steep psychometric function slopes were selected and digitally adjusted to reduce threshold variability among the words. WRS Materials: A list of 190 frequently used monosyllabic Mongolian words were recorded by both a male and female Mongolian talker. The 190 words were divided into 10 lists of 19 words each. The lists were presented to 20 normally-hearing Mongolian participants at 10 different intensity levels ranging from -5 to 40 dB HL in 5 dB increments. Results SRT Materials: Psychometric functions (regression slope and intercept) for each of the 90 bisyllabic words were calculated using logistic regression. A subset of 28 words was selected to insure homogeneous threshold performance and psychometric function slope. The selected words were digitally adjusted to yield 50% threshold intelligibility at the mean pure-tone average for the test subjects (-0.58 dB HL). Psychometric function slopes averaged 11.4%/dB for male and 10.5%/dB for female talker recordings. WRS Materials: Word lists were constructed using an S-curve distribution based on rankings of intelligibility of the individual words following listener evaluation. Three lists of 50 words and six half-lists of 25 words were constructed. Logistic regression was utilized to calculate the psychometric functions for each of the three lists and six half-lists. The mean psychometric function slopes were 6.2%/dB for the male and 5.2%/dB for the female talker lists. The 50% threshold was 14.5 dB HL for the final adjusted male and female lists and half-lists. Conclusion This study resulted in the development of digitally recorded SRT and WRS speech audiometry materials in Mongolian. The SRT materials are homogeneous with respect to threshold audibility and psychometric function slope which will allow for improved test-retest reliability. The WRS lists and half-lists are equivalent with respect to audibility and slope for both the male and the female talker recordings. These materials are now available on compact disc to facilitate SRT and WRS testing for native Mongolian patients.

SESSION: FP6 - 2 DATE: 29/3/2010 TIME: 16H45 - 18H00

SCORING OF MANDARIN SPEECH AUDIOMETRY BY NATIVE AND NON-NATIVE TALKERS OF MANDARIN

Authors

RICHARD HARRIS, KAYLENE POLLEY, SHAWN NISSEN

Institution

1. BYU, Brigham Young University

Abstract

Introduction/Objective Cokely and Yager (1993) determined that non Spanish audiologists can accurately administer speech audiometry tests to patients who speak Spanish. The purpose of this study was to examine the accuracy of English speakers in determining the word recognition score (WRS) of native Mandarin speakers. Recorded Mandarin word lists were presented to 10 native Mandarin speakers from Taiwan (5 male, 5 female), of whom oral and written responses were collected. Oral responses were scored by 30 native English speakers, 15 of whom had no experience with Mandarin and 15 more with 2 to 3 years of college-level Mandarin courses or equivalent knowledge of Mandarin. Written responses were scored by an English speaker with a college-level knowledge of Mandarin. The scores received were compared to determine whether or not there was a significant difference between the scores given between the two groups of native English speakers. Method Ten native Taiwan Mandarin speaking participants listened to and repeated four lists of 50 Mandarin words for word recognition testing. Four word lists or 50 Mandarin words were presented to the 10 Taiwan Mandarin participants at intensity levels to produce word recognition scores between 30% and 70%. They were encouraged to guess if possible. The verbal responses were recorded along with the stimulus word being presented. In addition the Taiwan participants wrote down their responses at the same time they repeated the words. These recordings of participant responses were then scored by 15 testers who had no knowledge of Mandarin and also by 15 testers who had at least college level Mandarin skills. The testers listened to the recorded words at conversational speech levels (65-70 dB SPL). All testing and recordings were performed in a double-walled sound suite. Audiometric calibration was performed prior to, during and at the conclusion of testing. No changes were necessary to the audiometer calibration. All participants had normal hearing (15 dB HL or better at all octave frequencies from 125 through 8000 Hz. Results Tentative test results indicate that non-Mandarin talking testers are able to accurately score word recognition tests administered in Taiwan Mandarin. Clinical implications will be discussed. These findings tend to confirm those of Cokely and Yager (1993) who found similar findings in Spanish.

SESSION: FP6 - 3 DATE: 29/3/2010 TIME: 16H45 - 18H00

NEURAL CORRELATES OF FEIGNED HEARING LOSS: AN FMRI STUDY

Authors

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Institution

1. HKU, University of Hong Kong

2. UQ, University of Queensland

Abstract

Identifying when a person truly has or has not heard a sound can be challenging, particularly when using conventional behavioural measures of hearing on an individual who is trying to feign a hearing loss. Can we use alternative, cortical-based procedures to detect when someone is feigning a hearing loss? To answer this question, we asked 15 adult participants to respond to pure tones and simple words correctly, incorrectly, randomly, or with the intent to feign a hearing loss while undergoing fMRI (functional magnetic resonance imaging) recording. We observed more activity in the prefrontal cortices as measured by fMRI, and delayed behavioural response times, when these participants feigned a hearing loss or responded randomly versus when they responded correctly or incorrectly. Feigning compared to correct or incorrect trials for the tone listening task showed significantly greater activations of the right prefrontal areas, the largest cluster extending from the left superior medial gyrus and left anterior cingulate cortex to the right inferior frontal gyrus, right middle frontal gyrus and right cingulate cortex. These results suggest that patterns of brain activity can be used to detect when an individual is feigning a hearing loss to either tonal or word stimuli as such feigning leads to bilateral activation of prefrontal and neighbouring regions of the cortex in a manner similar to that seen in other acts of dissimulation. Cortical imaging techniques may therefore be able to play an important role in identifying individuals who are feigning hearing loss.

SESSION: FP6 - 4 DATE: 29/3/2010 TIME: 16H45 - 18H00

SYSTEM FOR DETECTION OF HEARING THRESHOLD BASED ON PHYSIOLOGICAL ASSR DEVELOPED AT THE SCHOOL OF ELECTRICAL ENGINEERING, FEDERAL UNIVERSITY OF MINAS GERAIS.

Authors

MATHEUS WANDERLEY ROMÃO, DAMARES PLÁCIDO MOREIRA DE SOUZA, MARCELLA CRISTINA VASCONCELOS ANDRADE, ARMANDO AGUIAR DE SOUZA CRUZ NETO, HENRIQUE RESENDE MARTINS, NAYARA SARYTA MACHADO OLIVEIRA, PAULO FERNANDO TORMIN BORGES CROSARA, CARLOS JULIO TIERRA-CRIOLLO

Institution

1. UFMG, Universidade Federal de Minas Gerais

Abstract

The auditory evoked potentials based on steady state response (ASSR) have shown a promising technique to assess the hearing thresholds in an objective way, especially in patients who cannot respond to conventional tests (such as newborns and people with cognitive disorders). Recently, several studies have aimed to improve the quality of the responses and, consequently, lead to shorter detection time. However, the devices available do not allow the user to investigate the effect that new waveforms, as well as other signal processing techniques, have on the performance of ASSR. This work aims to develop a system to investigate the ASSR under different paradigms to find a better and faster estimation of the physiological hearing threshold. The prototype is composed of a microprocessor system that uses the ADPS-BF533 (Analog Devices-USA) evaluate board to generate the auditory stimuli and to digitalize the electroencephalographic signals (EEG). It also has an amplifier, responsible for the analog EEG acquirement of brain electrical activity during stimulation and the response detection algorithm. A graphical user interface was designed to assist the user in the definition of the entire stimulation protocol (type of stimulus, stimulus duration, stimulus intensity, among others). The system can generate the most used waveforms - AM (Amplitude Modulation), FM (Frequency Modulation), MM (Mixed Modulation) and the Chirp tones. Moreover, the prototype allows the user to implement an arbitrary waveform. To evaluate the performance of the system, simulations and experiments were performed in 5 normal-hearing subjects. They were presented to AM stimuli of 80dB SPL intensity for about 22 minutes. The results showed that the detection algorithms implemented were able to identify the ASSR after approximately two minutes of stimulation. The system was able to identify the ASSR after approximately two minutes of stimulation. The system was able to identify the ASSR and it is going to be used in a larger population, in future works, to assess the physiological hearing threshold.

SESSION: FP6 - 5 DATE: 29/3/2010 TIME: 16H45 - 18H00

ABR AS A SCREENING OF ACOUSTIC NEUROMAS

Authors

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Institution

1. ENT Institute, Otolaryngology Institute A.Kolomyichenko (Kyiv, Ukraine)

Abstract

During last years method of auditory brainstem response (ABR) used in diagnosis and screening of acoustic neuromas (AN). From the appearance of magnetic resonance imaging (MRI) the diagnostic viability of ABR is being criticized firstly in intracanal AN (stage 1 AN). The goal of this retrospective study to assess the ABR accuracy as a screening or diagnostic tool in evaluation of patients with AN. 46 patients with AN had undergone both diagnostic methods - preoperative MRI and ABR. On ABR we evaluate absolute latencies of I, III and V waves; interwave latencies of I-III and I-V; interaural latency differences (ILD) of III and V waves. An abnormal ABR was defined as either interwave latency I-III greater than 2,2 ms or interwave latency I-V greater than 4,2 ms or waves III and V ILDs greater than 0,2 ms. In the cases with absent ipsilaterally waveforms the same contralateral side criteria were established. Tumor's size ranged from 0,3 mm to 4,2 mm in diameter with an overall average diameter of 2,1 mm. Ipsilaterally ABRs waveforms were registered in 19 cases. Interwaves latencies I-III and/or I-V were increased on the AN side in 13 cases and in 6 cases interwaves latencies were normal. In that 6 patients with normal interwaves latencies in 3 cases ILDs were also normal. Therefore, in 19 patients abnormal ABRs were registered in 15 cases that corresponds 84,2 % sensibility. We couldn't register the ABR waveforms in 27 patients with AN. 18 patients from them had deaf ear and 9 - severe sensorineural hearing loss (SNHL) with thresholds above 50 dB on the frequency 1 kHz. In such cases we evaluated ABR on the contralateral side. In 16 cases the ABR waveforms and waves latencies were normal even in big IV stage AN. Only 11 patients (40,7 %) had the signs of retrocochlear pathology. Our results demonstrate that in total ipsi- and contralateral ABR registration in 46 patients with AN only in 27 cases we had the electrophysiological retrocochlear pathology signs (diagnostic sensibility 58,7 %). 3 patients had absolutely normal ABR waveforms and waves latencies that corresponds 6,5 % falls-negative ABR results. In 16 cases with deaf ear or profound SNHL the contralateral ABR on healthy ear were normal. In total including deaf ear and profound SNHL the ABR diagnostic viability increased up to 93,5 %. Ipsilateral ABR diagnostic sensibility in AN cases is 84,2 % and in intrañal AN - 83,3 %. In clinical suspicion of AN and impossibility ipsilateral ABR registration it's necessary MRI diagnostic at once.

SESSION: FP6 - 6 DATE: 29/3/2010 TIME: 16H45 - 18H00

INTER-AURAL ANALYSIS OF NORMAL NEONATAL TEOAES, SPECIFICALLY AMONG TWINS

Authors

ERIK BERNINGER, ÅKE OLOFSSON

Institution

1. KI, CLINTEC, Karolinska Institutet

Abstract

Transient-evoked otoacoustic emissions (TEOAEs) were recorded from more than 30,000 newborns over a six-year period. Analysis was performed on all TEOAEs recorded from newborns that passed the bedside universal hearing screen on both ears, at the same test occasion, in order to characterize the normal left/right ear relationship of neonatal TEOAEs. Although distinct, and highly significant, mean lateral asymmetries (right ear > left ear) existed in the entire TEOAE level (1.1 dB), and at all the half-octave frequencies (700 - 4,000 Hz), no more than 62% of the newborns exhibited higher TEOAEs in the right ear compared to the left ear, thereby illustrating the large variability in TEOAEs, at birth. Modest correlation existed between the ears ($r = 0.71$, $p < 0.0000$, $n = 21,560$). Further analysis on the relationship between left and right ear TEOAE level in same-sex (SS, $n = 151$) and opposite-sex (OS, $n = 76$) twin sets revealed significantly ($p < 0.05$) higher correlation between opposite ears in SS sets than in OS sets, whereas no correlation existed in randomized pairs, reflecting a genetic component, as 50% of SS twins are monozygotic. Furthermore, the corresponding estimated correlation coefficients among monozygotic twins were distinctly higher than in dizygotic twins.

SESSION: FP6 - 7 DATE: 29/3/2010 TIME: 16H45 - 18H00

VERIFICATION OF THE RESPONSE MISMATCH NEGATIVITY (MMN) IN ADOLESCENTS

Authors

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Institution

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2. USP, Universidade de São Paulo

Abstract

Mismatch Negativity (MMN) is an auditory evoked potential endogenous, influenced by the events related to the cognitive function. The adolescence corresponds to the life phase from 12 to 18 years old. Objective: To characterize the MMN answers, in adolescents of both genders and compare the responses of other people with different chronological ages, adults and seniors. Materials and Methods: a deductive, descriptive, observational, cross. Samples of 28 young subjects, 15 males and 13 females, aged from 12 to 18 years and 11 months old with an average age of 15 years and 11 months old. The findings were analyzed according to statistical test Mann-Whitney. The individuals experienced medical evaluation, inspection of the external auditory meatus through the endoscope HEINE mini 2000, the examination of pure tone audiometry by means of an AC 33, TDH 39, Immitancimetry through the middle ear analyzer AZ - 7, Emissions by the apparatus ILO 292 coupled to a conventional computer, Auditory Brainstem and long latency, MMN through Biologic device coupled to conventional computer. Results: The average latency was 173.54 mseconds (CZA2) and 159.85 milliseconds (CZA1), female; of 175.60 milliseconds (CZA2) and 160.53 milliseconds (CZA1), male. The average range was -3.775 micro Volts (CZA2) and -3.246 micro Volts (CZA1), female; of -2.998 micro Volts (CZA2) and -2.871 micro Volts (CZA1), male. As for right and left sides, for the variable latency, averaged 174.64 milliseconds (CZA2) and 169.21 milliseconds (CZA1), for the variable amplitude, mean -3.359 micro volts (CZA2) and -3.045 micro Volts (CZA1). Conclusion: there is no statistically significant difference when comparing the variable characteristics of the latency and the amplitude of the MMN between the genders, the age of the individuals and when comparing the right and the left sides of the cerebral hemispheres. Keywords: Auditory evoked potentials, adolescents, auditory cortex, hearing.

SESSION: FP7 - 1 DATE: 29/3/2010 TIME: 16H45 - 18H00

FACTORS ASSOCIATED WITH HEARING AID FITTING OUTCOMES ON THE INTERNATIONAL OUTCOME INVENTORY

Authors

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Institution

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2. EARtrak, EARtrak

Abstract

A hallmark of quality clinical practice in audiology should be the ongoing measurement of outcomes in order to improve practice. The aims of this study were to describe outcomes for a large sample of clients fitted with hearing aids and to investigate factors associated with mean IOI-HA scores, with a view to providing guidance about factors that warrant particular attention in the clinic in order to improve outcomes. Measures used were the International Outcome Inventory - Hearing Aids (IOI-HA; Cox & Alexander, 2002) and a series of questions about satisfaction with hearing aid performance in different listening situations, hearing aid attributes, and clinical service. Surveys were sent to 2968 people 6 months post hearing aid fitting and a response rate of 55.7% was obtained. The final participant sample consisted of 1653 adults, most often fitted bilaterally (78%); 81% had digital aids with at least two listening programs. Results of the regression analysis indicated that there were a number of significant factors that, in total, explained 57% of the variance in IOI-HA scores. Higher mean IOI-HA scores were most strongly associated with greater satisfaction in listening situations and satisfaction with hearing aid attributes. These findings highlight the importance of focusing rehabilitation on improving satisfaction with aided listening across a range of environments and with key attributes of hearing aid performance.

SESSION: FP7 - 2 DATE: 29/3/2010 TIME: 16H45 - 18H00

COMPARISON OF OCCLUSION EFFECT IN NORMAL HEARING SUBJECTS AND ONES WITH SLIGHT AND MILD SENSORY-NEURAL HEARING LOSS VIA REAL EAR MEASUREMENT

Authors

MEYMANEH JAFARI, NARIMAN RAHBAR, JALAL SMENI, MOHAMMADREZA KEIHANI

Institution

1. IUMS, Audiology Department of Iran University

Abstract

OBJECTIVE: Hearing aid users frequently complain of unnatural sound quality of their voice and after internally generated sounds such as chewing and swallowing. One of the most common complaints is that their voice sounds "hollow", "muffled" or as if they were "talking with their head in a barrel". Although such complaints sometimes result from sub-optimal hearing aid settings, they also may be associated with significant occlusion created by the hearing aid shell or earmold. This phenomena is called "Occlusion effect". The aim of this study was to comparison of occlusion effect in normal hearing subjects and ones with slight and mild sensory-neural hearing loss via Real Ear Measurement. **METHODS:** Sixty volunteers (30 male, 30 female), with ages ranging from 18 to 55 years were enrolled in this study. Subjects were instructed to vocalize /e/ and /i/ for 5 seconds. Real ear measurement was recorded the sound pressure in the ear canals. The maximum of occlusion effect and peak frequency were obtained for further analysis. **RESULTS:** The means of occlusion effect and peak frequency were present in all subjects. No significant differences was obtained between hearing levels and genders. **CONCLUSION:** The peak of occlusion effect varies significantly among hearing aid users, So the hearing aid must be tuned. Probe- microphone measures will assist in determination how much gain is enough, and where frequency- specific adjustments are needed. **Keywords:** Occlusion effect, Real ear measurements, normal hearing, sensory-neural hearing loss

SESSION: FP7 - 3 DATE: 29/3/2010 TIME: 16H45 - 18H00

COMPARISON OF OCCLUSION EFFECT IN NORMAL HEARING SUBJECTS VIA REAL EAR MEASUREMENT AND AUDIOMETRIC BING TEST

Authors

MEYMANEH JAFARI, NARIMAN RAHBAR, JALAL SAMENI, MOHAMMADREZA KEIHANI

Institution

1. IUMS, Iran University of Medical Science

Abstract

OBJECTIVE: One of the most common complaints, particularly among patients with normal or near normal low-frequency hearing, is that their voice sounds "hollow". This is associated with "Occlusion effect". The aim of this study was to comparison of occlusion effect in normal hearing subjects via Real Ear Measurement and Audiometric Bing test. **METHODS:** Twenty volunteers with normal hearing (10 male, 10 female), with ages ranging from 18 to 24 years were enrolled in this study. First, Audiometric Bing test was performed in frequencies of 250, 500, 750 and 1000 Hz. Then in Real ear measurement, subjects were instructed to vocalize /Ä/ and /i/ for 5 seconds. Probe microphone was recorded the sound pressure in the ear canals. The degrees of occlusion effect unit were obtained for further analysis. **RESULTS:** The means of occlusion effect were present in all subjects. There was no correlation between the results of audiometric Bing test and real-ear measurement. No significant difference was obtained between genders and monaural or binaural occlusion in real-ear measurement. But in audiometric Bing test, the difference between monaural or binaural occlusion was significant. **CONCLUSION:** The peak of occlusion effect varies significantly among hearing aid users, so the hearing aid must be tuned. Probe- microphone measures will assist in determination how much gain is enough, and where frequency- specific adjustments are needed. **Keywords:** Occlusion effect, real ear measurements, audiometric Bing test, normal hearing **METHODS:** Sixty volunteers (30 male, 30 female), with ages ranging from 18 to 55 years were enrolled in this study. Subjects were instructed to vocalize /e/ and /i/ for 5 seconds. Real ear measurement was recorded the sound pressure in the ear canals. The maximum of occlusion effect and peak frequency were obtained for further analysis. **RESULTS:** The means of occlusion effect and peak frequency were present in all subjects. No significant differences was obtained between hearing levels and genders. **CONCLUSION:** The peak of occlusion effect varies significantly among hearing aid users, So the hearing aid must be tuned. Probe- microphone measures will assist in determination how much gain is enough, and where frequency- specific adjustments are needed. **Keywords:** Occlusion effect, Real ear measurements, normal hearing, sensory-neural hearing loss

SESSION: FP7 - 4 DATE: 29/3/2010 TIME: 16H45 - 18H00

AUDIOLOGIST HOME CARE - A GOOD ALTERNATIVE FOR SENIOR CLIENT WITH HEARING LOSS

Authors

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Abstract

The Brazilian population is getting older. In 2000, 1.8 million people in Brazil were 80 years old or more. In 2050 this contingent may reach 13.7 million. Thus, the audiologist as a health professional must care provider must be attentive to these changes and adapt to attend this especial population. In Hearing Aid Centers, we can have a closer observation of this change since this population is becoming more frequent and has its specificities. That is the reason why in home care service is a possibility that ends up being more and more used to achieve this public with motor impairments. In front of this, a comparative study was conducted between the population attended in the hearing aid center and the one attended at their home in order to analyze the differences between these two profiles. Through interviews, we collected data about age, education level, profession, current lifestyle, hearing and non hearing complaints, health problems associated with and their expectancy upon hearing amplification. We could observe that there are some significant differences between these two populational profiles. Patients who prefer in home care services are usually more elderly, present a higher degree of hearing loss and other associated health problems (motor, senses and cognitive impairments, central auditory processing disorders, metabolic problems and others). They spend much of their time at home by themselves watching television that represents the main means of entertainment and to get information about what is happening in the world. Their main complaints are the difficulty to understand the news and to follow the soap opera and TV shows, besides the difficulty of communication with relatives and caregivers, this one having also been observed in patients capable of using clinic service. Due to this reason, In Home Care Service need alternatives strategies that go beyond fitting hearing aid. The amplification needs to be powerful, practical to handle, easy to clean and affordable repair. It is also important to provide users guides with graphic material, to emphasize counseling to the family and caregivers, to have an assistive listening device (ALD), to adoption of auxiliary equipment and communication strategies (amplifiers, headphones, repositioning armchairs) and aural rehabilitation with the objective to meet their expectancies as much as possible. Thus, it is possible to ensure a better use of the hearing amplification and consequent improvement in quality of life of this population.

SESSION: FP7 - 5 DATE: 29/3/2010 TIME: 16H45 - 18H00

INVESTIGATING CI CHILDREN THROUGH THEIR EMOTIONAL REACTION BASED ON DROWINGS; PILOT STUDY REVILING INTRODUCTION OF PROTOCOL.

Authors

ABDI SUSAN

Institution

1. AUMS, Azad University Medical Sciences

Abstract

Aims: The child deprived of hearing is under constant stress. Cochlear implantation is a major incident in the life of the deaf child, posing another stress. Few measures have been developed to evaluate the emotional changes revolutionizing the life of the child. In an attempt to fill this gap, we have developed a method to quantitatively evaluate the drawings of children undergoing cochlear implantation. Method: In a longitudinal study, the drawings of the children with cochlear implants were compared with those of a deaf control group (drawn before implantation and on 1-, 3-, 6- and 12-month intervals). The drawings were scored by a child psychologist using the Standardized Measure for Evaluation of Emotions Reflected in Drawings developed by the Hearing Research Center, which incorporates factors such as use of red color, pressure of pencil, etc. Results: 108 children undergoing cochlear implantation and 146 control subjects were included (age 3 to 14 years). The scores were compared across the two groups as well as the changes of scores through the study. The final analysis of the results is in progress and the results will be presented Conclusion: Children undergoing cochlear implantation suffer great stress and their drawings before implantation reflect their anxiety. This anxiety subsides as they get on with their new normal way of living. We emphasize on the importance of assessment of all aspects of changes happening in the life of a child with cochlear implant and we believe that children's drawing is a valuable source in this regard.

SESSION: FP7 - 6 DATE: 29/3/2010 TIME: 16H45 - 18H00

A HABILITATION PROGRAM BASED ON MUSIC TRAINING

Authors

ABDI SUSAN

Institution

1. AUMS, Azad University Medical Sciences

Abstract

Objectives: Using cochlear implantation to introduce hearing to a prelingual deaf child needs a through habilitation program, which in an ideal program should include all the auditory aspects of life, including rhythm, tonality, melody, and at the end, harmony, as well as auditory memory. Using music training in the habilitation program of such children can help reaching this ideal habilitation program. Methods: All the children who have been undergone cochlear implantation are potential candidates for this training program, if they and their parents are inclined. The first step of this program is the standard Orff method used for teaching music to normal children. In the second step, for older children who have shown enthusiasm to playing music, there is a special training course in Se-Tar (a traditional Iranian percussion instrument). The measured endpoints are rhythm understanding, frequency understanding, melody memory, and speech tonality. Results: All children who have entered the music training programs, but one child, showed enthusiasm for the program and have significant improvements in their daily communications as well as the desired endpoints. Conclusion: Music training can be, and should be, a part of post-implantation habilitation programs. It should not be confused with music therapy, which can play a part in rehabilitation of implanted children, as well as many other patients. We have introduced this approach many years ago, and know it is completely incorporated in our routine habilitation program.

SESSION: FP8 - 1 DATE: 30/3/2010 TIME: 11H15 - 12H30

CENTRAL AUDITORY PROCESSING DISORDER: APPLICABILITY OF TWO MODELS OF CLASSIFICATION

Authors

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Abstract

Introduction: Based on auditory tests results and language and academic difficulties, theoretical models were proposed to better guide clinicians in their interventions with (central) auditory processing disorder ((C)APD). Two models have emerged: the Buffalo Model and Bellis/Ferre Model (1996; 2003; 2007). In Brazil, Pereira (1997; 2005) developed a model based on the first one. Objective: The aim of the present study is to investigate the applicability of the models currently used in Brazil to classify (C)APD: Bellis/Ferre and Pereira. Method: This retrospective study was conducted on the records of 97 Brazilian children submitted to (central) auditory processing evaluation in an audiological clinic in São Paulo. All children had normal hearing sensitivity and ages between 6 and 39 years (average 11,55 years SD±5,6). Central auditory tests used were: SSW, Speech in Noise and PPST, according to the study of Jutras (2007). Under the Bellis/Ferre model, classification into the Auditory Decoding Deficit required abnormal results under right or right and left competing SSW conditions, abnormal results in Speech in Noise and normal performance in the PPST. For prosodic deficit classification, results had to be abnormal for left-ear competing condition on the SSW and PPST under labeling and humming conditions. For integration deficit classification, results had to be abnormal for left-ear competing condition on the SSW and PPST only under labeling condition. Under the Pereira model, classification into the Decoding Deficit required abnormal results in Speech in Noise and SSW (low/high order effect and high/low ear effect); for Coding Deficit, abnormal results in SSI-ICM, SSW (high/low order effect and low/high ear effect and type A) and Speech in Noise; for Organization Deficit, abnormal results in SSW (inversions); Non Verbal, abnormal results in temporal tests. Results: 15,46% of the children were considered normal according to Bellis/Ferre Model and 13,4% according to Pereira Model. 3,10% of the children were classified into Decoding Category using the Bellis/Ferre Model criteria, 3,10% into Integration and 6,18% into Prosodic deficit. 72,16% did not fit into any category of this model. 11,34% of the children were classified into Decoding Deficit using the Pereira Model criteria, 13,4% into Coding Deficit, 2,07% into Organization, 3,10% into Non Verbal Deficit. 4,12% were classified as having the four deficits, 25,77% as having two deficits and 26,8% as having three deficits according to this model. The Bellis/Ferre model showed a high number of patients who did not fit into any category and the Pereira Model showed many patients who fitted in all or several categories. Further studies are needed to assess the applicability of these models to different clinical settings. Conclusions: Both models need to be further refined to be fully applicable in clinical settings.

SESSION: FP8 - 2 DATE: 30/3/2010 TIME: 11H15 - 12H30

ASSOCIATION BETWEEN AUDITORY PROCESSING AND SUCCESS OF HEARING AID FITTING IN OLDER ADULTS

Authors

ADRIAN FUENTE, LOUISE HICKSON

Institution

1. UQ, The University of Queensland

Abstract

Research demonstrates that around 30% of adults fitted with hearing aids for the first time never or rarely use them post-fitting. Even in the most severely affected older adults, the rate of the use of hearing-aids has been estimated at only 55%. Currently when a hearing aid is fitted, peripheral hearing is the main, if not the only factor, to be taken into consideration. Due to the central auditory changes related to ageing, central auditory processing (CAP) in older adults may be the key to understanding factors, other than peripheral hearing, that may contribute to the success of hearing aid fitting. CAP has not comprehensively been studied in older adults who wear hearing aids. Subsequently, the aim of this research project is to determine whether or not there is an association between auditory processing abilities such as binaural interaction, binaural integration, temporal processing, and auditory closure, and success of hearing aid fitting in older adults. The data presented

herein represents the initial stage of this research project. Data obtained from 20 older adults who wear hearing aids is presented. Success of hearing aid fitting was measured through four outcomes: Hearing-in-Noise test (HINT), Words-in-Noise (WIN), Amsterdam Inventory for Auditory Disability and Handicap (AIADH), Speech, Spatial and Qualities of Hearing Scale (SSQ), and the Abbreviated Profile of Hearing Aid Benefit (APHAB). Auditory processing abilities were assessed through the dichotic digits, masking level difference, a temporal resolution test, and a forward and backward masking test. Correlations and bivariate linear regression model analyses were performed. One model for each hearing aid fitting outcome (HINT, WIN, AIADH, SSQ, APHAB,) was independently constructed. Results show that for most of the models auditory processing abilities were significantly associated with the auditory outcome. This study provides further evidence on the possible association of other auditory factors, such as auditory processing abilities, with successful hearing aid fitting.

SESSION: FP8 - 3 DATE: 30/3/2010 TIME: 11H15 - 12H30

AUDITORY PROCESSING IN TRAUMATIC HEAD INJURY

Authors

DAVID L. MCPHERSON¹, SAMUEL R. WHITAKER², WILLIAM W. ORRISON JR³, ANDRZEJ SENDERSKI⁴, KRZYSZTOK KOHANEK⁴, HENRYK SKARZYNSKI⁴

Institution

1. BYU, Brigham Young University
2. PNC, Pacific Neuroscience Center
3. AMIN, Academic Medical Institute of Nevada
4. IPPH, Institute of Physiology and Pathology of Hearing

Abstract

Advanced techniques in brain imaging and auditory processing have provided the hearing scientist and clinician into deeper insights into the anatomical structures and physiological function of auditory brain activity. Specifically, functional magnetic resonant imaging (fMRI), event related potentials (ERP) of the scalp distributed potentials (brain mapping), and psychoacoustical techniques known to target specific processing within the auditory system are used as a means of correlating and describing auditory function in patients with traumatic head injury. One of the more interesting findings has been the dichotomous findings relative to right ear processing and differences between psychoacoustical and fMRI findings. Two types of data will be discussed: Findings using non-linguistic brain imaging techniques and brain imaging techniques using linguistic stimuli are discussed. Non-linguistic techniques include psychoacoustical studies of gap detection, Interaural timing and intensity differences, and temporal order threshold. Both data from normal individuals and individuals with traumatic head injury will be discussed. Also, some initial data will be presented regarding children with auditory processing disorders and attention-hyperactivity disorder and the contribution of imaging in understanding these complex problems. Of particular interest is the correlation between the various imaging techniques and the behavioral findings in these patients. Finally, a discussion of protocol and test selection will be presented.

SESSION: FP8 - 4 DATE: 30/3/2010 TIME: 11H15 - 12H30

EVENT RELATED POTENTIALS TO LINGUISTIC STIMULI

Authors

DAVID L. MCPHERSON, KYLA TREE, LAURIE HANSEN, MELISSA CRANDALL

Institution

1. BYU, Brigham Young University

Abstract

Studying language development through event-related potentials (ERP) provides specific information regarding how the brain processes specific aspects of language over time. In this study, the N400, P600, and ELAN components were studied in response to linguistic stimuli. Thirty children between the ages of 5 and 12 years listened to linguistically correct, syntactically incorrect, and semantically incorrect sentences in three ear conditions: monaurally to the right ear, monaurally to the left ear, and binaurally. The results of this study indicate that younger children exhibit later latencies and higher amplitudes than do adults. The study also suggests that syntactic processing becomes fully established around the age of 8 to 9 years. In reference to ear condition, this study found that ear condition may be a factor in a child's ability to recognize syntax. This was the first study that investigated developmental ERPs and ear condition. Therefore, this finding is a result of interest that needs to be further explored in future studies. The current study also suggests that the right ear advantage (REA) phenomenon may exist neurologically in older ages with monotic sentences. This is another area that would benefit from additional research as this phenomenon has not been previously described.

SESSION: FP8 - 5 DATE: 30/3/2010 TIME: 11H15 - 12H30

NEWBORN HEARING SCREENING COMBINED WITH GENETIC EVALUATION

Authors

GEORGE TAVARTKILADZE¹, ALEXANDR POLYAKOV², TATYANA MARKOVA¹, MARIA LALAYANTS¹, ELENA BLIZNETS²

Institution

1. NRCAHR, National Research Centre for Audiology
2. MCG, Medical Genetic Centre

Abstract

Universal newborn hearing screening provides the earliest possible diagnosis for infants with congenital hearing loss. Genetic evaluation helps to recognize the primary cause of hearing impairment and provides family with genetic information in a proper time. One of the most frequent forms of congenital deafness is the hereditary form connected with mutations in a GJB2 gene. In Russia the most frequent mutation of the given gene - 35delG is the reason of the congenital and prelingual bilateral deafness in 52% of cases. The age of primary detection and clinical diagnosis of hearing disorder in 67 % of 35delG mutation homozygotes comprises of the first year of life. Frequency of carriers of 35delG mutation in healthy population corresponds to 2-4 % in the majority of regions of the Russian Federation. The majority of children with two 35delG mutations are revealed by the existing newborn hearing screening system. However some authors judge that hearing screening can not detect children with mild to moderate hearing impairment. Furthermore it is noted that connexin deafness may have postnatal onset. We have observed some compound heterozygotes GJB2 gene children with mild to moderate hearing impairment who did not pass the hearing screening tests. Based on these data, we can assume that combined audiological and genetic screening will raise the efficiency of early detection of children with congenital hearing loss.

SESSION: FP8 - 6 DATE: 30/3/2010 TIME: 11H15 - 12H30

BINAURAL PERFORMANCE IN NORMAL-HEARING YOUNG ADULTS INFLUENCED BY SHORT-TERM INDUCED UNILATERAL CONDUCTIVE AND SENSORY CHANGES

Authors

JACEK SMURZYNSKI

Institution

1. ETSU, Communicative Disorders

Abstract

There are no data available in the literature that have specifically evaluated differences in adaptation to unilateral conductive or sensory changes. However, based on clinical experience it may be postulated that changes of outer or middle ear function appear to be tolerated more easily than those of cochlear origin. Very often, patients seen in the clinic are unaware of a slight conductive hearing loss. By contrast, patients are immediately disturbed by a minor decline of cochlear function. One of several complaints of these patients is a change in their spatial orientation or difficulties in understanding speech in a noisy environment. The goal of the study was to determine if binaural performance tested psychoacoustically using a lateralization task is influenced differentially by short-term induced unilateral conductive or sensory changes. Lateralization performance was evaluated in seven normal-hearing subjects during induced auditory periphery asymmetry resulting from: 1. exposure to noise presented for 5 minutes at 115 dBA SPL or 2. bilateral occlusion with earplugs of unequal attenuation for 48 hrs. An adaptive procedure was used to determine hearing thresholds of a 4-kHz narrow-band noise (NBN). In a lateralization task subjects indicated the positions of intracranial images created by the same NBN presented binaurally at 50 dB SL with interaural level differences (ILDs) varying within plus/minus 12 dB. The tests were performed over a one-hour period post-exposure, immediately prior to and following plugging the ears, and at 24 and 48 hrs post-plugging. Immediately after the exposure or after plugging, there was a shift of lateralization towards an unexposed side or the side blocked by the plug with a smaller attenuation, respectively. After a few minutes post-exposure, signals with ILD=0 were lateralized at midline. Within 30 minutes post-plugging, those signals were gradually lateralized closer to midline but remained off center for the rest of the plugging period. Thus, subjects showed fast adaptation to induced unilateral sensorineural changes and incomplete adaptation to induced asymmetrical conductive changes. Those rather unexpected results can be explained using a qualitative model assuming that: 1. a conductive impairment reflects a loss of sensitivity and 2. a cochlear impairment reflects both a loss of sensitivity and of the compressive nonlinearity on the basilar membrane. Recently, there has been an increase in the number of psychoacoustical studies on hearing-impaired listeners with a majority of them directed toward revealing deficits in monaural processing. However, in most acoustic environments encountered in everyday life, there are multiple sounds originating from different sources, and hearing-impaired people often display less binaural advantage than do normally hearing persons. The results of the current study support the view of the lack of a simple relationship between monaural and binaural processing, which is often reported in studies on hearing-impaired people. This is an important issue in the process of fitting hearing aids binaurally.

SESSION: FP9 - 1 DATE: 31/3/2010 TIME: 13H15 - 14H45

COMPLAINTS HEARING AND NOT HEARING OF CREW OF BOATS IN THE PORT OF MANAUS/AM.

Authors

NEODETE KÖRBES, THELMA ALCANTARA PARANOS LIMA, ALAN PEREIRA BATISTA, ADAN VIANA SOARES, MARINA DA COSTA VALENTE, DARLISSON FEITOSA DE SOUZA

Institution

1. UniNorte, Centro Universitário do Norte

Abstract

As Yonezaki; Hidaka (2005), the excessive noise can cause changes in general health, causing hearing damage and extra-auditory. For Fonseca Santos, Ferreira (2009), the noise level of a boat motor is between 100 and 120 dB. The objective was to investigate complaints and no hearing loss in crew boats that operate in the port of Manaus. We applied a questionnaire to 30 crew members whose items addressed to: years of professional practice, daily working hours, hearing and not hearing. Inclusion criteria were: both sexes, aged between 25 and 59 years, minimum of 06 years of professional crew. The results showed that: 23 (76.67%) were men and 7

(23.33%) females, ages ranged between 27 and 55 years, as the working hours daily, 6 (20%) who worked 12 hours 4 (13.33%) 16 hours, 6 (20%) 19 hours, 3 (10%) 20 hours and 11 (36.67%) 24 hours, about the length of employment, 9 (30%) were 6 and 10 years, 11 (36.68%) from 11 to 15 years, 5 (16.68%) from 16 to 20 years, 3 (10%) between 21 and 25 years and 2 (6.66%) of 31 to 35 years. Considering hearing complaints, 9 (30%) had hearing loss, and 4 (13.33%) unilateral and 5 (16.67%) bilateral, 22 (73.33%) subjects reported tinnitus: 8 (26, 67%) unilateral, 13 (43.33%) bilateral and 1 (3.33%) with no specific side; 7 (23.33%) complained of algiacusia, 10 people (33.33%) reported discomfort at sound intense, 23 (76.67%) reported hearing discomfort after working hours. With respect to non-auditory complaints: 5 (16.67%) reported isolation; 12 (40%) irritability, 15 (50%) difficulty concentrating; 6 (20%) uncertainty; 22 (73.33%) fatigue; 11 (36.67%) nuisance, 14 (46.67%) stress, 15 (50%) reduction in work efficiency. Thus, there was a large number of individuals with tinnitus, ear pain, hearing difficulty and discomfort, irritability, difficulty concentrating, decreased work efficiency, fatigue and stress. For Ibañez, Schneider, Seligman (2001), Olsen (2001), Momensohn-Santos-Borgianni Brunetto, Brazil (2007) tinnitus (tinnitus) constant high pitch is one of the main complaints of those working exposed to pressure high sound. To Hungary (2000), Miter (2003), Fiorini (2004) and Yonezaki; Hidaka (2005), in addition to difficulties in auditory discrimination during and after noise exposure, there are abnormalities of the mental activity of the individual as irritability, fatigue, stress, difficulty concentrating, decreased performance at work and headache. In addition to these data, it was found that the minority has hearing loss, which agrees with Jerger, (1998) and Mitra (2003) reported that initial claims are not related to hearing loss, but with other hearing complaints and behavioral manifestations. Given these data collected, it was found that the crew of vessels operating in the port of Manaus, which were part of the sample for this research confirmed the presence of hearing complaints and no hearing, as reported in the literature.

SESSION: FP9 - 2 DATE: 31/3/2010 TIME: 13H15 - 14H45

HEARING SYMPTOM OF DJ'S MANAUENSES

Authors

THELMA ALCANTARA PARANHOS LIMA, DAIANE KÖRBES, GISELE PEREIRA PONTE, MARIA DE FATIMA PESSOA ROCHA, MARIA FRANCINEY GOMES ANDRADE, SUZY ANDRADE RIBEIRO, ALESSANDRA KAREN TINOCO DE SOUZA, NEODETE KÖRBES

Institution

1. UniNorte, Centro Universitário do Norte

Abstract

Music is seen as a nice sound and can refer to relevant events occurring in a person's life, however, when used intensively, may become a nuisance to people's health (Andrade et al., 2002 apud PFEIFFER and Cols., 2007). Sounds nice and pleasant, such as music, are less dangerous than the unwanted sounds, such as industrial noise (SAMELLI; SCHOCHAT, 2000). However, they nevertheless be considered as a risk factor for hearing loss. The objective was to study the effects that exposure to loud music, professionally, brings in DJs from Manaus. A questionnaire was administered to 20 DJ's, both sexes, aged between 18 and 35 years. These individuals worked in various nightclubs in the city of Manaus. Exclusion criteria were individuals who had hearing loss prior to the study; activity with exposure to noise beyond the profession of DJ, previous use of ototoxic drugs, history of recurrent otitis media. The results showed that: in relation to gender, 95% were male and 5% female; regarding age, 50% were between 18 and 29 years and 40% between 30 and 40 years. As for the daily work shift, 25% worked from 0 to 5 hours, 50% from 6 to 10 hours, 15% of 11 to 15 hours and 10% from 16 to 20 hours. The length of employment, 35% were between 0 to 10 years and 65% of 11 to 20 years. Considering hearing complaints, 50% of individuals who participated in the study group reported tinnitus, 20% complain of hearing impairment. For non-auditory symptoms: 90% reported fatigue, 85% stress, 67% uncertainty, 40% irritability, 35% headache, 20% anxiety. As the symptoms were, 10% reported vertigo and dizziness 5%. The data revealed high occurrence of tinnitus, which agrees with published studies supported, as Seligman (1997), Russian (1999) and Andrade and Cols. (2007), who claim that one of the symptoms most often caused by exposure to loud noise is the buzz. The data showed that the DJ's had a significant number of complaints of non-auditory symptoms such as fatigue, stress and irritability. This finding agrees with Pimentel (1992), who claimed to be the stress of a non-auditory symptoms more frequent in individuals exposed to noise. Comparing the occurrence of auditory symptoms and no-hearing, we can observe a higher frequency of no-auditory complaints, probably by the function of DJ to be held mainly on weekends. It was concluded that among the symptoms of hearing, deaf and non-otoneurological surveyed in this scientific sample, the highest incidence was that of no-hearing and the tinnitus was a symptom of hearing more frequent.

SESSION: FP9 - 3 DATE: 31/3/2010 TIME: 13H15 - 14H45

THE CONTRIBUTION OF OCCUPATIONAL NOISE EXPOSURE TO AGE RELATED HEARING LOSS: THE BLUE MOUNTAINS HEARING STUDY.

Authors

BAMINI GOPINATH¹, CATHERINE MCMAHON², ELENA ROCHTCHINA¹, STEPHEN LEEDER¹, PAUL MITCHELL¹

Institution

1. USYD, University of Sydney
2. Macq Uni, Macquarie University

Abstract

Background The biological processes of auditory aging and interactions between noise damage and biologic aging are complex and not well understood. Population-based data on the risk of occupational noise exposure contributing to the development of age-related hearing loss are limited. We aimed to explore the prevalence, 5-year incidence and progression of hearing loss associated with occupational noise exposure among participants of the Blue Mountains Hearing Study (BMHS). Methods The BMHS is a population-based cohort study of hearing loss, conducted among participants of the Blue Mountains Eye Study cohort during 1997-9 and subsequently re-examined during 2002-4. Hearing loss was defined as the pure-tone average of frequencies 0.5, 1.0, 2.0 and 4.0 kHz (PTA0.5-4kHz) >25 dB hearing level (HL) in the better ear. An audiologist asked additional questions including exposure to noise at work/military service/leisure activities. These included: 'Have you ever worked in a noisy industry or noisy farm environment?' If a respondent answered yes to this question, he or she was then asked for how long a period did they work in this industry: < 1 year; 1-5 years; 6-10 years; or >10 years. Subjects were also asked to describe the noise level that they were exposed to on an average day with the following options: mostly quiet; tolerable but able to hear speech; or unable to hear anyone speaking. Results A total of 1923 subjects with complete audiological and occupational noise exposure data, including 679 participants who reported previous exposure to occupational noise and 1244 with no prior exposure were included in this study. Prevalence of any level of hearing loss among participants exposed to occupational noise was 44.9% versus 36.4% of those not exposed. After multivariable adjustment, those reporting prior occupational noise exposure had a 2-fold increased likelihood of having moderate-to-severe hearing impairment, odds ratio, OR, 2.35 (95% confidence interval, CI, 1.45-3.79). Cross-sectionally, severe noise exposure combined with duration of exposure >10 years increased the likelihood of having any hearing loss OR 2.39 (CI 1.37-4.19) or moderate-to-severe hearing loss OR 6.80 (CI 2.97-15.60). Incident hearing impairment in those reporting past occupational noise exposure at baseline was 19% versus 16.9% not exposed to workplace noise. Participants reporting past noise exposure at baseline had a 66% higher likelihood of incident hearing loss at the 5-year follow-up OR 1.66 (CI 1.07-2.60), after multivariable adjustment. Interpretation In conclusion, nearly 50% of those subjects exposed to occupational noise had some form of hearing loss at the cross-sectional survey and nearly one in five participants reporting occupational noise exposure at baseline developed incident hearing loss at follow-up. Further, chronic severe occupational noise exposure substantially increased the risk of having moderate-to-severe levels of hearing loss. This study highlights the public health impact of occupational noise exposure and the importance of policies that establish intervention programmes designed to lessen exposure to noise and the resulting reduction in the general population of those suffering from a hearing impairment.

SESSION: FP9 - 5 DATE: 31/3/2010 TIME: 13H15 - 14H45

STRATEGY OF PROMOTION IN HEARING HEALTH (ELEMENTARY AND JUNIOR SCHOOL)

Authors

JACQUELINE GIRÃO DE ANDRADE, MANUELA MARIA CYRINO VIANA

Institution

1. CEST, CEST - Faculdade Santa Terezinha

Abstract

Objective : Introduce a strategy in order to prevent auditory deficit, being applied in the elementary and junior school, with oral multisensory approaching, contextualized in the children's world, explaining and making aware about the auditory function in the human communication using an easy, creative and ludic method; contributing to a better effectiveness on the speech therapy results in school practice preventing speech language difficulties (phonologic, phonetic and morphosyntactic) due to auditory deficit. Therefore, it increases the prophylactic character of the Speech Language Pathologist intervention in which the specific, scientific and technical knowledge is used to eliminate or inhibit agents which interfere in the auditory standards. Method: A bibliographical study in electronic data basis, Scielo and Bireme, was carried out employing keyword combinations: speech therapy at school, reading and writing, preventive education, hearing health. Twenty studies were found in Portuguese, published between 1998 and 2008. The selection and data analysis were determined considering updated information, pertinence, and informative value to the study's aim. Result: From this analysis, among the scholar "speech-language disorders", auditory modifications contribute to increase learning difficulties and depending upon its severity it can cause inhibition of the development, comprehension, use or maintenance of communication skills. A preventive strategy was suggested in this aspect, using a children's book and a DVD of the fairytale entitled "Lili e Lilo" (Lili and Lilo) and a illustrated panel with the four main characters - Lili, Lilo (The Miss Ear), Fairy Godmother and the Deafness' Wizard - with 24 adhesive figures (12 preventive and 12 harmful). The video or the reading of the tale is performed and, when it is finished, a contextual interaction is performed emphasizing the prevention and its benefits; then, the class is separated into two groups, the preventive and harmful figures are disposed and mixed, and it is asked the members to select and put the figures on the panel according to the characters and their conceptions. Conclusion: The fairytale "Lili and Lilo" answers the promotion characteristics in hearing health to be used in school (tested during an internship in Educational Speech Therapy), but it is still necessary to test this method in school context in order to validation.

SESSION: FP9 - 6 DATE: 31/3/2010 TIME: 13H15 - 14H45

RISK FACTORS FOR HEARING LOSS IN NEONATES FROM THE FEDERAL UNIVERSITY OF PERNAMBUCO HOSPITAL**Authors**

SILVANA GRIZ, ADRIANA SILVA, CAMILA BARBOSA, ANA KAROLLINA SILVEIRA, NATHALIA CURADO, DENISE ALMEIDA, DENISE MENEZES

Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO

Abstract

Introduction: The identification of risk indicators for hearing loss in neonates and infants submitted to the Newborn Hearing Screening Program of the Federal University of Pernambuco Hospital is very important for the follow up and intervention procedures, and best describe a program in a specific region. It may also contribute for the three levels of intervention actions. Purpose: Characterize neonates and infants who were born in 2008 and have been submitted to the Newborn Hearing Screening Program of the Federal University of Pernambuco Hospital, according to the presence of risk indicators for hearing loss. Method: A total of 787 newborns have participated in the study. Information from medical records, interview with mothers, and tests results were collected. Results: the most prevalent risk indicators for hearing loss was hyperbilirubinemia, followed by prematurity, low weight at birth, use of medication during pregnancy, presence of diseases during pregnancy and permanence in Newborn Intensive Care Unit (NICU). The indicators which were statistically significant with fail in the newborn hearing screening were: prematurity, low weight at birth, permanence in NICU, neonatal ventilation dependence and ototoxic drug exposure. It can be seen that all indicators are related to each other, as a consequence of prematurity in most of them. Conclusions: Prenatal, per natal and postnatal risk factors for hearing loss were observed, although, only per natal and postnatal risk factors were significantly related to fail in the newborn hearing screening.

SESSION: FP9 - 7 DATE: 31/3/2010 TIME: 13H15 - 14H45

AN EVALUATION OF THE FIRST TWO YEARS OF A NEWBORN HEARING SCREENING PROGRAM**Authors**

RENATA ALBUQUERQUE, SILVANA GRIZ, DENISE MENEZES, LUCIANE LIMA

Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO

Abstract

The benefits of early identification and intervention of newborn hearing loss have been widely documented in literature. Early Hearing Detection and Intervention (EHDI) programs have been implemented in hospitals in several countries. However, due to difficulties in the implementation process, some programs have not reached successful results. Therefore, proper evaluations of programs are necessary to identify specific problems to be solved. The main purpose of this study was to analyze the first two years of implementation of a newborn hearing screening (NHS) program in the Federal University of Pernambuco Hospital. This is an observational, descriptive and cross-sectional study. A total of 3573 neonates and infants were born in the participant hospital during the first two years of the program implementation, but only 1686 (47,2%) have attended the program and participated in the study. Data were collected through an interview and results of hearing screening (Transient Otoemission (TOAE) exam associated with observation of blinking reflex after hearing stimulation). Results show that 34,5% (n=520) of the participant neonates have failed the first hearing screening and, among those, 42,3% (n=74) have also failed screening in retesting. Results have shown a significant increase in failure rates between the first (2007) and second (2008) year of data collecting. The analysis between hearing test results and risk indicators for hearing loss showed that among neonates and infants who failed hearing screening, 94,5% (n=86) of them, in the first year of the program, and 71,4% (n=307), in the second year, had one or more risk indicators. Those who failed in retesting, 94,7% (n=18) and 70,7% (n=39), in the first and second year respectively, had one or more risk indicators. It can be concluded that the NHS program at the participant Hospital cannot be considered effective, as it did not meet some of the quality indicators proposed in literature (at least 95% of newborns must be screened; Failure rate must be less than 4%). However, improvement toward universal screening is noticed in some aspects.

SESSION: FP10 - 1 DATE: 31/3/2010 TIME: 13H15 - 14H45

USE OF PORTABLE DIGITAL MUSIC PLAYERS: HEARING SYMPTOMS AND PAIN**Authors**

IZABELLA DOS SANTOS, CHRISTIANE MARQUES DO COUTO

Institution

1. UNICAMP, Universidade Estadual de Campinas

ABSTRACT

The use of Portable digital music players is growing day by day. Using them, people listen to their favorite music through headphones at high volume levels without being disturbed by the noise or people around them. Thus, the aim of this research was evaluate the use of Portable digital music players by young people and evaluate the occurrence of hearing symptoms and / or pain in the region of the external ear during and after the use of such equipment. Therefore, this research comprised 44 university students aged 18-30 years, who used their portable digital music players on average 1.83 hours per day, with an average volume of 67.41% from the total of the equipment. Most of them use earbud style phone (88.63%) and cellular (40.90%) as an equipment for listening to music. They answered a semi-structured questionnaire about the use of their equipment and the occurrence of hearing problems and pain in the region in the external ear during and after use of equipment. To observe the difference between genders for the occurrence of auditory symptoms or pain in the region of the external ear, it used the Fisher exact test and chi-square test. Regarding auditory symptoms while using the equipment, 13.04% reported feeling occlusion effect, what may be due to partial obstruction of the external acoustic meatus by the phone. After use, 18% reported having tinnitus, 9.09% headache and 7.27% difficulty of understanding. These symptoms may be indicative of the effects of noise on the body. When comparing the presence or absence the auditory symptoms during and after the use of equipment between the sexes, it was observed that women have a tendency to have more symptoms during the use of the equipments than men (P=0,095). However, after the use, it was observed that it has no statistically significant difference between the genders (P=0,283). About the pain in the region of external ear, during and after the use of equipment, there is a larger complaint of pain in the region of the tragus and external acoustic meatus. Both during and after use, there is a tendency for women to have more pain in the external ear than men, which may be due to the size of the external acoustic meatus of women, which is lower than men's one. This fact is reinforced by the size of the phones, which one have a universal size and are made of a rigid material. Thus, we conclude that the use of Portable digital music players can causes individual hearing complaints both during and after use, and the most frequent symptom are tinnitus and feeling an occlusion effect. In addition, women have a tendency to have more hearing symptoms and pain in the region of the external ear than men.

SESSION: FP10 - 2 DATE: 31/3/2010 TIME: 13H15 - 14H45

INTERFERENCE OF TINNITUS IN QUALITY OF LIFE OF PATIENTS WITH AND WITHOUT HEARING LOSS**Authors**

LUCIANA DA MATA LUPOLI, PAULA CANTARELLA DE PÁDUA RODRIGUES, JULIANA MARIA SOARES CAVALCANTE, ADRIANA RIBEIRO TAVARES ANASTASIO

Institution

1. FMRP-USP, Faculdade de Medicina de Ribeirão Preto - USP

Abstract

The tinnitus is the sensation of sound perceived by an individual, regardless of external sound stimulus. The tinnitus is not an illness but a symptom. It is considered the third worst symptom for humans, surpassed only by the intense and intractable pains and dizziness. Many damages are associated to the presence of tinnitus, as flaws in reasoning, memory and concentration. These changes can negatively influence the quality of life of individuals affected by tinnitus, since there are reports in literature about the association of these changes negatively affecting recreation, rest, communication, social and domestic environment, reflecting on the psychic sphere, causing irritation, anxiety, depression and insomnia. The tinnitus is a constant complaint in audiological routine and its association with hearing loss is reported by 85 to 96% of the patients, but can also be found in patients without hearing loss. Aim: analyze the correlation between the loudness of tinnitus and the worsening in quality of life in patients with and without hearing loss. Methods: 47 patients of the Tinnitus Clinic of HCFMRP-USP were evaluated and divided in two groups: normal hearing group (NHG), consisting in 21 patients of both genders, where ages ranged from 15 to 58 years, average of 37.56 years and hearing thresholds less than or equal to 25 dB; hearing loss group (HLG), consisting in 26 patients of both genders, where ages ranged from 31 to 78 years old, average of 56.31 years and bilateral sensorial hearing loss of varying degrees. After application of specific tinnitus anamnesis, it was asked "Today, what is the intensity of your tinnitus?", and the loudness was measured with the aid of a Visual Analogue Scale (VAS). Next, we applied the Tinnitus Handicap Inventory (Brazilian THI), a specific questionnaire for evaluating emotional, functional and catastrophic aspects generated by tinnitus. To analyze the correlation between loudness and annoyance of tinnitus (THI) between groups it was used the Pearson correlation test. Results: The average of loudness to the NHG was 38.0 and for the HLG was 48.7 and there was no statistically significant difference between the groups. The average discomfort for the NHG was 42.09 and for the HLG it was 50.69, and there was no statistically significant difference between groups, either. Conclusion: The tinnitus interferes in a similar way in the quality of life of individuals with or without hearing loss.

SESSION: FP10 - 3 DATE: 31/3/2010 TIME: 13H15 - 14H45

CENTRAL AUDITORY DYSFUNCTION ASSOCIATED WITH SOLVENT EXPOSURE**Authors**

ADRIAN FUENTE

Institution

1. UQ, The University of Queensland

Abstract

The aim of this research was to determine possible central auditory dysfunction associated with organic solvent exposure. 100 solvent-exposed workers and 100 non-exposed workers were selected to participate in the research. The test battery comprised pure-tone audiometry (PTA), acoustic reflexes, acoustic reflex decay test, transient evoked otoacoustic emissions (TEOAE), Hearing-in-Noise test (HINT), and the following auditory processing (AP) procedures: Pitch Pattern Sequence (PPS), Filtered Speech (FS), Masking Level Difference (MLD), Dichotic Digits (DD), and Random Gap Detection (RGD) tests. Also a self report inventory on subjects' level of hearing functioning, the Amsterdam Inventory for Auditory Disability and Handicap (AIADH), was conducted. Significant differences between solvent-exposed and non-exposed subjects were found for most of the auditory processing tests. Solvent-exposed subjects presented with poorer mean test results than non-exposed subjects. A high prevalence of auditory processing disorder was found among solvent-exposed subjects. Also, significant differences between groups were found for TEOAE reproducibility and AIADH scores. A higher percentage of solvent-exposed subjects presented with absent acoustic reflexes in comparison to non-exposed subjects. A bivariate and multiva-

riate linear regression model analysis was performed. One model for each auditory outcome (PTA, TEOAE, HINT, DD, PPS, FS, MLD, RGD, and AIADH) was independently constructed. For most of the models solvent exposure was significantly associated with the auditory outcome. Age, hearing level, and gender also appeared significantly associated with some auditory outcomes. This study provides further evidence of the possible adverse effect of solvents on the central auditory functioning.

SESSION: FP10 - 4 DATE: 31/3/2010 TIME: 13H15 - 14H45

PSYCHOMETRIC AUDITORY FUNCTION OF YOUNG ADULTS USING AN ADAPTIVE AUTOMATED PROCEDURE

Authors

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Institution

1. BYU, Brigham Young University
2. IPPH, Institute of Physiology and Pathology of Hearing

Abstract

In most clinical audiological settings audiological evaluation is limited to pure tone audiometry, speech audiometry, immittance audiometry, and otoacoustic emissions. However, the literature abounds with case studies of non-threshold disorders of the auditory system in which various functions of the auditory system may be disordered. Typically, clinically audiology is not prepared to perform psychoacoustic testing of other parameters of the auditory system due to the complexity of the testing and the equipment required to complete such testing. In some instances, pre-recorded psychoacoustic tests have been proposed and attempts to integrate some of these tests into clinical practice have been met with mixed responses. Even when these pre-recorded tests are utilized, they do not measure discrete function, but must use proportional increments that reduce the sensitivity of the test. This paper shows the results of adaptive procedures that provide consistent and stable measure of psychometric function using a computer software program developed at the Institute of Physiology and Pathology of Hearing and Brigham Young University. The behavior of the subject is measured using a signal detection paradigm. Psychoacoustic measures include eleven tests of auditory processing: Difference Limen for Frequency, Difference Limen for Intensity, Difference Limen for Duration, Gap Detection Test, Masking Level Difference, Frequency Pattern Test, Duration Pattern Test, Temporal Order Threshold, Interaural Time Difference, Interaural Intensity Difference, and the Dichotic Digit Test. Psychometric functions along with threshold and limit information has been analyzed and will be presented. Participants in this study included 15 men and 15 women between the ages of 18 and 26 years with normal hearing, no history of neuropsychiatric disorders or traumatic head injury.

SESSION: FP10 - 5 DATE: 31/3/2010 TIME: 13H15 - 14H45

THE DETERMINATION OF CLASSROOM NOISE'S EFFECT ON PERFORMANCE AND HEARING LEVEL OF TEACHERS

Authors

MEYMANEH JAFARI, MAJIDEH BAHRI, ALIREZA KOOHPAEI

Institution

2. QUMS, Qom University of Medical Science

Abstract

Objective: In addition to affecting students learning deleteriously, classroom noise can also compromise teacher performance. The noise related to classroom activities and traffic, as well as airplane noise, was correlated with teacher fatigue, increased tension and discomfort, and an interference with teaching and speech recognition. Noise-induced occupational hearing loss has been a long-time concern of health professionals. Research on this condition has focused mostly factory and manufacturing workers. Less attention, however, has been given to teachers exposed to classroom noise. It is known that excessive noise in classrooms with many pupils not only hinders learning, but may also lead to psychological harm and organic damage in teachers. These professionals frequently complain of hearing loss, vestibular conditions, tinnitus, and extra-auditory symptoms such as irritability, sleeping difficulties, digestive problems, behavioral disorders, concentration difficulties, and others. An investigation of noise-induced hearing loss in teachers would require confirmation of excessive noise levels in work environments by measuring classroom noise during classes. The aim of this study was to determine auditory symptoms, nonphysiologic effects, audiometric results of teachers and classroom noise levels. Methods: In one group, eighty teachers from fifteen selected elementary schools, with ages ranging from 28 – 42 years were enrolled in this study. In another group, seventy volunteer with ages ranging from 30-45, enrolled in this study. First, the noise level of classrooms was measured in three conditions: teaching, free discussion and empty classroom. Then, Audiometry test was performed in frequencies of 250-11,000 Hz. The degree of hearing loss and configuration of audiogram were obtained for further analysis. Results: In regard to audiometric results, the hearing was normal in frequencies 250-2000 Hz, however, the average hearing loss about 45 dBHL was presented in high frequencies (4-11 KHz). 94.6% of teachers had different complaint included of tinnitus, vertigo, ear fullness, ear pain and etc. Many teachers had notches in their audiometric configuration (84.3%). No significant difference was obtained between genders. Conclusion: Teachers exposed to classroom noise may develop occupational hearing loss throughout their career, given the significant number of auditory symptoms, frequent reports of excessive classroom noise, a large number of altered audiometric compared to the control group. The results show, working environment of teachers should receive more attention. Key words: Hearing loss, Classroom noise level, Teacher performance.

SESSION: FP10 - 6 DATE: 31/3/2010 TIME: 13H15 - 14H45

OCCURRENCE OF HEARING LOSS AMONG CHILDREN TREATED FOR RETINOBLASTOMA

Authors

ELIS PAREDERO, PATRICIA PECORA LIBERMAN, CRISTIANE SCHULTZ, M. VALERIA SCHMIDT GOFFI-GOMEZ

Institution

1. HAC Camargo, Hospital AC Camargo

Abstract

Retinoblastoma is the most common malignant tumour in the infancy, and its treatment includes surgery, radiotherapy, along with chemotherapeutic agents such as Cisplatin and Carboplatin that may be hazardous to the hearing health. The aim of this study was to verify the occurrence of hearing loss among children treated for Retinoblastoma. In a retrospective study all medical profiles of children treated at Hospital A.C. Camargo de São Paulo between 1982 and 2005 were collected. Eligibility criteria included patients from both genders, assisted at the Audiology department at Hospital A.C. Camargo de São Paulo with complete hearing assessment before and after treatment. Fifty-five medical profiles were analyzed. All hearing evaluations were classified according to Brock et al. (1991). Patients were divided into 6 groups regarding the treatment scheme. Group 1 was composed of eleven patients that were not submitted to any treatment that poses risk to hearing health (control); group 2 was composed of 10 patients submitted to radiotherapy with no ototoxic chemotherapy; group 3 was composed of 15 patients treated with Cisplatin and radiotherapy; in group 4 there were 2 patients treated exclusively with cisplatin; group 5 was composed of 6 patients treated with carboplatin and radiotherapy and group 6 was composed of 11 children treated exclusively with Carboplatin. Results: In groups 1, 2 and 4, all patients presented hearing classification of grade 0 (no hearing loss); 70% of the patients in group 3 showed hearing loss, 1 of them showed grade 1, 3 patients showed grade 2 and 8 patients showed grade 3. In group 5, 33% of the patients had hearing loss, 1 child with grade 3 and 1 child with grade 4; and among children in group 6 we found 9% of grade 3 hearing loss. Conclusion: Among those who were treated with cisplatin, 70% of them presented some degree of hearing loss. Among those who were treated with carboplatin 17% showed some hearing loss. Hearing loss was bilateral, sensorineural and mainly limited to the frequencies of 4, 6 and 8kHz.

SESSION: FP10 - 7 DATE: 31/3/2010 TIME: 13H15 - 14H45

HEARING LOSS AFTER CHEMOTHERAPY AND RADIATION COMBINATION: CASE REPORT

Authors

PATRICIA PECORA LIBERMAN, CHRISTIANE SCHULTZ, M. VALERIA SCHMIDT GOFFI-GOMEZ

Institution

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Abstract

Combined therapy using radiotherapy and chemotherapy has become the standard of care for some head and neck cancer, yet the cochleotoxic effects of radiation and cisplatin combination are controversial. Some authors found that this combination may increase the risk of hearing loss (Lieberman et al., 2004; Chen et al., 2006; Hua et al. 2008; Dell'Arlinga et al., 2009) while others (Wang et al., 2003) think the association of radiotherapy and chemotherapy does not influence the hearing change in head and neck cancer. Objective: This report aims to describe the loss of unilateral hearing after radiotherapy in a child treated with cisplatin for a retinoblastoma. Methods: Hearing monitoring was performed during the treatment of a 3-year-old boy with an extra-ocular retinoblastoma (RB) in the left eye. Treatment for RB included 270mg/m² of cisplatin and 4600cGy of radiotherapy in the left eye. Due to a linfoadenopathy the child was treated with an additional dose of 4600cGy of radiotherapy in the left parotid gland. Hearing monitoring included transient otoacoustic emissions, immittance audiometry and pure tone thresholds. Results: Initial otoacoustic emissions were absent in the right ear and present in the left ear while immittance audiometry showed type A tympanograms with absent acoustic reflexes bilaterally. Reliable hearing thresholds were achieved only after the completion of the treatment. Pure tone thresholds evidenced a unilateral moderate high frequency sensorineural hearing loss (SNHL) on the left ear and normal thresholds on the right ear. Discussion and Conclusion: We observed that the systemic cisplatin that reached both ears (despite the under risk dosage), did not affect the right ear. The left ear was the only affected ear. It received a direct dosage of 4600cGy given to the left parotid gland and an indirect dosage of 4600cGy given to the left eye. In fact, Chan et al. (2009) mentioned that radiotherapy dose to the cochlea should be limited to 4700cGy after chemotherapy to minimize SNHL. In this case report we observed that hearing loss risk was increased with the association of chemotherapy and radiotherapy reaching the cochlea.

SESSION: FP11 - 1 DATE: 31/3/2010 TIME: 14H45 - 16H15

RECOVERY FUNCTION MEASURED INTRAPERATIVELY AND POSTOPERATIVELY BY NEURAL RESPONSE TELEMTRY THROUGH THE NUCLEUS FREEDOM COCHLEAR IMPLANT

Authors

M. VALERIA SCHMIDT GOFFI-GOMEZ, ANA TEREZA MAGALHAES, CRISTINA ORNELAS PERALTA, KELLEN KUTSCHER, ROBINSON KOJI TSUJI, RUBENS BRITO NETO, RICARDO FERREIRA BENTO

Institution

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Abstract

Introduction: Miller et al. (2000) studied Nucleus 24 recipients in a postoperative setting with current levels limited to the loudest acceptable level of each patient, using an artifact rejection technique that takes into consideration the introduction of less distortion of the EAP waveform. The Custom Sound EP software connected to the new receptor of the Nucleus Freedom device, with better amplifier paradigm, improves the register of the evoked action potential and also the refractory properties of the nerve. **Objective:** To evaluate whether there is a change in the recovery function from the intrFPperative to the postoperative settings through the Custom Sound EP software in Nucleus Freedom patients. **Methods:** Twelve patients implanted consecutively with the Nucleus Freedom device were intrFPperatively and postoperatively assessed, at least 3 months after activation. All of the patients had full electrode insertion. Recovery function data of the electrode 10 or 11 were collected, in both intrFPperative and postoperative sessions. Except for the current level, all of the stimulation parameters were similar, including the stimulation rate (80Hz). The amplitude of the saturation level (A), the T0, referred as the measure of the Absolute Refractory Period, and tau, referred as the curviness parameter for the model function, were collected for each patient. Besides, the occurrence of responses at a very short Masker Probe Interval was also investigated in both sessions. **Results:** Average probe current level to stimulate the intrFPperatively assessment was 208 current units while in the postoperative sessions average probe current level was 192 current units. IntrFPperative amplitude of the saturation level (A) average was 133.08µV while postoperative A was 60µV. T0 was 965µsec and 638µsec while the tau measures were 1045 and 740, respectively for the intrFPperative and the postoperative sessions. IntrFPperatively, 50% of the sessions had responses at MPI of 100µs with average amplitude of 38µV while 100% of the postoperative sessions had responses at MPI of 100µs with average amplitude of 51µV. **Conclusion:** The recovery function shows differences from the intrFPperative to the postoperative sessions. The hypotheses that may explain these differences are based on the probe current level, the stimulation and a better efficiency of the nerve.

SESSION: FP11 - 2 DATE: 31/3/2010 TIME: 14H45 - 16H15
THE P300 COGNITIVE POTENTIAL IN COCHLEAR IMPLANT USERS
Authors

MARIO EDVIN GRETERS, SIGNE GRASEL, MARIA VALÉRIA S. GOFFI-GOMEZ, RUBENS VUONO DE BRITO NETO, ROBINSON KOJI TSUJI, RICARDO FERREIRA BENTO

Institution

1. HCFMUSP, Hospital das Clínicas da Faculdade de Medicina da USP

Abstract

Introduction: The cognitive P300 potential has been used as a powerful tool to evaluate auditory abilities and difficulties among CI users since it gives useful information about speech recognition, auditory maturation and functional integrity of the central auditory system. The P300 cognitive evoked potential is recorded when a subject correctly identifies, evaluates and processes two different auditory stimuli. **Objective:** The aim of this study was to evaluate whether the latency and amplitude of P300 are different in post-lingually deaf cochlear implant (CI) users with good or poor speech recognition scores as compared to normal hearing controls. **Methods:** Clinical, prospective study. Selected patients had used the device for at least three months and had free field thresholds equal or better than 35dB HL. Subjects who were not able to understand the test conditions or had neurological or psychiatric disorders were excluded. Twenty-six multichannel CI (Nucleus 22, Nucleus 24, MED-EL) adults were included. CI and control group patients were matched according to age and school qualification. CI subjects were divided into two groups: Group G was composed of 19 recipients with good speech recognition scores (≥ 80% open-set sentence recognition), and Group P was composed of 7 recipients with poor speech recognition (< 80% open-set sentence recognition). The cortical auditory evoked responses were recorded with Amplaid MK12 equipment (Amplifon, Italy) in a sound treated, light attenuated room. Subjects were seated comfortably in a reclining chair. The stimulus was delivered by a loudspeaker, calibrated to deliver 70dB HL tone bursts, placed at an angle of 45° on the side of the implant and at an angle of 45° on the right side for the control subjects. In the first test condition, the rare (target) stimulus was a 2000 Hz tone burst and the non-target (frequent) stimulus a 1000 Hz tone burst. In the second condition, the target was a 1000 Hz tone-burst, and the non-target a 1500 Hz tone burst. All of the subjects were asked to keep their eyes closed, to raise their left hand when they heard the rare stimulus and to count silently every rare stimulus of each run. The event-related potential P300 was identified at the rare stimulus recording from 230 to 750 milliseconds (ms) after stimulus onset. N1 was measured at 50 to 150 ms after stimulus onset and P2 at 125 to 230 ms. Median latencies of N1, P2 and P300 of CI users were compared to those of the control group (Wilcoxon non parametric test). **Results and Conclusion:** Statistically significant difference in P300 latency was found between CI users with poor speech recognition scores and their controls ($p = 0.04$), and between the CI users with good speech discrimination ($p = 0.01$). We found no significant difference in P300 latency between CI users with good speech recognition scores and their controls. In this study the patients with poor discrimination had deafness due to meningitis. These findings suggest that meningitis may have deleterious effects not only on the peripheral auditory system, but also on central auditory processing.

SESSION: FP11 - 3 DATE: 31/3/2010 TIME: 14H45 - 16H15
POSTOPERATIVE COMPLICATIONS IN IMPLANTED PATIENTS IN THE COCHLEAR IMPLANT PROGRAM OF RIO GRANDE DO NORTE - BRAZIL
Authors

FABIO ALENCAR RODRIGUES JR, LUIZ RODOLPHO PENNA LIMA JÚNIOR, DANIELLE DO VALLE PENNA LIMA, CLARA MARIA DIAS FERREIRA CALHAU, CLARA TERRA DE PAIVA PALHANO, ANA CAROLINA FERREIRA DIAS CALHAU

Institution

1. HC - Natal, Hospital do Coração de Natal - Brasil

Abstract

Introduction: Cochlear implant surgery is regarded as safe and effective in the auditory rehabilitation of individuals suffering of profoundly/severely deafness. As a result of the surgical procedure, complications may occur. Post-operative complications interfere in the auditory rehabilitation of the implanted patients. The knowledge of them is important for professionals who provide health care of those patients, including physicians, speech therapists and nurses. The complications of implant cochlear surgery reflect the operation complexity, the ability of the surgeon team and the inherent risks of the own surgery. **Aim:** To determine and analyze the postoperative complications in implanted patients in the Cochlear Implant Program of Rio Grande do Norte - Brazil. **Study design:** Retrospective analysis. **Material and methods:** This paper examines clinical records of 250 patients - pediatric and adult patients - implanted between August 2000 to December 2008. All patients were implanted by the same surgeon. The postoperative complications were classified in minor as those that resolve itself with minimal or no treatment and major as those requires additional therapeutic surgery or hospitalization, according to the classification proposed by Cohen & Hoffman (1988). **Results:** In our sample, 33 patients (13.2%) had presented post-operative complication. Of these, minor complications had corresponded the 20 cases (8.0%), while major complications had occurred in 13 cases (5.2%). Hematomas were observed in 5 patients, which 4 had had surgical draining. There were 3 cases of device failure and 8 patients had presented infection in the postoperative one. Flap problem was found in 1 patient. The reimplantation surgery was required in 4 cases with satisfactory evolution. There were no obits, cases of meningitis, receiver/stimulator migration, iatrogenic cholesteatoma, facial paralysis, electrodes extrusion or seroma. **Conclusion:** This review reaffirms the security of the surgical procedure in relation to the possible occurrence of postoperative complications and emphasizes the necessity of the qualification and continuous training of the surgeon.

SESSION: FP11 - 4 DATE: 31/3/2010 TIME: 14H45 - 16H15
SPATIAL HEARING AND MUSIC PERCEPTION ABILITIES IN SUBJECTS USING A COMBINATION OF ELECTRIC AND ACOUSTIC STIMULATION
Authors

ROBERT SAMUEL CHARLES COWAN^{1,2}, KERRIE LOUISE PLANT^{1,3}, ROBERT BRIGGS^{1,2}, LESLEY WHITFORD^{1,3}, MARYANNE LAW^{1,3}, PAULA INCERTI^{1,4}, JENNIE GORRIE^{1,3}, LEANNE SKINNER^{1,4}

Institution

1. HEARIng CRC, HEARIng CRC
2. UniMelb, The University of Melbourne
3. Cochlear, Cochlear Limited
4. SCIC, Sydney Cochlear Implant Clinic

Abstract

Objectives Recent studies have reported preservation of acoustic low-to-mid frequency hearing in cochlear implant recipients using new electrode technology and with careful surgical insertion techniques. For such recipients, there is the potential to make use of both acoustic hearing and electrical stimulation delivered to the same ear. The aim of this clinical study was to assess the potential benefit from use of preserved residual hearing in the implanted ear. **Materials and Method** The benefits of ipsilateral acoustic hearing was assessed in twelve adult cochlear implant recipients. Subjects were implanted with either the Nucleus Contour Advance or a specialised Hybrid-L24 electrode array. Benefits were assessed for both a 'combined' condition - use of the cochlear implant together with both an ipsilateral and contralateral hearing aid, and a 'bimodal' condition - use of the cochlear implant with only a contralateral hearing aid. All subjects received a minimum of months experience after initial activation prior to assessments. Localisation ability was measured using an 8-speaker array with a 180-degree span. Speech perception was evaluated in a range of speaker configurations to measure spatial hearing abilities. Musical tests included pitch ranking of sung vowels, identification of stretched or compressed melodies and sound quality ratings. **Results** For most subjects, performance in the combined condition was superior to that for the bimodal condition for tests of speech perception in noise, sound localisation, musical sound quality ratings and functional performance in real-world listening situations. No measurable improvement was observed on objective music tests. **Discussion & Conclusion** The potential benefits of use of an ipsilateral hearing aid fitted with a cochlear implant should be communicated to cochlear implant candidates, and considered for all patients who show preservation of residual hearing postimplantation.

SESSION: FP11 - 5 DATE: 31/3/2010 TIME: 14H45 - 16H15
SNR-BASED NOISE CANCELLATION IN NUCLEUS COCHLEAR IMPLANTS
Authors

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Institution

1. HEARIng CRC, HEARIng CRC



2. Cochlear, Cochlear Limited
3. UniMelb, The University of Melbourne
4. Hearing CRC, Hearing CRC

Abstract

Objectives It is well recognised that background noise has significant negative impact on speech perception of cochlear implant recipients. For this reason, application of noise cancellation techniques is of great interest as a means of improving benefits. The aim of this study was to investigate a real-time noise cancelling (NC) algorithm that reduces the gain on masker-dominated channels. In particular, the study assessed whether use of the NC algorithm would provide benefits over the ACE™ strategy for speech perception in speech-weighted noise, and secondly, whether it would be provide benefits in other more dynamic types of background noise, specifically party noise and city noise. **Materials and Method** The NC algorithm estimates the signal-to-noise ratio (SNR) of each channel on a short-term basis from a single microphone input, using a recursive minimum statistics method. A real-time computer was used for implementation of the ACE™ and NC algorithms. Thirteen cochlear implant subjects participated in the study. Subjects were tested with ACE and with two implementations of the NC algorithm, each with different masking functions. The programs were compared in speech-weighted noise, party noise and city noise. An adaptive speech reception threshold (SRT) test provided the SNR for 50% intelligibility in each noise type. The test used BKB sentences spoken by a female speaker, presented at 65dB SPL. Results Mean SRTs for both NC programs were significantly lower than those for ACE for all noise types. Greatest improvement occurred for speech-weighted noise. No significant differences were found between the two NC programs. Mean SRT in speech-weighted noise for the ideal NC program was -14.96dB (SD=5.37). In speech-weighted noise, most subjects showed benefit from at least one NC program. Most subjects showed benefits in speech perception party and city noise, although benefits were less than those for speech-weighted noise. **Discussion & Conclusion** The NC programs were successful in improving sentence perception in noise, especially speech-weighted noise, but also in real-life noises (e.g. party and city noise). Subjects reported no degradation in sound quality using the NC programs.

SESSION: FP11 - 6 DATE: 31/3/2010 TIME: 14H45 - 16H15

NEW TENDENCIES IN CHOOSE OF COCHLEAR IMPLANT CANDIDATES: ADULTS WITH PRELINGUAL DEAFNESS.

Authors

BIANCA MIGUEL JORGE, SÔNIA MARIA SIMÕES IERVOLINO

Institution

1. ISCMSP, Irmandade da Santa Casa de Misericórdia de São Paulo

Abstract

There are differences of opinion when we raised the indication of cochlear implants in deaf adults prelingual, as in the evaluation of these is observed only benefit. The goals of this study was to compare the performance in clinical assessment of seven adult patients pre - lingual pre and post - surgical procedure with a year of use of cochlear implant and to characterize the changes in quality of life. The method was included assessment protocols used in cochlear implant clinic seven records of the Irmandade da Santa Casa de Misericórdia de São Paulo, the protocol was applied in the pre and post - surgical, comprising: detecting sound ling; discrimination name; discrimination of intonation of interrogative or affirmative, identifying the extent of vocabulary, identifying the extent of the sentences and identification of sentences. And in the post - surgical procedure was used to describe aspects of quality of life. In the results we didn't find statistically significant difference was with the cochlear implant, for discrimination of the name, length of sentences and sentence recognition. However, there was a statistically significant difference for detecting sound ling; discrimination of intonation of interrogative or affirmative, identifying the extent of vocabulary and identification of sentences. Regarding quality of life, there was an increase for the social as well as hear sounds, improved dialogue, attention to it, listen to the phone and finally listen to music. Our conclusion was that this group had the benefits of cochlear implant use and improved quality of life, so this group should be more suitable for surgery and the aspect of quality of life is part of the evaluation of this group. **Keywords:** cochlear implant, quality of life, deafness.

SESSION: FP11 - 7 DATE: 31/3/2010 TIME: 14H45 - 16H15

A COMPUTER BASED FAST RESPONSE ACOUSTIC IMPEDANCE METER FOR THE OBJECTIVE FITTING OF SPEECH PROCESSORS IN PATIENTS SUPPLIED WITH COCHLEAR IMPLANTS

Authors

KURT STEPHAN, R. LANZINER LANZINER-FURTENBACH

Institution

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Abstract

Fitting of CI speech processors can be quite challenging in patients who are not able to perform adequate loudness scaling in case of electrical stimulation via the implant. Particularly young children often do not react on electrical stimulation although stimulation intensities are already close or even above comfort levels. For such cases objective methods have to be applied in order to estimate maximum tolerated stimulation intensity delivered via the implant. One such method is based on the postoperative measurement of electrical stapedius reflex threshold (ESRT) which shows good correlation to psychoacoustic comfort levels. However the clinical applicability of ESRT-testing is often limited, because specific instrumentation is not generally available to perform this task. To overcome this problem, a PC-based acoustic impedance meter with a minimum of hardware effort will be presented. The function of the instrument is digitally implemented and optimized for fast response to acoustic impedance changes caused by the reflex. When applied for fitting of speech processors, the ESRT testing software is operated simultaneously to the standard fitting procedure. First tests with the newly implemented system in normal hearing individuals showed that real stapedius reflexes can be easily distinguished from artefacts due to movement of the patient. This feature is particularly important when measuring accurate ESRT in children supplied with cochlear implants. With the new implementation it is expected that fitting of CI speech processors based on ESRT measurements will be more frequently used in clinical routine application.

SESSION: FP12 - 1 DATE: 31/3/2010 TIME: 14H45 - 16H15

THE TORONTO INFANT HEARING PROGRAM'S SPEECH-LANGUAGE PATHOLOGY SERVICES FOR INFANTS AND YOUNG CHILDREN WHO ARE DEAF OR HARD OF HEARING: WHO WE ARE AND HOW SERVICES ARE DELIVERED.

Authors

MARIA EMILIA MELO, LISA KATZ

Institution

1. TIHP, TPH, Tontonto Infant Hearing Program, Toronto Public Heath

Abstract

Every year in Ontario, Canada, about three in 1,000 babies are born deaf or hard of hearing, or will develop progressive hearing loss in early childhood. The Ontario Infant Hearing Program (IHP) has been dedicated to serving the needs of children who are deaf or hard of hearing from birth through six years old. The Toronto IHP in Ontario is a community partnership designed to deliver services for young children and their families living in the City of Toronto, Ontario, Canada. The Toronto IHP speech-language pathologists provide a variety of programs to children who are identified with all degrees of hearing loss and to the community: assessment, consultation, workshops for parents and professionals, and family-centred therapy. The therapy services include Auditory-Verbal, Auditory and Language Enrichment (for children with auditory-neuropathy spectrum disorder), and Auditory Skills Development. This presentation will briefly outline the IHP in Toronto, from newborn hearing screening to intervention. The primary goal for this oral communication session is to present the speech-language pathology services of the Toronto IHP. The presentation will outline the goals, criteria for service delivery and discharge, format of each communication program, and some outcomes. In addition, the achievements and challenges faced regarding the services will be discussed.

SESSION: FP12 - 2 DATE: 31/3/2010 TIME: 14H45 - 16H15

THE RISK INDICATORS OF HEARING IMPAIRMENT IN LOW-RISK INFANTS

Authors

PRISCILA OLIVEIRA, LAISCE CAVALCANTE BARRETO, RAQUEL RIBEIRO

Institution

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Abstract

Introduction: Hearing development follows complex ways which begin intra-uterus and it's the basic element for the acquisition and development of language. The Central Nervous System shows high plasticity when early stimulated, especially until 6 months of life. Thus, the first 6 months are much important in the future development of deaf children. The implementation of the programs of newborn hearing screening can ensure early detection, diagnosis and rehabilitation. The Joint Committee on Infant Hearing recommends hearing loss screening for all infants mainly in high risk infants. They also recommend the risk indicators that can affect hearing in the pre and peri native periods. **Aim:** Investigate risk indicators in newborns of the regular nursery **Methods:** The research instrument consisted in a retrospective analysis of the hospital records of 98 newborns of a regular nursery. The risk indicators of hearing impairment used was proposed by Joint Committee on Infant Hearing in a public hospital in Aracaju- Sergipe. **Results:** 4,1% were preterm newborn that don't need a special care an 95,9 % were infants born at term. The preterm population indicates that 3 were adequate for gestational age and one was large for gestational age newborn. The sex of the infants were equilibrated, 51,4% were male and 48,9% female. Most mothers (98,8%) made pre natal medical care. As a Hearing Loss Indicators Risk, one has a infection disease as Sifilis, two have hyperbilirrubinemia and one mother was a smoker. **Conclusion:** There are newborn in regular nursery that has hearing loss indicators risk that need to be part of screening programs. This emphasis the import of universal hearing screening.

SESSION: FP12 - 3 DATE: 31/3/2010 TIME: 14H45 - 16H15

IT'S CALLED AURAL REHABILITATION-OR IS IT?

Authors

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Institution

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 4. WICHITA, WICHITA STATE UNIVERSITY, WICHITA, KANSAS

Abstract

This presentation is an outgrowth of a Discussion Group that was held at the 2007 AAA Convention that was comprised of professionals in the field of audiology representing six world countries and the U.S. entitled "Aural Rehabilitation: What's In A Name?". The purpose of the Discussion Group was to discuss similarities in the process of adult aural rehabilitation in this and other countries, and also to determine what the service is called. Even though there is agreement as to what constitutes the services, there were great differences in what the service is called. This session will present the results of a survey of audiologists representing seven countries including the U.S. that asked a single question: "If you could rename the service that audiologists provide that we currently call 'aural rehabilitation' what would it be?" The survey was an outgrowth of a Discussion Group held during the 2007 AAA Convention on the nature of the services called "aural rehabilitation". Out of 300 surveys sent to audiologists in those seven countries, 247 responses were received. A clear preference as to a name for the service was found by a margin of 209 to 38. The results will be discussed during this presentation. Learning Objectives Will recognize the variety of names those in the field of audiology use for "aural rehabilitation". Will be knowledgeable of the AR name preference held by the majority of audiologists. Will have a basis for use of the term most frequently utilized for "aural rehabilitation".

SESSION: FP12 - 4 DATE: 31/3/2010 TIME: 14H45 - 16H15

TITLE: CONSUMER-ORIENTED AURAL REHABILITATION FOR AGING ADULTS WITH IMPAIRED HEARING**Authors**

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Institution

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 2. WIFRAN, Universidade de Franca
 3. NEPA, NÚCLEO DE ESTUDOS E PESQUISAS AUDIOLOGICAS
 4. AUDIOFRAN/FRANCA, CENTRO AUDITIVO AUDIOFRAN

Abstract

It has been historically observed by audiologists that our older patients with impaired hearing all too often do not view aural rehabilitation services as being constructive. This can occur because the services provided on their behalf may not be addressing their specific communicative difficulties and needs. This presentation addresses effective consumer-oriented principles that have been developed and utilized by this presenter on behalf of his older adult patients for over thirty years. They involve principles that can be utilized in the planning and execution of aural rehabilitation services specifically on behalf of older adults who exhibit varying degrees of hearing impairment, and who present themselves as possessing varying degrees of difficulty in communication with specific people, in specific places, and under specific circumstances. The principles are as follows: 1. First and foremost, AR treatment should always address the specific needs of the patient. Although obvious, this principle appears in many instances to have been ignored by some audiologists; 2. Because older patients with presbycusis can have both peripheral and central auditory involvement, instructing the patient on strategies in environmental design and which designs can enhance speech understanding can be an effective component of AR, along with providing the audiologist with an added avenue for design consulting on behalf of older adults with impaired hearing; 3. Empowering patients to become more assertive enhances their ability to improve their ability to communicate even in difficult listening environments, which is an essential component of treatment; 4. The clinician should represent a model effective communication both in manner of speaking and manner of listening; 5. The patient and clinician should work together to develop specific auditory training goals and objectives; 6. Both individual and group treatment programs should be available to patients; 7. Treatment activities should offer opportunities for successful communication; 8. Counseling is essential to the effectiveness of the clinician-patient relationship; 9. Patients should be encouraged to maintain a balance between the give-and-take of communication, and to have realistic expectations; 10. Clinicians should assist patients in developing alternative behaviors and responses for specific communication events; 11. Incorporating information on non-hearing aid assistive listening technology can be an effective part of audiologic rehabilitation; 12. Innovative avenues for aural rehabilitation to enhance patients' auditory and visual function including interactive video technology can be beneficial; 13. Patients should be taught a variety of self-initiating listening strategies appropriate for specific communication situations; 14. Clinicians should create a catalog of possible methodologies to achieve specific objectives and then review this information during planning of individual treatment with the patient; 15. Improving the speech habits of a patient's communication partners can greatly enhance AR treatment, thus bringing their speaking habits to a higher level of intelligibility even in listening environments that are poorer than desired. Conclusion We must remain vigilant in identifying the special auditory communicative needs of individual patients, their specific communicative environments, and their communication partners.

SESSION: FP12 - 5 DATE: 31/3/2010 TIME: 14H45 - 16H15

ANALYSIS OF CARTOONS UNDERSTANDING BY DEAF PEOPLE THAT USE LIBRAS**Authors**

CIBELE CRISTINA BOSCOLO, MARIA DA PIEDADE RESENDE DA COSTA

Institution

1. UFSCar, Universidade Federal de São Carlos

Abstract

Introduction: Many are the difficulties presented by deaf people in the understanding of histories. The visual support for the deaf people is of utmost importance for the guarantee of the learning and understanding process. Taking this fact into reflection, the cartoons and films presented in Television network and/or Movie Theaters is nothing else of what is presented in visual way. Every film presents a message. In common sense, by the report of some speech pathologists, teachers, psychologists and parents, a deaf person, for many times, is not able to report the real meaning of a specific film, soap opera or cartoon, not even the main message of it. This work presented as objective to analyze the understanding of cartoons by deaf people that use LIBRAS. Methodology: The participants were 3 children with profound sensorineural hearing loss, not literate, using LIBRAS, who watched the cartoon. Thereafter each participant individually gave a report of his understanding of the film to the interpreter by using LIBRAS. The participants had also been requested to elaborate a drawing which expressed their interpretation in relation to the cartoon they watched. Results: No participants were able to report the main message of the cartoon which was the theft of a necklace of one of the characters. What was clear for the participants was some of the details as the big house, the dance, the race and the ending when the characters went back home to eat as usual in this cartoon series. Conclusion: Though this study has been performed with only 3 subjects, it is clear the difficulty of understanding by the deaf. It becomes necessary to implement the legend in LIBRAS in order to insure a better understanding for the deaf population of the cartoons presented in the media in general.

SESSION: FP12 - 6 DATE: 31/3/2010 TIME: 14H45 - 16H15

STRATEGY IN DEAF ATTENDANCE (SPOKEN LANGUAGE)**Authors**

JACQUELINE GIRÃO DE ANDRADE, MANUELA MARIA CYRINO VIANA

Institution

1. CEST, CEST - Faculdade Santa Terezinha

Abstract

Objective : Introduce an attendance strategy to deaf people in order to stimulate prematurely according to the maturation and individual limitations, with oral multisensory approaching, established on the "little mouths method" with a new possibility of creative performance using therapeutically contextual and facilitation tools, allowing a larger effectiveness on the speech therapy results in the clinical practice of the auditory deficient's habilitation or rehabilitation. Method: A bibliographical study in electronic data basis, Scielo and Bireme, was carried out employing keyword combinations: speech therapy at school, reading and writing, preventive education, hearing health. Fifteen studies were found in Portuguese, published between 1999 and 2008. The selection and data analysis were determined considering updated information, pertinence, and informative value to the study's aim. Result: From data analysis, not only the general characteristics and difficulties experienced by auditory deficient people (spoken language acquisition) were identified but also the inherent necessity of ludic and creative strategies focusing on existing necessities in order to practice them in the therapeutical and clinical context. A strategy is suggested to work with these aspects. It was suggested the "Constructing the Spoken Language" method, a game with many application options, for instance: naval battle, memory game, obstacles race, lynx, alphabetizing, categorizing, basic conceptions, etc. The game includes a board, two micro-mirrors, one dice, two paintbrushes, two pins, two boards, one eraser, a divisor plaque, 131 plaques with images and/or written words that will be used according to the kind of chosen game and the phase to be managed. Conclusion: The game achieves the aims of an auditory deficient's therapy, but it is still necessary to test this method in the therapeutical and clinical context in order to validation.

SESSION: FP12 - 7 DATE: 31/3/2010 TIME: 14H45 - 16H15

RECEPTIVE VOCABULARY INCREASE ON HEARING IMPAIRED CHILDREN WITH COCHLEAR IMPLANT**Authors**

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Institution

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 2. USP/Bauru, Universidade de São Paulo

Abstract

The response by "exclusion" has been widely investigated in literature and recognized as an important process of the vocabulary acquirement on children during the early years. Studies about the response by "exclusion" has showed that the participants tend to select, immediately, an object or a new figure when a new word is dictated, rejecting the objects and figures they already known or they relate to other words. The aim of the present study was to investigate the response by "exclusion" through the acquisition of new relations between dictated word-figure (AB) and figure-printed word (BC) on prelingually children with cochlear implants. Nine children between five and nine years old, acute neurosensory bilateral hearing impaired, users of cochlear implant Nucleus 24k® participated. The participants were exposed, individually, to tasks of matching to sample, showed by software. The task consisted in selecting, with the mouse, a stimulus of comparison (figure or printed word) related to the sample (dictated word or figure). The procedure started with the task teaching and later to the recognition of 30 words composed of two syllables that was evaluated at the pre-test. The results of the pre-test permitted the choice of the stimulus that would participated of the teaching. Three words that the child demonstrated accuracy were used as known words and other three that the child got wrong were used as new words to be taught. The relations

between dictated word-figure (AB) and figure-printed word(BC) were taught by exclusion. In the teaching method AB, a known word was dictated by the computer's loudspeaker then three figures was shown at the corners of the screen, all know figures(base line). Among these tries, "exclusion" tries were introduced and was composed of a new word dictated and showed one new figure and two known figures and the tasks was to select the figure unknown and reject the two known figures. The learning tries verified if the relation between dictated word and the figure has been learned (a new word was dictated and all the figures new was showed, which relations were established on exclusion tries). The figure-printed word teaching (BC) was taken by the same procedure, but the figure was showed in the center of the computer screen and the printed word on the corners on the screen. Altogether, all the children responded by exclusion on the first trial and seven of them demonstrated learning of the relations AB and BC (performance evaluated by the learning tries). One children did not demonstrate learning of the AB relations, however demonstrated acquisition of the BC relations. The other children did not demonstrate learning of the relations AB nor the relations BC. The number of necessary tries to the learning was discussed as an important variable to the learning of new words by "exclusion". The results were alike with typical hearings that describes some of the conditions which the verbal repertoire of the children are improved; the results extend the exclusion occurrence even on relations between figure-printed words. Cochlear implant, exclusion responding, children, vocabulary acquisition

SESSION: FP13 - 1 DATE: 31/3/2010 TIME: 14H45 - 16H15

FROM NHS TO EARLY DIAGNOSIS: OAE, ABR AND ASSR EXPERIENCES IN MEXICO

Authors

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Institution

1. HGM, HOSPITAL GENERAL DE MEXICO

2. UNM, UNIVERSIDAD NACIONAL DE MEXICO

Abstract

The present study was carried out to know the usefulness of a combined DPOAE, ABR and ASSR protocol in the context of a NHS and diagnosis program. It was performed in the Audiology and Phoniatrics Department of the General Hospital of Mexico in coordination with the Neonatology area of the Gynecology and Obstetrics Department. The GHM is the largest one in the country and receives the so-called "open-population", that is, people not included in the social security institutions benefits. With a mean of 15-20births daily, 1or2 of those newborns have an average of at least one high risk factor and are referred to the intermediate care unit or to the NICU. It was also performed to better know the ASSR role in the diagnostic process of deafness or profound HL in neonates. DPOAE were performed in every normal newborn with Pass/Fail criteria of 3dBS/N ratio. Those who fail underwent click ABR and ASSR, as well as every newborn with high risk factors. The babies with abnormality in one of the tests received an appointment in 1-2months to complete the diagnostic process. Our testing procedure and outcome criteria were as follows: 80and30dB clicks were used in the ABR test. Abnormal results in latencies at 80dB or a latency greater than 9.5 msec. with an intensity of 30dB was considered abnormal. Pure tones of 0.5, 1, 2 and 4kHz were modulated in amplitude and frequency for ASSR tests. Results were considered abnormal when 2 or more frequencies were above 30dB. In the September 2006-March 2009period, we studied 13,494neonates with DPOAEs. 703normal or HR babies were referred for additional ABR and ASSR studies. Since testing newborns is not an easy task and many records did not fill into the protocol criteria, 387records were not included in the analysis. From the remaining 316full-studied babies considered for this study, 226were normal neonates referred because they failed the first DPOAE examination, and 90 had at least one high risk factor for deafness. Gestational age ranged from 30to42 weeks;75% had less than 18days of age; around 1/3, a weight under 2000g. and more than 50% had more than 2RF. From the studied neonates, 9%born without specific RF for HL, but they stayed in the NICU due to other perinatal health problems. We diagnosed 9 babies with unilateral hearing loss, and 24 with bilateral hearing loss for a global rate of 2.44/1,000 or a rate of 1.77/1,000, considering only the bilateral profound HL cases. As a consequence of our outcomes, the advantages and disadvantages of ASSR included in a comprehensive UNHS program are discussed. In spite of the fact that our work has been discussed with international experts in this field, we have doubts and so, we are still looking for answers. As a consequence, we present several suggestions, some of them directed to clinicians and other to manufacturers of equipments, in order to have better and more reliable results in the NHS programs that must consider as its compulsory consequence, the early diagnosis and intervention protocols.

SESSION: FP13 - 2 DATE: 31/3/2010 TIME: 14H45 - 16H15

LATIN AMERICAN CONSENSUS ON NEWBORN HEARING SCREENING

Authors

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Institution

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Abstract

This paper is centered in the efforts to accomplish a Latin American Consensus on Newborn Hearing Screening in the region. Since the middle of 2007, a group was integrated with experts representing the three main Latin American areas -South America, Central America/Caribbean and North America- , working in Puerto Rico, Guatemala, Panamá, Argentina, Brazil, Colombia and Mexico. After a careful analysis of different International consensus criteria, an adaptation to the specific peculiarities of the Latin American area was made, adding the features considered as needed in the region. After that, 50 statements were grouped by themes in the following manner: 1) Basic principles; 2) Justification; 3) Objectives, parameters and goals; 4) Methodology and assessment of outcomes; 5) Monitoring and tracking and 6) Professional, Ethical and institutional commitments. The Lickert Scale was used asking the seven participants to qualify each one of the 50 statements from 0-10, being "0" a total disagreement and "10" a total agreement. A statement with 70 points (100%) was considered as "totally" agreed by consensus; with 63-69 (> 90%), as a "tacit" consensus and with 53-62 (> 75%), as a "simple" consensus. Statements with less of 52 points were subjected to a second discussion stage. 94% of the statements were texts agree by more of 75% of consensus and in a third step, only three required an additional discussion. The three were subsequently agreed by consensus, after making the necessary changes in the phrasing of the statement. . The final document can be the basis for a real development of NHS in Latin America. If the simple, tacit or total consensus corresponded to 94% of the statements, some minor disagreements or doubts cannot stop the dissemination of the final text but be eventually the reason to a more detailed discussion. It is possible also that considering the different special professional, social, economic or politics characteristics of our countries, some of our colleagues will be obliged, based in this work, to made some adjustments considered as appropriate. Nevertheless, we feel, finally, that the document already called "Latin American Consensus on NHS" is already of a particular importance in the context of the Auditory Health programs in our region.

SESSION: FP13 - 3 DATE: 31/3/2010 TIME: 14H45 - 16H15

ENVIRONMENTAL AND SOCIAL CHARACTERISTICS AS GENERATORS OF NOISE IN THE CLASSROOM

Authors

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Institution

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2. FATECI, Faculdade de Tecnologia Intensiva

Abstract

Noise affects physical and mental well-being adversely, and daily, we are assailed by the most varied levels and types of noises. In the school environment, noise is not just a discomfort, but it interferes directly in the results of teaching-learning activities, besides jeopardizing the health of both students and teachers. Sanders (1965) in Ferreira and Costa (2000) consider that the noisy and reverberant classrooms can affect the discriminative capacity of the speech of students, and pronounced effects would be felt between the frequencies of 500 to 5000Hz. Room noises can be classified as: environmental (continuous), transitory (unexpected) and those generated within the room. As consequences of the presence of noise in the classroom, the following is observed: decrease of speech energy, fall of speech intensity at a distance, speech incomprehension, problems of vocal effort and difficulty as to students' learning. The objective of the research is to verify the presence of environmental, physical and social elements that contribute towards the elevation of the noise level within the classroom and their effects on the work of the teacher. The research is qualitative with non participant observation, utilizing strategies of structural observation of the school and structured interviews with the teachers. The research was accomplished at a public school in the city of Fortaleza. The school that participated in the research offers the community infantile and basic fundamental teaching, assisting a total of 100 students, distributed among 10 teachers. A classroom to be observed was chosen randomly, and a total of 29 students in this room were verified. External noise in the room, especially from cars, neighbors and the other rooms, and the presence of reverberation was perceived. There was no material to absorb sound inside the classroom. Regarding the teacher's vocal posture, it was observed that he/she demonstrates effort to speak with high intensity in his/her voice. During the interview with the teacher of the room, he/she referred to the following complaints caused by the noise: he/she doesn't understand the students, headaches, irritation, voice fatigue, hoarseness, stress and especially lack of concentration.

SESSION: FP13 - 4 DATE: 31/3/2010 TIME: 14H45 - 16H15

PREVALENCE OF TESTS AUDIOMETRY EMPLOYEES IN BUSINESS BUS: COMPARATIVE STUDY THE FUNCTION AND THE TIME OF SERVICE

Authors

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Institution

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Abstract

PREVALENCE OF ALTERED AUDIOMETRIC EXAMES IN EMPLOYEES OF BUS COMPANIES: A COMPARATIVE STUDY BETWEEN THE FUNCTION AND THE DURATION OF EMPLOYMENT Currently the job market offers a variety of functions and services where, in most cases, noise is present in different intensities and time of exposure. In bus companies, noise is a constant factor not only in the vehicle itself, but also in the traffic of great urban centers. For this reason, the audiometric exam is one of the instruments of evaluation of occupational health, being required by the laws that govern the safety and the health of workers. However, hearing alterations can also be caused by metabolic, vascular, and ischemic diseases, the use of medicines, genetic predisposition, and infectious processes, among others. The objective of the research is to identify the prevalence of hearing alterations in the exams carried out when an employee terminates his employment at a bus company, and their relation to the function exercised and the length of time of service in the company. The research consisted of a case study through the documental analysis of employment termination exams during the period from 2008 to 2009 in a collective transport company in the city of Fortaleza. A quantitative and statistical evaluation was accomplished, relating aspects regarding the employee's function, the duration of employment in the company and the result of the audiometric exam, classifying

this as normal or altered. A total of 94 audiometric exams carried out at the termination of employment were analyzed, of which 52 (55.31%) pertained to drivers and 42 (44.68%) belonged to bus collectors. Among the 52 drivers exams analyzed, 21(40.38%) of the exams were altered, while only 7(16.66%) of the bus collectors' exams presented some alteration. Regarding the duration of employment, most of the altered exams of the drivers, in other words, 13(61,90%) exams belonged to employees with 3 or more years of service in the company. The documental research of the audiometric exams allowed the observation that the function of driver presents a larger incidence of hearing alterations than the function of bus collector. However, it is worth while to highlight that it was not the objective to identify the cause of those alterations. According to Martins, Alvarenga, Bevilacqua and Costa Filho (2001) an audiometric curve suggesting hearing loss was verified induced by levels of elevated resonant pressure in 37% of the total of individuals, with larger occurrence in the group of drivers (34%) in relation to the bus collectors (3%). Another relevant point is the time of employment superior to three years with a larger number of altered exams, making possible the direct relationship that the longer the period of employment, the greater the probability of the employee to be a bearer of hearing alteration. An experienced driver has great chances (32.7%) of having hearing lesions provoked by work (CORRÊA FILHO, 1991).

SESSION: FP13 - 5 DATE: 31/3/2010 TIME: 14H45 - 16H15

TINNITUS ANNOYANCE IN WORKERS EXPOSED TO CHEMICAL SUBSTANCES USING THE TINNIUS HANDICAP INVENTORY.

Authors

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Institution

1. UFRJ, Universidade Federal do Rio de Janeiro

Abstract

Occupational disorders affecting the ears and hearing can be caused by irritating, allergic or toxic agents or mechanisms. In the inner ear, damage can occur by exposure to neurotoxic substances and noise, for example. Neurotoxic substances as solvents, agrotoxins and mercury can cause serious health problems, including hearing loss, dizziness and tinnitus. The effects of exposure to high levels of organic solvents are similar, causing disorientation, euphoria, mental confusion progressing to unconsciousness, seizures and death caused by respiratory and cardiac arrest. On the other hand, agrotoxins can cause headache, dizziness, fatigue, nausea, respiratory distress, sleep disturbance, confusion and problems concentrating. Mercury in low concentrations can result in chronic intoxication. Its classic clinical presentation concerns the gastrointestinal tract, nervous system and psychic functions, ranging from mild to severe. Tinnitus is one of the most common complaints in workers exposed to these substances being treated at a specialized clinic at the University Hospital, Rio de Janeiro's Federal University. Objective: Estimate the degree of annoyance determined by tinnitus in these workers. Methods: The research project was approved by the University Hospital from Rio de Janeiro's Federal University ethics committee. 61 workers with mean age of 46,8, from both sexes, exposed to organofosforates, solvents and mercury, periodically seen at the toxicology clinic at Rio de Janeiro's Federal University Hospital were included in this research. Patients were submitted to a clinical interview and those who complained of tinnitus answered the Portuguese version of the tinnitus handicap inventory questionnaire. The answers varied from zero points (when tinnitus did not interfere in the patient's quality of life) until 100 points (extremely distressful tinnitus). According to MacComb et al tinnitus can be discrete (0-16), mild (18-36), moderate (38-56), severe (58-76) and catastrophic (70-100). At the clinical interview were also evaluated: hearing loss, substances to which the individual was exposed, tinnitus and dizziness characteristics. Results: In our research, 40 (66%) patients complained of having tinnitus, 4 (10%) with discrete tinnitus, 3 (7,5%) with a mild complaint, 5 (12,5%) with moderate impact, 21 (52,5%) with severe and 7 (17,5%) with a catastrophic tinnitus. Conclusion: According to our results, tinnitus complaint was very common among the workers studied (66%). Most of these workers (70%) present severe and catastrophic impact of tinnitus in their quality of life. Our findings show that there should be more investments on hearing conservation programs for workers that are exposed to chemical substances that can cause hearing damage and consequently tinnitus.

SESSION: FP13 - 6 DATE: 31/3/2010 TIME: 14H45 - 16H15

OTOTOXICITY DUE TO CHEMOTHERAPIC AGENTS USED IN THE TREATMENT OF PATIENTS WITH HEPATOBLASTOMA

Authors

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Institution

1. HOSPITAL AC CAMARGO, FUNDAÇÃO ANTONIO PRUDENTE

Abstract

Background : Some chemotherapeutics can cause serious and irreversible toxicities to the human hearing system. A hearing loss during the language development as well as the school phase could have consequences that would mark an individual life forever. Hepatoblastoma is a rare hepatic tumor of embryonic origin, corresponding 1% of the pediatric cancer. Its treatment involves platinum components considered highly ototoxic. Objective : The goal of this research was to analyze the frequency e degree of hearing loss of the children and/or teenagers treated for Hepatoblastoma in protocol of Hospital AC Camargo. Material and Methods : Hearing evaluations from those patients of the last 10 years, treated for Hepatoblastoma during their childhood were analyzed. Hearing evaluations comprised pure tone audiometry, imittance audiometry and/or transient evoked otoacoustic emissions and were performed after chemotherapy treatment. Data was organized in a descriptive way and according to several independent variables, distinguished by ear. Results : From the hearing results analysis, we conclude that the hearing loss frequency was of 16,6% in the right ear and 33,32% in the left ear, the degree of loss in the cases that went through pure tone audiometry varied from BROCK's degree 1 and 2. Conclusion : This study brings up the necessity of prospective studies in order to accompany the children hearing while in risky chemotherapy treatment to develop the hearing loss pre and pos treatment. Key- words: hearing loss, ototoxicity, hepatoblastoma.

SESSION: FP13 - 7 DATE: 31/3/2010 TIME: 14H45 - 16H15

ANALYSIS OF THE ANNEX 1 NR 7 (MINISTRY OF LABOR AND EMPLOYMENT) ON THE ACTION OF AUDIOLOGIST

Authors

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Institution

1. UNIVALI, Universidade do Vale do Itajaí

Abstract

This study aims to elucidate what is occurring in the performance of professional audiologist in monitoring hearing of workers exposed to high levels of sound pressure, indicating the front of the Annex 1 - NR 7. This question arises from the practice of research in companies with the need to carry out such monitoring. It was analyzed the Annex 1 - NR 7 in relation to the audiologist's performance. For this reason a documentary analysis of Annex 1 - NR 7 was conducted, besides interviews with eight audiologists in the west region of Santa Catarina(Brazil) who work in Occupational Audiology. From the material obtained, the testimony of audiologists, the content analysis was performed according to the proposal of Minayo (2001).Regarding jurisdiction of the audiologist, this is cited in Annex 1 of NR7 only as one of the qualified professionals to run the hearing and in practice the work is limited to the achievement of the hearing. In identifying the parameters set out in Annex 1 of NR7 to monitor hearing of workers, the legislation sets out detailed procedures and the audiologists interviewed cited what they do, without showing in details the realized activities. The act of conducting the hearing the testimony showed loyalty to Annex 1 of NR7. Regarding the monitoring of examinations, it was realized that few audiologists do such activity. In characterization of the proposal hearing conservation indicated in Annex 1 of NR7 the majority of audiologists said partly to promote hearing conservation. The implementation of Annex 1 of NR7, sometimes the professionals consider implementation of Annex 1 of NR 7 as something difficult and limited and sometimes as something that gives positive results and promotes hearing conservation. As force of Annex 1 of NR 7, the fact of legislation act as precursor to the performance of audiologist on workers' health. As weaknesses of Annex 1 of NR7, the work of professional isolation, the audiologist as a professional complementary and value of the service. This work intends to promote reflection on the adequacy of audiologist's action and also some possible improvements in the legislation. Keywords: Audiology - legislation and case law - mandatory examinations

SESSION: FP14 - 1 DATE: 31/3/2010 TIME: 16H45 - 18H00

TRANSIENT EVOKED OTOACOUSTIC EMISSIONS IN PATIENTS WITH ABNORMAL TYMPANOGRAMS

Authors

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Institution

1. HACC, Hospital AC Camargo

Abstract

Literature reports that otoacoustic emissions (OAE) are expected to be present in ears with normal pure tone thresholds or mild hearing loss since the integrity of the middle and external ears is guaranteed. Nevertheless, there are clinical situations, such as chemotherapy auditory monitoring, that require an otoacoustic emission evaluation even in the course of a middle ear disorder. The aim of this study was to show how transient evoked otoacoustic emissions behave in ears abnormal tympanograms. The results of transient evoked otoacoustics emissions (TEOAE) in ears with tympanometric alterations were analysed. At the Audiology department at Hospital A C Camargo, 47 ears with tympanometric alterations (As, B, C) were collected between January and September, 2009. Among these, nineteen ears with hearing loss worse than 40dBHL were excluded. TEOAE was considered present with a signal-to-noise ratio (SNR) equal or higher than 3dB in each frequency band. Among the twenty-eight ears that were analysed, 2 of them showed tympanometry type As, 12 of them showed tympanometry type B and 14 showed tympanometry type C. Our findings demonstrated that tympanometry type As permitted TEOAE present responses up to 3kHz in one ear, while tympanometry type B permitted present responses up to 4kHz in 3 ears, and in tympanometry type C cases there were present responses up to 4kHz in 7 ears. Although the literature concerning the influence of middle ear diseases on OAEs mentions that depending on the ossicular chain state, OAE may be absent or show a reduction in the amplitude of the response, especially in the frequencies below 2000Hz, our findings showed a main occurrence of absent responses in the high frequencies. This fact has important implications when considering ototoxicity monitoring. The findings suggest that the otoacoustic emissions results are unpredictable in ears with abnormal tympanograms. Thus, in the clinical practice otoacoustic emissions may be performed as part of the auditory monitoring battery test, even in the course of tympanometric abnormalities, since they are analysed with caution.

SESSION: FP14 - 2 DATE: 31/3/2010 TIME: 16H45 - 18H00

HIGH RESOLUTION AUDITORY EVALUATION OF PATIENTS TREATED WITH ARTESUNATE + AMIODAQUINE FOR UNCOMPLICATED PLASMODIUM FALCIPARUM MALARIA ATTACKS IN SENEGAL**Authors**MEYER-BISCH CHRISTIAN¹, GAYE OUMAR², NDIAYE JEAN-LOUIS², LAMEYRE VALÉRIE², CHARRON BRIGITTE²**Institution**

1. Except, Except PARIS

2. UCAD, Department of Parasitology UCAD, Dakar, Senegal

Abstract

Artemisinin based combination therapies (ACT) are now used widely in the treatment of uncomplicated falciparum malaria. The purpose of this study was to evaluate side-effects on hearing. We compared the audiograms of two groups of patients before and after the treatment at J0, J3 and J28. Both groups were examined in a bush medical center operated by trained local physicians. Each patient was submitted to a questionnaire, a medical examination, and a precise audiometry. An isolated booth was built on the center, equipped with a high-resolution and high-frequency audiometer (Audioscan® + HDA 200). An automatic method was chosen because it is easy for the patient (children) and in order to eliminate the influence of the audiometrist. The sweeping Békésy provided an audiogram between 250 and 16 000 Hz with a resolution of 64 frequencies per octave (385 F at all). The audiograms were digitally stored in a built-in flash memory and also plotted in the center. All files were transferred on a computer and analysed in France. One of the groups was treated with Artesunate + Amiodaquine and the other with artemether + lumefantrine in double blind conditions. Each patient was his own control and we calculated the differences between J0, J3 and J28 for several ranges of frequencies, until 16 kHz. 124 patients were included with a full record and a good quality tests (73 males and 51 females). Ages were between 12 and 40. Audiograms were interpreted in the range .5 – 16 kHz. Compared to the ISO 7029 reference values, they reach the medians with a deviation of less than 5 dB at J0. No significant difference was observed into the results at J0, J3 and J28 nor for the first, nor for the second group. There was no difference, according to the averages, between the auditory effects of the Artesunate + Amiodaquine treatment and the artemether + lumefantrine one.

SESSION: FP14 - 3 DATE: 31/3/2010 TIME: 16H45 - 18H00

HEARING WITH THE EYES**Authors**

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Abstract

OBJECTIVE: To develop an useful and simple DVD in order to promote early detection and diagnosis of deafness for health personnel, including doctors, nurses, speech pathologists and audiologists. METHODS: The DVD has three parts - Newborn Hearing Screening, School- Age Children and Elderly . Every section showed the diagnostic methods, the solutions and the benefits of a short period between detection and Rehabilitation. A short time of privation is emphasized in all ages. In order to make it accessible for deaf people, sign-language and written language was included. Deaf families told stories with different approaches toward deafness. 10.000 units were distributed to the State Health Dept. 1.000 units to Speech Pathologists Universities, 10.000 to the Municipal Health dept of Rio de Janeiro. Other units will be distributed during events related to deafness. Permission is given to those who want to distribute or duplicate the DVD free of charge. Samples may be requested free to the National Institute of Deafness in Brazil (www.ines.org). Results: The evaluation forms distributed with the DVD Hearing with the Eyes, showed 80% of approval, 20% requested more detailed information, like speech therapy for deaf. Language used and approach of the problem was considered excellent in all the forms. 1% suggested it could be translated to English and Spanish. Conclusion: The material was approved by 90% of the people that saw the DVD; the title was also approved by the deaf community.

SESSION: FP14 - 4 DATE: 31/3/2010 TIME: 16H45 - 18H00

PHENOTYPIC CHARACTERIZATION OF HOMOZYGOUS PATIENTS WITH 35DELG MUTATION IN THE SEMI- ARID AREA OF BAHIA - BRAZIL**Authors**

DANIEL SANN-DIAS, GABRIELA MANZOLLI, CARLA M CESAR AFFONSO PADOVANI, ROBERTA PAULON, CRISTINA SALLES, LUCIENE FERNANDES, KYOKO ABE-SANDES, ANGELINA ACOSTA

Institution

1. UNEB, UNIVERSIDADE DO ESTADO DA BAHIA

Abstract

The city of Monte Santo is located in the semi arid area of Bahia State and its population is 56938 inhabitants. Several rare genetic diseases show high prevalence in that area. Preliminary data discloses high rates of endogamy and inbreeding. 35delG mutation in the GJB2 gene is main cause of hereditary nonsyndromic deafness (HNSD) in Europeans and its expression results in different phenotypes. We investigated the mutation prevalence in 53 HNSD subjects. We have trained public health agents to identify and enroll subjects from local community. Data collection was based on a clinical questionnaire answered by the subject, blood collection for DNA sampling, tympanometry. Most study subjects were female (54%), mean age was 20,7 y.o. (range 2 to 68). Parental consanguinity was reported by 43% of subjects and 129 other familiar occurrences. Only 5% had genetic counseling. The mutant gene allele prevalence was 30,2%, being (28,3%) homozygous and 2 (3,8%) heterozygous. All subjects showed tympanometry type A, and except for one case, they all presented absent stapedian reflexes or present with high thresholds. That suggests sensorineural hearing loss, mainly bilateral (93%) and nonprogressive (76%) form. Comparative analysis between mutant homozygous and wild type homozygous showed statistically significant difference ($p < 0,05$) for: previous family hearing loss history (72% / 93%), European ancestry (34% / 54%), presence of tinnitus (59%/7%) and positive contralateral stapedian reflex (20%/7%); presence of contralateral stapedius reflex at 2KHz (37%/77% ($p=0,058$)). Conclusions: 35delG/GJB2 mutation was highly prevalent in the SHNS population in Monte Santo-BA. The frequency of mutant homozygous in this population is higher than demonstrated in other Brazilian studies, suggesting inbreeding and endogamy implications. In the mutant homozygous subjects was observed decreased tinnitus and elevated stapedius reflexes thresholds.

SESSION: FP14 - 5 DATE: 31/3/2010 TIME: 16H45 - 18H00

ANALYSIS OF THE IMPLEMENTATION OF HEALTH POLICY OF HEARING IN THE STATE OF BAHIA: BUILDING A NETWORK OF ASSISTANCE.**Authors**

MARCELA DE OLIVEIRA NEVES NOGUEIRA, TELMA FERRAZ, MAISA REAL TAVARES PORTO, GILCÉLIA CONCEIÇÃO DE JESUS ARAÚJO

Institution

1. CEPRED, Centro Estadual de Prevenção e Reabilitação de Deficiências

Abstract

INTRODUCTION: Bahia state is the largest Federation in the Northeast. It is the fifth in territorial length and has 417 municipalities; a population of 13.070.250 inhabitants and with which 14,5% of this population has some form of disability, that is 3,65% (477.270 persons) with hearing loss, in agreement with data of the last census of the Brazilian Institute of Geography and Statistics (IBGE) in the year 2000. However, even with this high incidence, there were few actions of assistance to this population in the state, specifically, only in the Reference Centers of Rehabilitation and in Philanthropic Institutions, which used to make donations of hearing aids. In 2004, after the publication of the ministry directives, such as the Ordinances GM/MS nº 2.077, SAS/MS nº 587 and the SAS nº 589, that form the National Politics of Hearing Health, Bahia received the benefit of 9 services, making obligatory and compulsory the assistance of people with hearing loss. The Centro Estadual de Prevenção e Reabilitação de Deficiências (CEPRED) (The State Center of Prevention and Rehabilitation of Disabilities) and the Programa de Prevenção e Assistência às Deficiências (PROPAD) (Program of Prevention and Assistance for Disabilities), both are from the Government Health Department of Bahia, have undertaken the commitment to organize the network of hearing health in the state. OBJECT: To analyze the steps deployed by the Health Policy of Hearing in the state of Bahia from the current configuration of The State Network of Health Care. METHODOLOGY: The research is self explained and the data was gathered from records and interviews with the Coordination and Management of these services. RESULTS: Before the publications of the ministry directives, the state used to give donations of hearing aids, but rehabilitations actions, like Language Therapy, for example were restricted. The PROPAD, formed in 1992, brought the state its first ideas to help with the assistance of disabilities. In 1999, the first State Publishing Institute was funded, created to be a reference in the rehabilitation of disabilities, the CEPRED, which is the pioneer in the implementation of actions of High Complexity in Hearing Health in Bahia, from 2005. At the time, the actions are focused in grants and not in gifts of a hearing aid, so the citizens have their rights guaranteed by the State. There are 6 services currently Hearing Health, meaning that 66% of the goal has been achieved: 2 of High Complexity in the capital and 4 of Medium Complexity within the rest of the state. CONCLUSION: Although the service started its actions in Hearing Health only in 2005, there has been a considerable advance within the Hearing Health Network in the State of Bahia.

SESSION: FP15 - 1 DATE: 31/3/2010 TIME: 16H45 - 18H00

THE USE OF REAL EAR MEASUREMENTS TO VERIFY HEARING AID PERFORMANCE IN THE HEARING AID PROTOCOL - NISA II PIRITUBA**Authors**PATRÍCIA SIMONETTI^{1,2}, CLÁUDIA APARECIDA RAGUSA-MOURADIAN^{1,2}**Institution**

1. NISAI PIRITUBA PMSP, NISA II PIRITUBA - PREFEITURA DO MUNICIPIO DE SÃO PAULO

2. AUDIO.COM, AUDIO.COM

Abstract

Resumo / Abstract: In the past 20 years, audiologists have used different methods to verify hearing aid performance. Functional gain, real ear measurements and speech perception tests in quiet and in noise are the most common procedures. New algorithms are created every day, bringing new resources towards amplification technology. Verifying the real performance of those hearing aids is more difficult, but even more necessary. Functional gain evaluation and speech perception tests show the benefit with and without amplification, but they are not enough to verify the electroacoustic characteristics of the hearing aid and



those tests are time demanding. Real ear measurements are the best choice to verify acoustics gain, output (SPL in the ear canal) and frequency response under different sound stimulus (level and spectra). It is also possible to have the various algorithms evaluated, like noise suppression, feedback cancellation, directionality, telecoil functioning. The vent effects and others modifications on acoustic coupling can be approached. Objectives: describe and discuss the hearing AID fitting protocol of the Integrated Hearing Health Centre - NISA II - Pirituba, using real ear measurements to verify hearing aid fittings. Methods: The protocol aspects, like measurements used, type of stimulus used, time consuming and advantages and difficulties will be discussed. The study will compare the hearing aid protocol before and after the introduction of real ear measurements as a tool to verify electroacoustic performance. Results: Different aspects were approached, especially time consuming, difficulties facing the emergent demand of an overloaded Public Hearing Health Service, considering the technical aspects of the procedure. More than one thousand patients had been attended in the last 3 years and real ear measurements turned out as a good toll to verify hearing AID performance. The procedure was less time demanding, providing more accurate responses. The numbers of appointments for further tune adjustments after the fitting were reduced. The results suggest a simple, unified protocol focusing specific population needs.

SESSION: FP15 - 2 DATE: 31/3/2010 TIME: 16H45 - 18H00

EVALUATION OF A TOTALLY IMPLANTABLE HEARING DEVICE: RETROSPECTIVE STUDY OF PATIENTS IMPLANTED IN HONG KONG

Authors

ANNA C S KAM, MICHAEL C F TONG, HENRY C K LAM, TERENCE K C WONG, JOANNIE K Y YU, IRIS H I NG, ANDREW C VAN HASSELT

Institution

1. CUHK, Chinese University of Hong Kong

Abstract

Background: The Otologics Carina is a fully implantable hearing device with the Middle Ear Transducer(MET)TM for the rehabilitation of patients with sensorineural or mixed hearing loss who cannot gain adequate benefit from conventional hearing aids. Implantation of such device in Hong Kong has been started since 2008. Aim: A retrospective study was performed to assess the overall level of satisfaction of implanted patients and to investigate the potential determinants of postoperative success. Method: A retrospective survey of audiological data from repeated measures and subjective data from self-assessment scales administered postoperatively were conducted to determine the degree of benefit and satisfaction for Carina implantees. A retrospective review of case records were undertaken to review (i) the preoperative vs postoperative hearing thresholds; (ii) aided vs unaided hearing thresholds; (iii) preoperative vs postoperative speech reception threshold; (iv) aided and unaided speech perception threshold; and (v) changes in in-situ hearing levels and uncomfortable levels. Result: All five subjects demonstrated improved speech recognition both in quiet and in noise. Subjective preference for the totally implantable hearing device over conventional hearing aid was reported in all hearing aid users. Aided benefit with the totally implantable hearing device was also demonstrated in the APAB scores. Conclusion: Rehabilitation with a totally implantable hearing device can be an option for patients who are not satisfied with the conventional hearing aids.

SESSION: FP15 - 3 DATE: 31/3/2010 TIME: 16H45 - 18H00

NEW METHOD FOR FEEDBACK SUPPRESSION IN HEARING AIDS

Authors

JOSEF CHALUPPER

Institution

1. SAT, Siemens Audiologische Technik

Abstract

Introduction Acoustic feedback is one of the most prominent problems associated with hearing instruments –in particular since open fittings have become more and more popular. In fact, 24% of hearing aid wearers are dissatisfied with a device relative to whistling, a common complaint associated with feedback. Today, hearing aids essentially employ one (or more) of three methods to suppress feedback: (1) dynamic gain reduction, (2) phase cancellation and (3) frequency shifting. With dynamic gain reduction (or adaptive notch filters), gain is reduced in the frequency range where feedback becomes audible. While this method is very effective in suppressing feedback, it also reduces audibility and thus, may degrade speech intelligibility. Phase cancellation and frequency shifting do not affect speech amplification, but may introduce unwanted distortions. New sophisticated steering algorithms, however, like "Acoustic Fingerprint Technology" (AFT) have the potential to effectively suppress feedback without introducing annoying artifacts. With AFT, the amplified signal that leaves the receiver is slightly phase modulated and this "tag" or a "fingerprint" is used to identify signals that have already been amplified by the hearing aid (i.e. feedback). If this "fingerprint" is detected in the hearing aid's input signal, feedback is likely to occur and thus, fast phase cancellation and / or frequency shifting is activated to suppress whistling. Methods Measurements were conducted with 12 participants with moderately sloping hearing loss, all fitted with the same hearing aids. In order to be as close as possible to real world conditions, hearing aids were programmed to manufacturer's FirstFit with all adaptive signal processing enabled. Moreover, subjects were instructed to move their heads, chew and even talk to simulate real world behavior. Four conditions were tested: phase cancellation at its default and maximum strength, and the combination method at its default and maximum strength (levels recommended for routine clinical fittings). Added stable gain was defined as the additional broadband real-ear hearing aid gain prior to feedback provided by activation of the feedback cancellation system. Input signal was babble noise at 50-dB-SPL. Results In agreement with data from the literature, rather large individual differences were found in ASG measurements. Interquartile ranges were similar across conditions (5.2 dB to 7 dB). Average added stable gain with the phase cancellation system only was 9.5 dB in the default and 13.5 dB in the maximum setting. The combined method, incorporating the transient frequency shifting, resulted in average measurements of 18.5 (default) and 20.5 dB (maximum) additional gain. These results show significant ($p < 0.01$) improvements of 7 dB in the maximum and of 9 dB in the default with the combination of frequency shifting and phase cancellation over phase cancellation alone. This improvement in feedback stability exceeds the needed margin for variations of the feedback path in real world for the majority of hearing instrument wearers. Summary Recent advancements in DSP technology like Acoustic Fingerprint Technology and frequency shifting allow higher effective gain without feedback. This improvement can be achieved without increased risk of annoying processing artifacts.

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SESSION: FP15 - 4 DATE: 31/3/2010 TIME: 16H45 - 18H00

AUTOMATIC DIRECTIONAL MICROPHONE SYSTEM FOR SPECIAL LISTENING SITUATIONS

Authors

JOSEF CHALUPPER

Institution

1. SAT, Siemens Audiologische Technik

Abstract

Directional microphone technology consistently shows improved speech understanding in noisy situations, in both laboratory and real world situations. Current adaptive technology accomplishes this by comparing the signals received at multiple microphones on the hearing instrument and determining the optimal polar pattern to provide the greatest reduction of rear field noise. Usually, directional microphone systems assume that the hearing aid wearer is facing the desired speaker. While accurate for most acoustic situations, this can create a negative result in other situations such as for the driver of a car who must focus on the road while listening to speakers to the side or from the rear. In this scenario, the directional microphones will effectively suppress rear speakers making them more difficult to understand. To address this situation, an adaptive microphone system has been developed to analyze the acoustic environment, measure the speech to noise ratio for all possible directivity settings and automatically choose the one expected to provide the best speech intelligibility. This approach includes the option of a "reverse cardioid directivity pattern", where sounds from the front are attenuated, and sounds from the back receive full amplification. Research with this new algorithm included 20 participants with bilateral hearing loss who were experienced hearing aid users. The speech test was the Oldenburg Sentence Test (OLSA). The babble noise signal was presented to the listener from a 0 degree azimuth; speech from 180. Microphone conditions were: omnidirectional, conventional adaptive directional, and "selective adaptive directional". The new selective adaptive directional microphone allowed for polar sensitivity patterns resulting in polar nulls from any direction, including the front field. Results were as follows: conventional adaptive directional microphone mode showed an average of 0.4 dB SNR for speech understanding; omnidirectional an average of -5.7 dB SNR, selective adaptive directional an average of -10.6 dB SNR; approximately a 10 dB SNR advantage for the selective directional microphone over the conventional directional microphone with speech coming from behind the listener. Statistical analysis revealed that the improvement provided by the new selective adaptive directional microphone was highly significant ($p < 0.001$) – when compared to both omni-directional and conventional adaptive directional. These laboratory findings were also reflected in a real world evaluation. Subjects had one memory programmed with the new selective directional microphone and the other with a conventional adaptive directional microphone. They were instructed to listen with both memories in a variety of daily life situations. Whereas for most situations there was no clear preference, most subjects preferred the new selective microphone when driving in a car. Omnidirectional microphones are typically preferred in quiet, generally providing equal sensitivity to signals from all directions. Adaptive directional microphones have been proven to be the choice for improved speech understanding in noise when speech is presented from the front and noise in the rear field. A selective adaptive directional microphone capable of automatically attenuating noise from the front when speech is presented from behind is a clear choice for this common but previously inadequately addressed acoustic scenario.

SESSION: FP15 - 5 DATE: 31/3/2010 TIME: 16H45 - 18H00

AFFORDABLE TECHNOLOGIES FOR HEARING HEALTH: HOW TO SOURCE THAT PERFECT \$40 DIGITAL HEARING AID

Authors

RONALD BROUILLETTE

Institution

1. WHO/WWH, WHO / WWHearing Committee

Abstract

Imagine if you can a primary school classroom in Paraguay that includes hard of hearing students who are all wearing modern digital solar powered hearing aid systems that cost \$45. Imagine further the students are all tuned into a solar powered loop induction system and many of them later plugged into a solar powered speech training system, both for under \$200. Imagine still that their hearing loss was clinically assessed using a solar powered audiometer. This presentation offers practical solutions to make this scenario a reality by using appropriate and affordable alternatives through an international network for the bulk purchase of hearing

aids, earmolds and equipment for testing and aural (re) habilitation. If we can assume a very low 1% prevalence estimate for individuals in the Latin American Region who could benefit greatly from a hearing aid, then more than four million hearing aids and accessories would be needed. In order to provide an appropriate, digital hearing aid system to even 10% of the population in need, the unit would need to cost under \$60, including earmold, three months supply of batteries and follow-up services. These prices can be obtained for those who need through an international purchasing cooperative or consortium buying scheme. Research to assess the technological poverty levels for hearing health and plausible solutions made during the author's work in 12 low-income countries shows overwhelming evidence of • Expensive, often underpowered hearing aids that are unsuitable for tropical conditions • Hearing aid batteries that are small (size 13), expensive and hard to find • Very few and working loop induction or FM systems that could improve sign-noise ratios • A small number of speech trainers that actually work and that are being used The researcher also has identified practical, affordable and sustainable solutions to significantly reduce the technological cycle of poverty: • A \$45 package that includes a Siemens or GNResound digital 'power' hearing aid and a solar 675 battery charger with batteries • Solar rechargeable Loop Induction systems for under \$200 • Solar rechargeable Speech Training system for under \$200 • Solar Rechargeable clinical diagnostic audiometer for under \$850 Latin American Audiologists, ENT doctors, PEHC nurses and others can combine purchase power and work together to collectively purchase assistive technologies on a consortium basis directly from the manufacturers. This presentation illustrates and demonstrates in practice how this appropriate technology works and how the use of regional collective purchase power can transform and advance regional efforts in hearing health.

SESSION: FP15 - 6 DATE: 31/3/2010 TIME: 16H45 - 18H00

A NEW GENERATION OF TRAINABLE HEARING AIDS

Authors

THOMAS POWERS, JOSEF CHALUPPER

Institution

1. SHI, Siemens Hearing Instruments

Abstract

Traditional fitting formulas are typically used to determine initial hearing aid settings. To accommodate individual variances and preferences, however, learning technology allows the patient to fine-tune the hearing aids. Sound Learning, the second generation of Siemens learning technology, allows the patient to not only train gain, but also compression characteristics and frequency shaping. Studies have shown patients are able to increase general satisfaction with their hearing aids after training without compromising speech intelligibility. To arrive at the ideal hearing aid fitting for each patient, audiologists typically use some type of prescriptive method (NAL-NL1 or DSLv5) in determining the initial settings of gain, frequency response and compression based on the patient's hearing loss. This provides a good starting point, but one must remember that the settings are geared toward the "average" patient. It is known that individuals with the same hearing loss may have very different amplification needs and preferences. In addition, the fitting is often conducted in a quiet setting, unlike the real-world listening environment of the hearing aid user. A reasonable solution for these issues is for the patient to "train" the hearing instrument to "learn" their individual preferences. The first generation of learning hearing aids were designed to automatically optimize gain based on volume control changes made by the user. Although helpful, there are potential limitations of training overall gain only. For example, if a wearer trains the hearing aid to provide more gain for soft input sounds this would result in more gain for all sounds which they may not desire. Hearing aids that provide learning are an efficient way for individuals to train their hearing aids to improve overall satisfaction without loss of speech intelligibility, and moreover, streamlines the fitting process for the clinician.

SESSION: FP16 - 1 DATE: 31/3/2010 TIME: 16H45 - 18H00

DISCHARGE SERVICES: THE CHALLENGES OF THE ADMINISTRATION IN THE COMPLEXITY OF HEARING HEALTH IN THE PUBLIC

SECTION: REPORT OF EXPERIENCE

Authors

MARCELA DE OLIVEIRA NEVES NOGUEIRA, TELMA FERRAZ, MAISA REAL TAVARES PORTO, GILCÉLIA CONCEIÇÃO DE JESUS ARAÚJO

Institution

1. CEPRED, Centro Estadual de Prevenção e Reabilitação de Deficiências

Abstract

INTRODUCTION: According to the World Organization of Health (OMS), 1,5% of the world populations possess hearing deficiencies. In agreement with data of the last census of the Brazilian Institute of Geography and Statistics (IBGE) in the year 2000, 25 million Brazilians admitted to have some type of disability, of these 5.735.099 are said to possess some difficulty in hearing, in other words, 38%. The statistical data corroborates with the need for the creation of Public Policies to service of that population. In 2004, the opening of GM / MS no. 2.073, MS no. 587 and MS no. 589 instituted the National Politics of Hearing Health and to the state, was given 9 (nine) services to set up the Network of Hearing Health. In Brazil, a significant number of services of hearing health matters was observed or philanthropic. They bring their own characteristics of the needy populace forth. Bahia, for instance, possesses 6 (six) accredited Services, 4 (four) of these for the deprived hearing. The State Center of Prevention and Rehabilitation of Deficiencies (CEPRED), center of reference for the state, is executing their actions of high needs in Hearing Health by the use of public administration, facing the challenges that this section presents the services rendered regarding health for the population. OBJECTIVE: to analyze the challenges of the administration of the public service of Hearing Health through the experience of the center of Reference Center of High Complexity in the Rehabilitation of Deficiencies. METHODOLOGY: The research has a self explanatory character and the data was lifted up starting from documental analysis and interview with Coordination and Direction of the Service. RESULTS: To faced the challenges is necessary to concentrate actions in the Primary Care, Hearing Rehabilitation Process, like the decentralized of the services of speech therapy, lower the costs of hearing aid's repair, and actions in hearing care (early detection of hearing loss). CONCLUSION: With base in the results verified, it is possible to practice a quality service to the population, by a conscious and participatory management.

SESSION: FP16 - 2 DATE: 31/3/2010 TIME: 16H45 - 18H00

AUDITORY RETEST: AN EPIDEMIOLOGICAL SURVEILLANCE METHOD FOR DETECTING IN CHANGES HEARING

Institution

1. SESI, Serviço Social da Indústria
2. UFPE, Universidade Federal de Pernambuco

Abstract

The hearing monitoring ends up acting as a control method of the PPPA effectiveness and one of the problems has been the variation of the observed hearing limits found in different tests which may falsely indicate a newly started hearing loss or its worsening and reflect neither the environmental insalubrity nor the effectiveness of the hearing protector but only a failure in the testing method itself. Objective: to verify the effectiveness of auditory retest in minimizing the influence of the waves during hearing threshold research. Method: this is a cross-section study conducted in 2009 with 324 workers, (aging from 19 to 29 years old). All participants are familiar with the audiometer procedures for being annually submitted to this evaluation. The majority of the participants (54%) hadn't exceeded more than 5 years at work. Initially, hearing tests were carried out in the following frequencies: 250Hz, 500Hz, 1kHz, 2kHz, 3kHz, 4kHz, 6kHz and 8kHz. Following this procedure, retests were carried out with the earphones replaced in the following frequencies: 4 kHz, 6 kHz and 8 kHz. Thresholds obtained before and after their replacement were compared. Results: The difference between thresholds in 6kHz and 8kHz was statistically significant ($p < 0.001^*$) regardless the hearing status of the participant (normal hearing or hearing loss). Conclusion: The hearing retesting after replacing the earphones may be an efficient method for the identification of the real thresholds, and may be used in detections of hearing loss related to work as an instrument of epidemiological surveillance.

SESSION: FP16 - 3 DATE: 31/3/2010 TIME: 16H45 - 18H00

AUDITORY HEALTH OF EXPOSED WORKERS TO NOISE AND CHEMICAL SUBSTANCE

Authors

NATALIA ARANTES HORTO², TATIANA BRANDER DE ASSIS^{2,2}, CLEIDE FERNANDES TEIXEIRA^{1,1}

Institution

1. UFPE, Universidade Federal de Pernambuco
2. IMIP, INSTITUTO DE MEDICINA INTEGRAL PROFESSOR FERNANDO FIGUEIRA

Abstract

Due to the toxic properties of the lead and the working conditions prevalent in the family business for the production of lead-acid batteries, workers in this industry are often exposed to high concentrations of heavy metal and consequently, subject to intoxication. Objective: to study the hearing alterations of individuals exposed to lead and concomitantly to noise, considering both the sensorineural aspect as well as the central one. Method: study of prevalence with 21 workers (mean age = 34 years old) exposed to noise as well as lead during the recycling of batteries. The sample was finalistic after exclusion of the workers with less than 3 years of exposition and/or with audiogram modified with characteristics of conductive or mixed hearing loss. All workers underwent both an audiometer test and a behavioral test of duration tonal pattern (TPD) Results: the workers (85,7%) suffered from chronic exposure to chemicals, stands out tingling and numbness (66,7%) headache (47,6%) difficulty in remembering and irritation of the eyes (38,1%), difficulty of comprehension (23,8%), as the most common symptoms. Greatest incidence of central hearing problems (47,62%) compared to peripheral ones (23,8%) the major damage occurred in the frequencies of 3kHz and 4kHz. Exposures over 6 years showed a significant association ($P=0,047$) with audiometry and not with DPS ($P=0,080$). Conclusion: Simultaneous exposure to noise and lead may cause hearing symptoms as well as extra hearing symptoms when it occurs in less than 6 years of exposure. KEYWORDS: Hearing loss. Lead. Auditory system and multiple exposures

SESSION: FP16 - 4 DATE: 31/3/2010 TIME: 16H45 - 18H00

DIAGNOSIS IN A NEWBORN HEARING SCREENING PROGRAM

Authors

EMANUELLE QUEIROZ DOS SANTOS TENORIO, DENISE COSTA MENEZES, SILVANA MARIA SOBRAL GRIZ, ANA KAROLLINA DA SILVEIRA, NATHÁLIA RAPHAELA PESSOA VAZ CURADO, ADRIANA RIBEIRO DE ALMEIDA E SILVA, CAMILA PADILHA BARBOSA, DENISE ALMEIDA

Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO



Abstract

Introduction: A hearing impairment can affect the global development of a child, especially regarding to oral language acquisition. However, when a hearing loss is early detected and appropriate intervention is offered, chances for improvement in language are greater. This is why Early Hearing Detection and Intervention (EHDI) programs have been widely implemented in hospitals. Nevertheless, due to difficulties in the implementation process, some programs have not reached successful results. Therefore, proper evaluations of programs are necessary to identify specific problems to be solved. **Main Purpose:** This study aimed to verify the diagnosis process of a hearing loss in newborns submitted to a screening program in the Federal University of Pernambuco Hospital. **Method:** diagnosis procedures of 72 newborns who have failed hearing screening in the year of 2008 were analyzed. **Results:** Among 72 newborns who have failed screening and referred to diagnosis, 54 (75%) had a risk indicator for hearing loss and only 17 (23%) have returned. The age of the babies who have returned to hearing diagnosis were between 1 and 8 months (mean age 3,76 months). Among those who have returned, only two have a hearing impairment confirmed. The hearing tests performed in diagnosis were Auditory Brainstem Responses (ABR) and Otoacoustic Emissions. **Conclusions:** It can be noticed a low level of return rate for hearing diagnosis. In addition, due to the delay of those babies who have returned, hearing diagnosis is not necessarily being completed before the third month of the child age. Reasons for the low return rate and the return delay are discussed in the study. **Key-words:** hearing screening, neonate, hearing loss

SESSION: FP16 - 5 DATE: 31/3/2010 TIME: 16H45 - 18H00

SOCIOECONOMIC AND DEMOGRAPHIC ASPECTS OF FAMILIES IN A NEWBORN HEARING SCREENING PROGRAM

Authors

SILVANA MARIA SOBRAL GRIZ, NATHÁLIA RAPHAELA PESSOA VAZ CURADO, ANNA KAROLINA DA SILVEIRA, DENISE COSTA MENEZES, ADRIANA RIBEIRO DE ALMEIDA E SILVA, CAMILA PADILHA BARBOSA, DENISE ALMEIDA, EMANUELLE QUEIROZ DOS SANTOS TENÓRIO

Institution

1. UFPE, universidade federal de pernambuco

Abstract

Introduction: Hearing loss can affect the global development of a child, especially regarding to oral language acquisition. This is the main reason to implement a universal newborn hearing screening (NHS) program in hospitals, in order to early identify a hearing problem and start early intervention. Several studies have documented different factors which can be considered as hearing loss etiology in neonates. Those factors can be related to socioeconomic and/or demographic aspects of a specific population, and should take into account in a newborn hearing screening program implementation. **Goal:** The main purpose of this study was to characterize the socioeconomic and demographic aspects of the families who had their babies born during the year 2008, and attended to the newborn hearing screening program, at a hospital in Recife, Northeast of Brazil. **Methods:** 847 mothers were interviewed, regarding to some socioeconomic and demographic aspects. **Results:** Among them, 61,1% aged between 20 and 24 years-old, 70,5% were married, and 37,3% had completed high school or undergraduate courses. According to their income, most of the participant mothers (59,9%) had mentioned do not have any kind of personal income, and 64,4% of them declared three minimum wages as the total family income. Regarding the area where the families live, 68,5% live in Recife (urban zone). Most of the participants (89,4%) has no more than three children, and 80,2% of the families have no more than five persons living together in the same house. Regarding their living conditions, the results show that 65,5% live in their own house, 98,8% have electricity in their homes, 88,1% have toilet bowl inside the house (86,5% of those with flush), 87,5% have their garbage collected properly, 99,8% have drinkable water. About the families immovable, it can be observed that 93,5% of the participant families have television at home, 85,2% have refrigerator, 33,6% have a telephone line, 97,1% have a stove and 2,6% have a car. Information related to pregnancy and birth of the baby show that 94,1% of the infants were born in public maternity hospitals, 97,4% of the mothers had medical follow-up during pregnancy (59% of those mothers had started the follow-up before the third month of pregnancy and 64,4% had more than five meetings). **Conclusions:** Results show the presence of some socioeconomic and demographic characteristics which are adverse for health promotion of the participant families, especially neonates and infants. This condition may lead to the occurrence of risk factor for newborn hearing loss. Therefore, these aspects must be taken in account in the newborn hearing loss screening programs developed in the region. In addition to that, those socioeconomic and demographic characteristics must be also considered in health promotion programs in the region.

SESSION: FP17 - 1 DATE: 31/3/2010 TIME: 16H45 - 18H00

USING SURVEYS AS A TOOL FOR PERFORMANCE ASSESSMENT OF CHILDREN IMPLANTED

Authors

MARIA STELLA CREDIDIO JUSTO, THAIS TALARICO

Institution

1. Clínica Triade, Triade ClínicaFonoPsicoPedagógica

Abstract

Introduction: Currently, patients hearing, may use the electronic devices such as treatment and thereby try to close the gap concerned. For children, in particular, diagnosis and intervention are occurring earlier. Therefore, to verify the effectiveness of treatment we evaluate. Most studies carried out evaluations from a professional perspective and focus on aspects of perception and production speech. Some research has considered the comments made by parents, which may be biased. In such cases as may be prudent to perform studies highlighting the observations and standardized measures, such as protocols. The protocols can perform comparative measurements (anterior and posterior interventions) the same patient and / or compare them with the scale. **Objective:** To analyze the importance of auditory behavior of children and use questionnaires IT-MAIS and MUSS. **Methods:** To perform this study were observed behavior during auditory stimuli (pure tone and warble) inside the soundproof booth and used the questionnaires IT-MAIS and MUSS the parents or caregivers of children through an interview. The IT-MAIS questionnaire presents questions about auditory behaviors of children (up to 4 years old) in a situation of daily life, reflecting on changes in vocalization, integrated the use of the electronic device, attention / warning to the various environmental sounds and assigning meaning to sounds. Since the MUSS evaluates the use of voice, use of oral language to people familiar and unfamiliar with the child. The questionnaire was administered 3 months after completion of stimulation soundproof booth. Interviews were conducted with parents or caregivers of children. For this survey were used children diagnosed with hearing loss was deep, with up to 1 year of age. **Results:** qualitative analysis of results indicated that the auditory behaviors are described below. Patient 1 increased the quality of response, which occurs in a systematic way, head-turning and is currently associated with a motor act, increased vocalization during stimulation, greater attention and detection, is less hectic and also features voice response. Since the patient 2 showed an increase response with HA (for source and stop actions), and greater attention to the sound detection. Currently provides answers as systematic as compared to beginning of observations. Patient 1 in IT-MAIS questionnaire returned 10% in the first time and 45% in the second; MUSS could not be done the first time since the child did not exhibit spontaneous responses to the sound, after 6 months the questionnaire was applied and obtained 25% as a result. For patient 2 obtained 20% as a result in both questionnaires. **Conclusion:** Thus, we note that the behavioral observations added to the application protocols that quantify, are critical because they bring in more concrete data on the performance of auditory skills and language a more objective, patients on the (re) habilitation of hearing.

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SESSION: FP17 - 2 DATE: 31/3/2010 TIME: 16H45 - 18H00

HEARING AND FORMAL MUSICAL TRAINING IN COCHLEAR IMPLANT USERS

Authors

CRISTINA COSTA FELIX, MARIA STELLA CREDIDIO JUSTO

Institution

1. Clínica Triade, Triade Clínica FonoPsicoPedagógica

Abstract

Introduction - The cochlear implant has been an excellent resource for patients with profound hearing disabilities, as it enables a change in quality of life of individuals by increasing the independence, motivation and improving the social relationship. Studies show that patients implanted verbalizations have more frequent, better quality and tone of voice, speech more rhythmic and better ability of phonemes. The fact that the attention and concentration significantly improved. However, for this to happen in an effective manner, and hearing rehabilitation with speech therapy, becomes an important work of training formal hearing in a soundproof booth, seeking work and development of auditory skills necessary for the oral communication process. A program of auditory training should include the skills of temporal pattern - frequency and duration of sound and resolution time. Other forms of auditory training, used recently is the application of auditory training implemented through Music DVD media, where there a greater involvement of the patient and family, as it can be trained at home by strengthening activities targeted and worked in speech therapy and cabin acústica. **Objetivo** - This study aims to demonstrate the importance and necessity of developing a program of formal auditory training and music for cochlear implant users directed to the temporal processing tasks related to frequency and duration of sound and temporal resolution to promote synchrony of auditory skills to better acquisition and understanding of oral language. **Methodology** - The method used was a case study two cochlear implant adults, implanted for 1 year and meio. O auditory training was conducted in a soundproof booth using the first media CD the Auditec-St. Louis, 2000 the PPT and PPS-duration pattern-DPS. Later we used the DVD media proposed by Freire, K., 2009 with the implementation DVDs of the number 3, 4 and 5 working in the same listening skills. The monitoring of the auditory training was proposed concomitant therapy speech to optimize the tracks orofacial and other facilitators to effective communication. **Results** - The results indicated an improvement in listening to environmental sounds and improvement in oral communication process after auditory training. The tests were effective because during the training improvement was observed in the velocity of acoustic signal processing, improvement in memory ability for non-verbal sounds by up to five sets and the recognition threshold of instrumental sounds in noise. **Conclusion** - In view of this study notes the importance of conducting a training program hearing in cochlear implant therapy in conjunction with speech in order to optimize the skills involved in auditory temporal processing Frequency and duration and temporal resolution present in the oral communication process. The material proposed by Freire is easy to apply where the patient can train at home reinforcing auditory training conducted in a soundproof booth.

SESSION: FP17 - 3 DATE: 31/3/2010 TIME: 16H45 - 18H00

COMPUTATIONAL ANALYSIS OF BIOMECHANICAL BEHAVIOR OF THE HUMAN MIDDLE EAR FOR HEARING REHABILITATION

Authors

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Institution

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Abstract

COMPUTATIONAL ANALYSIS OF BIOMECHANICAL BEHAVIOR OF THE HUMAN MIDDLE EAR FOR HEARING REHABILITATION ABSTRACT Hearing is the ability to recognize the sounds emitted by the environment. Any hearing loss may affect the life of an individual. Any action that might mitigate this difficulty, notice is of great interest. The aim of this study is to analyze the biomechanical behavior of the middle ear and tympanic membrane, using a numerical simulation model. This model is based on a technique used in engineering problems, called the Finite Element Method. Having this perception will be easier to simulate some conditions, comparing them with normal hearing, allowing a better prognosis. Also the selection of most appropriate prosthesis might be an important contribution of this technique. The finite element method is a computational technique, based on numerical methods, which can be applied in the mechanical calculation in order to determine displacements, strains and stresses. In a simplify way, it can be noted that the method includes the division of the domain into parts, called finite elements, which bind to each other at certain points, called nodes. Through images of Computed Tomography (CT) a digital model consisting of the tympanic membrane and ossicular chain was created. The discretization of the model was made by using the finite element method, based on the program ABAQUS. The tympanic membrane was divided into two parts: the pars flaccida and pars tensa. The pars tensa was divided into three layers: outer, central, and inner. The mechanical properties were taken from previous work, and the outer and inner layers are of the same isotropic properties of the pars flaccida and the central layer contains orthotropic properties. The excitation in the tympanic membrane corresponds to the range between 100 Hz and 10 kHz. This led to the displacement of the umbo and the center point of the stapes footplate to sound pressure levels of 80 dB SPL. The results show that the higher the level of sound pressure applied on the tympanic membrane, the greater the displacement obtained at the umbo and stapes footplate. The results also show that the largest displacements, for any level of sound pressure level of the umbo, are close to 1 kHz while at the stapes footplate approaching 500 Hz. The results obtained with this model are very close to the experimental results of other authors. ACKNOWLEDGEMENTS The authors truly acknowledge the funding provided by Ministério da Ciência, Tecnologia e Ensino Superior - Fundação para a Ciência e a Tecnologia (Portugal) and by FEDER, under grants PTDC/EME-PME/81229/2006 and PTDC/SAU-BEB/104992/2008.

SESSION: FP17 - 4 DATE: 31/3/2010 TIME: 16H45 - 18H00

SPEECH PERCEPTION AND USE OF THE VERBAL LANGUAGE IN HEARING IMPAIRED CHILDREN USERS OF COCHLEAR IMPLANT.

Authors

FERNANDA DE LOURDES ANTONIO, ELIANE MARIA CARRIT DELGADO-PINHEIRO

Institution

1. UNESP, Universidade Estadual Paulista "Júlio de Mesquita Filho"

Abstract

Introduction: Technological resources, such as cochlear implant, associated with auditory rehabilitation programs can help children with profound sensory-neural hearing impairment in the speech perception and the development of the verbal language. Objective: to analyze the performance in the speech perception sounds and the use of the verbal language in hearing impaired children users of cochlear implant. Methods: Participants were 11 children with profound sensory-neural hearing impairment, users of cochlear implant, aged between 3 and 12 years. All participants attend fonoaudiological treatment in a school clinic that uses the aural approach. Analysis of the documented medical records was performed in order to obtain data on the child's age at diagnosis, the age at the surgery time and the length of cochlear implant use. The data on the speech perception were obtained by the procedures: Teste de Habilidade Verbal Limitada (Orlandi e Bevilacqua, 1998), Procedimento de Avaliação de Fala em Crianças Deficientes Auditivas Profundas a partir de Cinco Anos de Idade (Bevilacqua e Tech, 1996), Lista de Palavras Dissílabas (Delgado e Bevilacqua, 1999). As for the data related to the use of verbal language, the records in the monthly reports of each participant were analyzed using the procedure MUSS - Meaningful Use of Speech Scales (Nascimento, 1997). Results: The child's age at diagnosis ranged from one year and two months to two years and nine months. The child's age at surgery ranged from one year and eight months to four years and six months. The time of cochlear implant use ranged from nine months to eight years and six months. In the evaluations of the speech perception, it was found that all participants developed the skill to detect hearing from listening. All children participating in this study are developing verbal language to communicate. The results of the use of verbal language showed that the participants present from the pronunciation of pragmatically significant vocal sound to spontaneous conversation with fluency. The results of the MUSS ranged from 45% to 95%. More specifically, the results showed that, children with shorter time of cochlear implant use detected and discriminated auditory speech sound emitting pragmatically significant vocal sound. With an increase in the length of cochlear implant use, the children had hearing abilities of recognition, pronouncing single words, and structuring simple and complex sentences. The children with a longer use cochlear implant, demonstrated auditory understanding and maintained spontaneous conversation with fluency. Conclusion: The participants had the speech perception and demonstrated to make use of verbal language. Nonetheless, the following points proved to be influential in the speech perception and in the use of the verbal language: (1) the sensory deprivation period, in which, the longer the sensory deprivation period, the later and slower the perception and language development; and (2) the time of cochlear implant use, since the speech perception and the verbal language developed gradually in all children.

SESSION: FP17 - 5 DATE: 31/3/2010 TIME: 16H45 - 18H00

EFFECTS OF ECHOIC TEACHING ON THE NAMING OF FIGURE ON PRELINGUALLY HEARING IMPAIRED WITH COCHLEAR IMPLANTS

Authors

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Institution

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2. USP/Bauru, Universidade de São Paulo

Abstract

Recent multidisciplinary studies demonstrated the efficiency of cochlear implants on the receptive learning, but the expressive language does not show the same acquisition speed. The aim of this work was to verify the effect of teaching the echoic behavior (imitation of words) over the figures naming. The participants of this study were five children between six and nine years old with prelingually hearing impaired, users of cochlear implants model Nucleus 24®. The study consisted in: (a) pre-training with the objective of teaching the task of matching to sample (to select the figure that matches the dictated word); (b) pre-tests that evaluated the repertoire of base line auditory recognition, naming an echoic and selected three words with low percentage of correct responses that were used on teaching; (c) the teaching consisted in the establishment of auditory-visual conditional relations (receptive repertoire) by fading out procedure (from the visual identity relations between figures with overlapping of the dictated word to the figure model; in successive steps the visual model was faded and became the trial merely auditory-visual); (d) post-test of naming that in case of vocalization without point-to-point correspondence with the dictated word followed (e) the teaching of echoic with or without clues orofacial and , finally (f) the second post-test of naming. In the stage of pre-test all participants showed higher percentage of correct answers on receptive (> 85% correct) than expressive repertoires (between 60% and 80% in naming and between 20% and 50% correct answers to echoic). All participants learned the relationship between the three dictated words and figures in the phase of training, however, for four participants, the improvement indicative in test only occurred after the training of echoic. The results of the first and second post-test appointment were: P1 - 78% and 100%, P2 - 22% and 67%, P3 - 78% and 89%, P4 - 33% and 56%. During the teaching of echoic, three children kept the performance in 100% success rate after the removal of facial clues and move of lips, and one participant did not required the use of clues. The data show that the listening and speaking performances are independent in their establishment and require specific conditions of teaching. However, the listening and speaking can become interdependent with specific planning. For this study, since the participant selects one figure in the presence of a dictated word (recognition auditory) and repeat a word dictated (echoic), the same calling now occurs in the presence of the figure (named). This functions transference occurred because both the calling and the selection of figures were related to the same dictated word. Future studies should investigate the conditions under which the accuracy in naming words can be obtained. Fapesp - Grant 2008/57994-0

SESSION: FP18 - 1 DATE: 1/4/2010 TIME: 09H00 - 10H30

SYMPTOMATOLOGICAL PROFILE OF PATIENTS TREATED IN A VESTIBULAR REHABILITATION SERVICE

Authors

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Institution

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Abstract

Keywords: Neurotology, Vestibular Rehabilitation, Dizziness Handicap Inventory (DHI). Objective: The aim of this research was to study the hearing and vestibular complaints as well as the performance on the Dizziness Handicap Inventory (DHI), before and after the Vestibular Rehabilitation (VR), of patients referred to a VR Service in the "Universidade do Estado da Bahia - UNEB". Methods: Twenty medical records were evaluated with an average age between 14 and 82 years with 9 males and 11 females, with vestibular complaints, referred to Vestibular Rehabilitation in the period between 2007 and 2009. The data analysed is related to the anamnesis, the results of the vestibular exam and the DHI score, before and after the VR. Results: The symptomatological findings collected from the anamnesis were summarized into seven categories: vestibular symptoms, hearing symptoms, associated symptoms, past diseases, triggering factors, harmful habits and use of medications. The twenty analysed subjects were divided into three groups, according to the results in the Vectonystagmography: GROUP I - Irritative Peripheral Vestibular Alteration 14 (70%), GROUP II - Deficient Peripheral Vestibular Alteration 4 (20%) and GROUP III - Normal Vestibular Function Test 2 (10%). None of the subjects had central vestibular alterations. The most frequent symptomatological findings according to the categories were: GROUP I: vertigo (71,1%), tinnitus (71,1%); extremity tingling (50%); both Systemic Arterial Hypertension (SAH) and metabolic disorders with 35,7%; coffee consumption (64,3%); both antidepressants and anxiolytics with 7,1%. GROUP II - vertigo (100%); when walking (75%); both tinnitus and aural fullness with (50%); cervical pain (75%); diabetes, hormonal disorder, cervical spine deformity and SAH with 25% each; coffee, prolonged fast and chocolate with 25% each; use of anxiolytics (25%). GROUP III - head movement (100%), tinnitus (100%), nausea and cervical pain (100%), SAH (100%) and coffee (100%). Of the three groups, 2 subjects (10%) scored the DHI without initial handicap, 11 mild handicap(55%), 7 moderate handicap (35%) and 0 severe handicap. At the end of the study there will be a new assessment with the scores before and after RV, considering the least significant difference of 18 points and the presence or absence of change in the grading scale DHI. Conclusion: Among those studied, there was a larger occurrence of individuals with Irritative Peripheral Vestibular Alteration. According to the symptomatological categories, the most frequent findings from the total of subjects involved were: vertigo - 15 (75%), tinnitus - 14 (70%), cervical pain - 10 (50%), SAH - 8 (40%), head movement - 16 (80%), coffee - 12 (60%) and anxiolytics - 2 (10%). Therefore, the most common findings were: vertigo, cervical pain, head movement and irritative peripheral vestibular alteration.

SESSION: FP18 - 2 DATE: 1/4/2010 TIME: 09H00 - 10H30

THE SIGNIFICANCE OF THE ILD OF VEMP IN FUNCTIONAL ASSESSMENT OF VESTIBULOCOLIC REFLEX PATHWAY**Authors**

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Abstract

Objective/Purpose: Vestibular-evoked myogenic potential (VEMP) is a new test of vestibular function. In addition, VEMP is still the only somomotor response in routine clinical use. So far, many studies have focused on clinical use of VEMP in various pathologies. In contrast, the test role in brain stem pathologies and demyelinating processes of central nervous system remains to be defined. The aim of this study was to investigate the significance of interaural latency differences of VEMP in functional assessment of vestibulocolic reflex pathway. **Subjects/Methods:** This cross-sectional descriptive and analytic study was carried out on 21 patients (15 female, 6 male) with Relapsing-Remitting (RR) type who fulfilled the diagnostic criteria of clinically definite multiple sclerosis and 21 normal individuals (15 female, 6 male) with age range of 17 to 50 years. Vestibular evoked myogenic potentials were evoked by 500 Hz tone burst stimuli. We measured P13 and N23 latencies, P13-N23 amplitude, and interaural latency differences of p13, n23 and the interpeak latency of p13-n23. The data were analyzed with statistics methods. **Results:** There was a significant difference (p value < 0.05) between MS patients and control subjects with respect to P13 latency (longer in the MS group) and P13-N23 amplitude (lower in the MS group) in both ears. Vestibular evoked myogenic potentials were absent unilaterally in two patients. Overall, VEMP results were abnormal in 47.6% of MS patients. The results also showed a significant difference ($p < 0.05$) between interpeak latency p13-n23 of both groups. Also, interaural latency difference of vestibular evoked myogenic potential was abnormal in 52.6% of patients with multiple sclerosis. **Conclusion:** VEMP abnormalities in the patient group might be the result of conduction impairment in vestibulocolic pathway. In addition, Interaural latency difference of vestibular evoked myogenic potential may represent a useful parameter for functional assessment of vestibulocolic reflex.

SESSION: FP18 - 3 DATE: 1/4/2010 TIME: 09H00 - 10H30

AIR CALORIC TEST: COMPARISON OF DIAGNOSTIC SENSITIVITY FROM DIFFERENT STANDARDS OF REFERENCE**Authors**BRUNA HOLANDA TONINI^{1,2,3}, CRISTINA FREITAS GANANÇA^{1,2,3}**Institution**

1. UNIFESP-EPM, Universidade Federal de São Paulo

2. FCMSCSP, Faculdade de Ciências Médicas Santa Casa de Misericórdia

3. PUC-SP, Pontifícia Universidade Católica de São Paulo

Abstract

Purpose: Check the diagnostic sensitivity of the air caloric test in patients with chronic vestibular comparing two normal ranges established for the use of computerized vectoelectroystamography. **Method:** Retrospective study, based on a survey of medical records of 200 patients aged from 18 years in the Ambulatory of Otononeurology from the Federal University of São Paulo in the period between 2007 and 2008. The entrance examination was conducted by the Computer VENG Neurograff Eletromedicina using the Software VecWin 2000 and its updated version VecWin 2005. Analyses were applied in two parameters of normality to the findings of the vestibular caloric test of each patient to verify the diagnostic sensitivity of each. **Results:** We found 74% of the population of females, mean age of 45.48 years. Among the 200 examinations evaluated, the findings of the air caloric test were: Bilateral vestibular hyperfunction at 18 °C in 30.5%, Unilateral vestibular hyperfunction at 18 °C in 2.0%, Bilateral vestibular hyperfunction at 18 °C (2000) Unilateral vestibular hyperfunction at 18 °C (2005) in 8.5%, Bilateral vestibular hyperfunction at 18 °C (2000) Normal responses (2005) in 7%, Vestibular hyperfunction at 18 °C (2000) Unilateral vestibular hyperfunction at 18 °C (2005) in 8%, Normal responses in 38%, Abnormal values of unilateral hypofunction + Unilateral vestibular hyperfunction at 18 °C in 3.5%, Abnormal values of unilateral hypofunction+ Vestibular hyperfunction at 18 °C (2000) Unilateral vestibular hyperfunction at 18 °C (2005) in 2.5%. **Conclusion:** When comparing two normal range established for the use of computerized VENG in patients with chronic vestibular we see that the air caloric test in 74% of examinations had their results on the old standard, and majority changes were Bilateral vestibular hyperfunction at 18 °C (2000) Unilateral vestibular hyperfunction at 18 °C (2005) and Unilateral vestibular hyperfunction at 18 °C (2000) Normal responses (2005).

SESSION: FP18 - 4 DATE: 1/4/2010 TIME: 09H00 - 10H30

THE RELATIONSHIP BETWEEN COMPLAINTS OF LEARNING DISABILITIES AND DIZZINESS IN STUDENTS**Authors**

BRUNA DE FRANCESCHI SCHIRMER, PAULA MICHELE DA SILVA SCHMIDT, PAULA ANDRETA BARROS DA SILVA, ANGELA GARCIA ROSSI

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Abstract

Introduction: The etiology of learning disabilities varies a lot and can be linked to several factors, so it is relevant to study the relationship between learning disabilities and dizziness, therefore, the vestibular disorders in children can become a cognitive impairment which affects directly their development and consequently their learning. **Objective:** To verify the relationship between complaints of learning difficulties and dizziness in students. **Methodology:** This research involved 201 children between 6 and 14 years old, from preschool to the fifth grade in a municipal school. For this study, it was developed a questionnaire to be applied to parents or guardians of the students, composed of questions about vestibular symptoms and / or of learning. **Results:** From a total of 201 children, 47 (23%) complained about some difficulty of learning and 154 (77%) were not reported because the dizziness was reported by 39 (19%) of the students and 162 (81%) did not. Of those students with dizziness, 15 (38%) reported complaints about some learning disability. **Conclusion:** We found a relevant number of students complaining about dizziness as well as learning difficulties. So, it becomes necessary more studies and researches to improve the understanding of the relationship between dizziness and learning disabilities, because they can act as an aggravating factor one to each other, and they can also cause greater deficits to the child.

SESSION: FP18 - 5 DATE: 1/4/2010 TIME: 09H00 - 10H30

THE OUTCOME OF VESTIBULAR REHABILITATION IN THE PREVENTION OF FALLS IN ELDERLY**Authors**KARINA HARUMI TANIMOTO¹, ELAINE SHIZUE NOVALO-GOTO^{1,2}, ALESSANDRA GIANNELLA SAMELLI^{1,2}**Institution**

1. HCFMUSP, HC da Faculdade de Medicina da Universidade de São Paulo

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Abstract

Introduction: Aging impairs the ability of the central nervous system to perform the signal processing that is responsible for maintaining body balance and decreases the ability of adaptive changes in reflexes. These degenerative processes are responsible for the occurrence of vertigo and / or dizziness and imbalance in the geriatric population. A method of treatment of balance disorders would be Vestibular Rehabilitation (VR), which is a therapeutic process that aims to achieve central compensation. For this, we use physical exercises specific and repetitive, allowing new patterns of vestibular stimulation and in future, be carried out automatically. The Berg Balance Scale (BBS) established parameters for identifying people with a greater susceptibility to fall and assesses the balance of the individual in 14 tasks, representing activities of daily life. The high score that a subject can achieve is 56 points, a score below 45 would result in possibility for future falls. **Purpose:** Using the Berg Balance Scale (BBS) to assess the risk of falls in patients before and after Vestibular Rehabilitation. **Method:** Is a prospective study of 11 patients treated in the Vestibular Rehabilitation, Division of Otorhinolaryngology Clinical, Clinic Hospital of the Faculty of Medicine, University of SFP Paulo. The BBS adapted version by Miyamoto (2003), was applied to 11 patients on two occasions, before and after the VR. About the VR exercises themselves, will be used two protocols: the technique described by Cawthorne & Cooksey, modified and adapted to our population, and the technique described by Herdman. The patient will be followed in the hospital around 02 to 04 months, with two returns in the first month and monthly until the end of treatment. The evaluation of clinical response to treatment will be performed by a visual analog scale: remission (100% of improvement), partial improvement(50% to 90%), no improvement (less than 50%). **Results:** There were analyzed a total of 11 subjects, in the range of 67 to 84 years old, of female (90,9%) and male (9,1%) gender. Of these subjects, 36,4% had non-rotatory dizziness plus imbalance, 36,4% vertigo plus imbalance, and 27,2% had imbalance. In relation to duration of symptoms 9% reported dizziness for one year or less, 45,5% between one and five years and 45,5% between six and 10 years. Concerning the diagnosis hypothesis, 54,6% has syndrome of the elderly imbalance, 18,1% has dizziness of vascular origin, and 27,3% others. Treatment lasted on average 2 months and 7 days and 36,4% of the subjects had remission of dizziness, and 63,6% had partial improvement. Before VR we observed an average score on BBS of 42,6, that result in possibility for future falls, after VR we observed a score of 49,9. **Conclusion:** There were significant improves on average scores of BBS after VR, suggesting that the elderly responded well to the treatment of vestibular rehabilitation, with remission of dizziness or significant improvement in body balance, quality of life, and decreasing the possibility for future falls.

SESSION: FP18 - 6 DATE: 1/4/2010 TIME: 09H00 - 10H30

COMPUTERIZED POSTUROGRAPHY WITH VIRTUAL REALITY IN CHILDREN AND ADOLESCENTS WITH VESTIBULAR DISORDERS**Authors**

TATHIANY PICHELLI, NATALIA WALDMAN OKAI, PRISCILA REGINA SANTOS, ANNA PAULA PIRES, ANDREZA TOMAZ, BRASILIA MARIA CHIARI, CRISTINA FREITAS GANANÇA

Institution

1. UNIFESP, Universidade Federal de São Paulo

Abstract

Computerized posturography with virtual reality in children and adolescents with vestibular disorders **Abstract Objective:** Evaluate children and adolescents with vestibular disorders throughout the results of posturography with virtual reality. **Method:** Prospective clinical study which evaluated the posturography standards with virtual reality in two groups: experimental (1) which consisted in 10 children with vestibular disorders and a control group (2) which consists in 10 children without vestibular disorders. The group (1) was submitted to evaluation to be verified the existence of some vestibular syndrome. During the data analysis, a comparison of the results of the posturography between the groups was made, and also a comparison of each individual of the group (1) among the average of the group (2). **Results:** In experimental group (1) the average of the ages was 12,2 years and in the control group (2) was 9,5 years, in both groups the majority was from the female sex. During the anamnesis 90% of the patients reported some dizziness, and 30% presented motion sickness. The vestibular test indicated 60% of irritative type of peripheral vestibular syndrome. In posturography there was a statistically significant difference only in the area of ellipse parameters during the comparison

of the groups. Furthermore, when compared the components of the group (1) with the average of the group 2, significant differences were found in 60% of the patients in the stability limit and 90% for speed of oscillation and area of ellipse. Conclusion: The results showed that the posturography with virtual reality was an evaluation method capable of detecting changes in most children and adolescents with vestibular disorders compared with the group without complaints related to body balance. Key words: Vestibule, Labyrinth, Postural Balance, Dizziness.

SESSION: FP18 - 7 DATE: 1/4/2010 TIME: 09H00 - 10H30

POSTUROGRAPHY IN INDIVIDUALS ADDICTED TO ILLICIT DRUGS, WITH OR WITHOUT ALCOHOL ABUSE

Authors

DANIELA AFFONSO MOREIRA, HELOISA HELENA CFPVILLA, CRISTINA FREITAS GANANÇA, ANNA PAULA BATISTA DE AVILA PIRES, MAURÍCIO MALAVASI GANANÇA

Institution

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Abstract

Purpose: To evaluate balance control with the Balance Rehabilitation Unit (BRU™) posturography in individuals addicted to illicit drugs, with or without alcohol abuse. Method: A cross controlled study was performed including 47 users of illicit drugs, with or without alcohol abuse, and a homogeneous control group consisting of 47 healthy individuals. Patients were submitted to an otoneurologic evaluation including Balance Rehabilitation Unit (BRU™) posturography. The postural control was measured in standing position, evaluating ten sensorial conditions: 1) eyes opened; 2) eyes closed; 3) on foam, eyes closed; 4) eyes opened with surrounding saccadic stimulation 5) eyes opened with surrounding optokinetic stimulation to the right, 6) eyes opened with surrounding optokinetic stimulation to the left, 7) eyes opened with surrounding optokinetic stimulation downwards, 8) eyes opened with surrounding optokinetic stimulation upwards, 9) visuovestibular interaction - horizontal stimulation, 10) visuovestibular interaction - vertical stimulation. Results: The mean values of stability limit were significantly less ($p < 0.0001$) in users of illicit drugs, with or without alcohol abuse than in the control group; the mean values of both sway velocity and ellipse area in all evaluated conditions were significantly higher ($p < 0.05$) in the experimental group compared to the control group, except for the ellipse area in static force surface and opened eyes, which showed a tendency to significant difference ($p=0.168$). Conclusion: The Balance Rehabilitation Unit (BRU™) posturography enables the identification of stability limit, sway velocity and ellipse area abnormalities in individuals addicted to illicit drugs, with or without alcohol abuse.

SESSION: FP19 - 1 DATE: 1/4/2010 TIME: 09H00 - 10H30

OUR EXPERIENCE WITH BILATERAL COCHLEAR IMPLANTATION.

Authors

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Abstract

Cochlear implants revolutionized the way we approach rehabilitation of patients with severe-to profound hearing impairment in restoring speech understanding. Benefits of cochlear implants in deaf children are indisputable. It has been proven, however, that implantation of a single device does not provide binaural hearing that can support sound localization and speech understanding in noisy environment. After 15 years of experience with unilateral cochlear implantation, in 2005 we have launched, for the first time in Poland, our program of sequential implantation to both ears in children. Two years later simultaneous implantation became standard for bilateral procedure. We present selection criteria and European guidelines for sequential and simultaneous cochlear implantation with analysis of results obtained after surgery in several groups of patients. By the end of June 2009 we have 31 patients. Basis for the surgical method was presented and audiology results 1, 2 and 3 years after surgery were discussed. Data analysis from presented groups of patients show that bilateral cochlear implantation has the potential to improve sound localization and improves speech perception mainly in noisy environment compared to unilateral cochlear implantation. Furthermore, simultaneous procedure of cochlear implantation, according to current standards and guidelines lowers the risk for adverse events during surgery and general anaesthesia. It also reduces stress in patients and their families contributing to more efficient speech rehabilitation. Bilateral cochlear implantation in adults and children has been accepted and is recommended as mainstream medical practice in Europe.

SESSION: FP19 - 2 DATE: 1/4/2010 TIME: 09H00 - 10H30

COCHLEAR IMPLANT: OPTION FOR AUDITORY REHABILITATION ON CHILDREN WITH CEREBRAL PALSY

Authors

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Institution

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Abstract

Introduction: The cochlear implant (CI) shows good results in oral language development and auditory skills in children with isolated hearing loss. Studies about CI in deaf children with other disabilities, are little, but the research studies report a significant improvement in quality of life in this children. The greater number of the articles reported experiences of CI with different patients, which presented a motor, cognitive, or social delay. The group of children who have benefited most from CI were children with cerebral palsy, and the least benefited were children with autism and/or significant intellectual deficit. Objective: This study aims to report the results of the use of cochlear implants in deaf children with cerebral palsy. Patients and Settings: The study sample consisted of five children, enrolled in the Cochlear Implant Rehabilitation of Craniofacial Anomalies Hospital (CPA-HRAC/USP). All children underwent of medical routine and psychological tests. Motor data were considered for the indication of the CI, all children should have cervical control (or in process of acquisition) and absence of oral reflexes and tonic-neck. The average age of the implanted children was 44 months, minimum age of 28 and maximum of 64 months, and all were male. Two children had spastic diplegia, two spastic diplegia, and one was athetoid quadriplegia. Prior to the CI indication, the five children used hearing aids for at least 10 months, and the time of CI use ranged from a maximum of 9 months and a minimum of 4 months from date of activation of the electrodes. Results: The average found in pure tone audiometry (PTA) and verbal detection threshold (VDT) pre-CI was 100 decibels (dB) and 95 dB, respectively. The post-CI evaluation, it was found the average in 40 dB for both pure tone and speech. In relation to the categories of hearing, three children remained in category 1, one child progressed from category 1 to 2, and a child went from category 0 to 1. In relation to the categories of language, two children progressed from category 1 to 2, and three showed no trend, remaining in Category 1. The children that show progress in the both evaluated categories, presented spastic diplegia. One of the most significant benefits reported by family and professionals, was in the social aspect. It was observed an increase of the child's responses, more independency, improvements in environment interaction, as for communication skills, especially regarding the communicative intention. Conclusion: The cochlear implants presented good results in children with cerebral palsy, however, the progress of post-implantation, require longer periods to achieve significant development in speech, language and hearing. However, the improvement in quality of life is easily observable. The auditory stimulation, allow the oral communication, that was one of the most important factor that encourage social inclusion.

SESSION: FP19 - 3 DATE: 1/4/2010 TIME: 09H00 - 10H30

AUDITORY BRAINSTEM IMPLANTS IN CHILDREN. REPORT OF A BRAZILIAN EXPERIENCE

Authors

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Institution

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Abstract

Cochlear implant (CI) is considered the gold treatment in children with severe to profound sensorineural hearing loss. Nevertheless there are situations in which the CI cannot be performed or there is no auditory nerve conduction, and therefore the auditory brainstem implant (ABI) is the option (Carner et al., 2009). The ABI was first developed to help neurofibromatosis type II patients. Recently, the literature has demonstrated that the ABI may allow adults with non tumour etiologies to have an open set speech recognition (Colletti et al., 2009). These positive results motivated the extension of ABI indications to children with profound hearing loss who were not eligible for a CI (Colletti et al., 2004). ABI in children has been performed by some implant teams with case report results that may be comparable to those of cochlear implant children (Eisenberg et al., 2008). The aim of this study is to describe the audiologic results in ABI in children at our center. Methods. Four children were implanted from September 2008 to June 2009, one boy and three girls, with ages ranging from 3 years and 1 month to 7 years and 3 months. Two of them had cochlear nerve aplasia and two had complete ossified cochlea due to meningitis. Evaluation was performed with at least 6 months of device use and included free field hearing thresholds, IT-MAIS/MAIS, MUSS and ESP test. Results. The number of active electrodes that did not cause any non-auditory sensation varied from 3 to 21. Free field thresholds varied from bare auditory sensation of 70dBHL at 250Hz to a pure tone average of 45dBHL. IT-MAIS/MAIS varied from 0% to 42.5%, MUSS varied from 15% to 35% and speech perception category varied from 0 to 2. Conclusion and comments: We observed that ABI in children may be a good option to give some hearing attention to children who are not eligible for cochlear implant. Nevertheless, results might not meet the parents' expectations in case they think the ABI may be the only channel of stimulation to help the development of the oral language.

SESSION: FP19 - 4 DATE: 1/4/2010 TIME: 09H00 - 10H30

PRELIMINARY RESULTS IN EAS USERS: OUTCOMES WITH THE FLEXEAS ELECTRODE ARRAY AND DUET AUDIO PROCESSOR

Authors

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Institution

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Abstract

Objectives EAS is a promising treatment for individuals with a ski-slope type hearing loss who gain minimal benefit from hearing aid amplification, yet still struggle within their everyday environment. Hearing preservation and sufficient use of still existing low frequency hearing have been professional challenges over the past 10 years. This clinical study aims at establishing the benefits of providing a less traumatic electrode and a combined audio processor for users of EAS. Materials and Methods Eighteen patients were recruited for this clinical study. All received the FLEXEAS electrode array. A strict surgical procedure for minimal traumatism was followed to ensure maximum hearing preservation. After two months of cochlear implant experience, users were fit with EAS using the DUET audio processor. Users were controlled at regular intervals up to 12 months post-EAS fitting. Results All but one patient have completed the trial. All participants show good hearing preservation. Compared to their pre-operative situation they also show significantly improved speech perception scores over time. Benefits of using the DUET for EAS will be demonstrated. Conclusion Compared to results of earlier clinical trials, provision of less traumatic electrodes and following of a strict atraumatic surgical protocol seem to ensure better hearing preservation. The users tend to prefer a combined electric and acoustic audio processor over two separate devices. This leads to better acceptance and more frequent use of EAS, thus enhancing quality of life.

SESSION: FP19 - 5 DATE: 1/4/2010 TIME: 09H00 - 10H30

BILATERAL COCHLEAR IMPLANTS IN LONG-TERM AND SHORT-TERM DEAFNESS

Authors

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Institution

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Abstract

This case study is of a 70-year-old male with a single sided deafness (SSD) in the right ear since childhood attributed to Mumps. He grew up accustomed to the limitations imposed by unilateral hearing such as head shadow effects, the inability to localise sounds in space and difficulties to hear a conversation in the presence of background noise. At the age of 63 he developed a fluctuating severe hearing loss in his only hearing ear diagnosed as endolymphatic hydrops. The right ear was "experimentally" implanted subsequent to the left hearing loss. Following positive results obtained with the right cochlear implant and as the left hearing loss progressed, he eventually received a cochlear implants in left ear. Twelve months after bilateral implantation, at the age of 70, he started to present behavioural auditory processing skills associated with binaural hearing, such as improved ability to understand speech in the presence of background noise, and sound localization. Outcomes were measured using cortical auditory evoked potentials, speech perception in noise, sound localization tests, and a self-rating questionnaire. The results suggest that even after more than 50 years of unilateral deafness it was possible to develop binaural interaction and sound localization as a result of electric auditory stimulation.

SESSION: FP19 - 6 DATE: 1/4/2010 TIME: 09H00 - 10H30

DURABLE TINNITUS REDUCTION AND BIMODAL HEARING AFTER COCHLEAR IMPLANTATION IN PATIENTS WITH SEVERE SUBJECTIVE TINNITUS AND SINGLE SIDED DEAFNESS

Authors

ANDREA KLEINE PUNTE

Institution

1. Uni. Hosp. Ant., University Hospital Antwerp

Abstract

Background: The aim of this prospective clinical study was to assess the effect of cochlear implantation on tinnitus and speech recognition in noise in patients with single sided deafness (SSD) and ipsilateral incapacitating tinnitus. Methods: 22 subjects participated in this study. Patients were implanted with a COMBI 40+ M implant or a PULSAR CI100 FLEXsoft implant, with the electrode fully inserted into the scala tympani. Twelve of these subjects have normal hearing on the contralateral side, Ten subjects use a hearing aid contralaterally. Tinnitus assessment consisted of a tinnitus loudness estimation with a Visual Analogue Scale (VAS) and a Tinnitus Questionnaire (TQ) that was conducted pre-implantation and at regular intervals up to 48 months after first fitting. Speech recognition in noise was tested after 12 and after 36 months in two listening conditions: i) acoustic hearing alone (AH-only) and ii) CI and acoustic hearing (bimodal). Subjective improvement of hearing in daily situations was evaluated using the Speech, Spatial and Qualities of Hearing Scale (SSQ). Results: All 22 patients reported a benefit after cochlear implantation. On the VAS (from 0-10) the average tinnitus loudness decreased significantly from 8.5 to 2.7. Also the TQ total score decreased significantly. The amount of tinnitus loudness reduction is stable up to 4 years after cochlear implantation. Speech recognition in noise also improved significantly after cochlear implantation. The results after 12 months of CI experience showed a significant combined headshadoweffect and binaural squelch effect. 36 months after first fitting a significant binaural summation effect, binaural squelch effect and combined headshadow- and squelch effect could be detected. Scores on the SSQ also significantly improved after cochlear implantation. Conclusions: Cochlear Implantation seems to have a durable effect on tinnitus, causing significant and sustained tinnitus relief in patients with severe tinnitus and SSD. Cochlear implantation in these patients does not seem to have an adverse effect on speech recognition, moreover, speech recognition results suggest that cochlear implantation is an adequate treatment providing improved hearing for patients with unilateral profound sensorineural hearing loss. However, it has to be taken into account that the primary indication of cochlear implantation in these patients was severe tinnitus as a result of unilateral deafness.

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SESSION: FP20 - 1 DATE: 1/4/2010 TIME: 11H00 - 12H30

AUDITORY TEMPORAL RESOLUTION ABILITY IN CHILDREN WITH AND WITHOUT READING DISABILITIES

Authors

ELENA ZAIDAN, JANE BARAN

Institution

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Abstract

Dyslexia is a clinical diagnosis typically characterized by phonological processing deficits. There are, however, other areas of concern, such as the presence of auditory temporal processing (ATP) disorders. The precise relationship of ATP disorders to dyslexia has not been established, but recent research findings suggest that such deficits are likely to be present in many individuals with dyslexia. One method of investigating ATP is the gap detection (GD) paradigm, in which listeners must detect the presence of a short interruption in an otherwise continuous sound. This study investigated the ATP abilities of two groups of children with dyslexia and a group of typically developing readers. It was hypothesized that children with dyslexia and significant phonological processing deficits would perform differently from typically developing readers as well as from children with dyslexia but without obvious phonological processing deficits. Three groups of 8 to 9-year-olds participated in the study. Group I included 31 dyslexic children with confirmed phonological awareness deficits; Group II included 30 dyslexic children with normal composite scores on a phonological awareness test; and Group III included 30 children with normal reading abilities. Testing occurred in one session, during which the following tests were administered: phonological awareness, hearing sensitivity, middle ear function, and Gaps-in-Noise (GIN©). The GIN© test was developed by Musiek and colleagues (2005) for the purpose of providing a clinically feasible method for evaluating GD abilities. Stimuli for the test consist of 0 to 3 silent intervals ranging from 2 to 20 msec embedded in 6-sec segments of white noise. The location, number, and duration of the gaps per noise segment vary throughout the test for a total of 60 gaps presented in each list. GD thresholds (i.e., the shortest gap duration for which there were at least "four out of six" correct identifications) and gap identification scores (%) were determined for each participant. Repeated-measures ANOVA showed that GD thresholds for the three groups were significantly different. Group I showed longer GD thresholds (RE, 8.5 msec; LE, 8 msec), than did Group II (4.9 msec for both ears) or Group III (RE, 4.2 msec; LE, 4.3 msec). Close inspection of the threshold values for the three groups revealed that the thresholds for Group II overlapped with those of Group III, but not with those of Group I, which showed a unique, non-overlapping distribution of thresholds. Similar trends were also noted for the gap identification analysis. From a clinical perspective, participants in Groups II and III performed within normal limits on both measures (i.e., thresholds and identifications), while performance of participants in Group I fell below established norms on these measures. Finally, additional analyses revealed that ATP was highly correlated with phonological processing measures indicating a relationship between the presence of phonological deficits and ATP deficits. This study confirmed recent findings that ATP deficit is a factor to be considered in dyslexia and suggested that the GIN© test is a promising clinical tool that should be incorporated in the evaluation procedures when assessing children with reading difficulties.

SESSION: FP20 - 2 DATE: 1/4/2010 TIME: 11H00 - 12H30

POLISH DICHOTIC DIGITS TEST - NORMATIVE VALUES AND CLINICAL SIGNIFICANCE

Authors

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Institution

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3. INZ, Institute of Sense Organs

Abstract

Dichotic listening tests are among the most powerful of the behavioral auditory processing test battery. They are used as a measure of inter-hemispheric transfer of information and maturation of the auditory nervous system. We have developed polish dichotic digits test (DDT) based on dichotic digits test. (Musiek, 1983) Based on the material of more than 50000 school children tested in hearing screening programs in Poland in the years 2008 and 2009 and data from audiological questionnaires we developed the normative values for 7 and 12 y old children. The aim of the study was to assess the correlation between clinical information about learning and communication abilities from the questionnaire and the results of dichotic digit test in school age children. Based on DDT and pure tone audiometry results subjects were separated on three groups (C) - central auditory processing disorder group, (P) - peripheral hearing impairment group and (N) - children with normal hearing sensitivity and normal results of the dichotic digit test. Results: children from group C had more often delayed or disturbed speech development, and lower school achievements in comparison with those from group (N) and (P). More than 40 % of children from group (C) had dyslexia and more than 35% of children from group (C) had problems with learning of foreign languages. The results of this analysis have shown that in substantial number of children with learning



and language problems there are abnormal results of dichotic digits test. We discuss the issue of the contribution on non-auditory-specific factors on the results of dichotic digits test and its usefulness as a screening test for central auditory processing disorder.

SESSION: FP20 - 3 DATE: 1/4/2010 TIME: 11H00 - 12H30

DEAFNESS AND AGING: A STUDY OF HEARING PERCEPTION IN SUBJECTS ABOVE 50 YEARS

Authors

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Institution

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Abstract

Introduction: The growth of the elderly population, in absolute and relative numbers, is a world phenomenon and has been occurring at an unprecedented level. World population has been experiencing a decline in birth and mortality rates with a consequent increase in life expectancy. The aging of the population produces an increase in health-related demands in this age group since aging is characterized as a dynamic and progressive process, in which alterations as much morphologic as functional and biochemical, progressively alter the organism, making it more susceptible to physical aggressions which conclude in death. The decrease in the functional capacity of the organs and tissues is the main characteristic of aging and gives rise to an increased risk of chronic-degenerative diseases and to a decline of the elderly citizen's status in the family and in society. This decline can also be observed in regard to audition and when hearing loss is detected, the use of a hearing aid is mostly indicated. However, even when using this prosthesis, it is quite common for the subject to mention that he does not understand what is heard. **Objective:** To study the auditory capacity of a group of subjects above 50 years and to verify the relation between hearing complaints, aging and deafness. **Method:** 40 subjects were studied in the age group from 50 to 83. The following procedures were carried out: anamnesis, otological inspection, audiologic exams and the evaluation of hearing processing via application of the dichotic tests of alternate disyllables and digits. **Results:** Of the 40 subjects, 50% complained of auditory difficulties of different forms: they hear but do not understand, they experience difficulties in talking in noisy environments, they experience difficulties in accompanying speech involving more than two speakers; 75% of the sample presented hearing loss in the basic audiologic evaluation; 85% presented alterations of hearing processing for dichotic hearing; the capacity most jeopardized was selective attention and the ear most affected was the left; the affliction of loss as well as alteration of hearing processing increased with chronological age. **Discussion:** It is believed that auditory loss still had not been noticed by some subjects of the sample (25%), because the listener can complement the perception with other cues which are not acoustic, and which facilitate communication. Despite not noticing auditory loss, many subjects failed in the processing tests, which indicates that hearing difficulties related in the initial interview may be justified by aging of the central routes. Therefore before any suggestion of hearing aids for this population it is important to verify the conditions for hearing processing and after adaptation of the prostheses, speech therapy structured to the development of the capacities before divergence, is imperative. **Conclusions:** It was possible to verify that the elderly population is at a high risk for development of audiologic alterations, either of a peripheral or central order. It was observed that advancing age is a predisposing factor for alterations of auditory processing and this can be influenced by peripheral hearing loss.

SESSION: FP20 - 4 DATE: 1/4/2010 TIME: 11H00 - 12H30

SPEECH INTELLIGIBILITY ENHANCEMENT BY EARLY REFLECTIONS FOR NORMAL-HEARING AND HEARING-IMPAIRED LISTENERS

Authors

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Institution

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Abstract

The auditory system takes advantage of early reflections (ER) in a room by integrating them with the direct sound (DS) and thereby increasing the effective speech level. The present study quantifies the benefit from ER compared to the DS in different noise conditions and investigates if this benefit is due to monaural or binaural mechanisms. Monaural and binaural speech intelligibility tests were performed with 9 normal-hearing (NH) and 8 hearing-impaired (HI) listeners with moderate flat or high-frequency hearing loss in a virtual auditory environment. In this setup with 29 loudspeakers, the amplitude of the DS and the ER could be varied independently. The directions and amplitudes of the ER were adopted from the ER pattern in a classroom simulated with the room acoustic software Odeon. The Danish sentence test Dantale II was presented from a loudspeaker at 0° azimuth and speech intelligibility was measured either in diffuse stationary speech shaped noise (SSN) or with different directional interferers at 90° azimuth: a stationary SSN, a multi talker babble and reversed speech. Different signal-to-noise ratios were obtained by changing the DS level of the speech signal, the ER level, or both together. For NH and HI listeners, increased ER energy improved speech intelligibility but the effect was smaller than for increased DS energy. In order to quantify this significant but limited benefit from early reflections, an efficiency factor was introduced. This factor was derived from the speech intelligibility results measured in the DS only and DS+ER conditions and the total energy contribution of the ER. For the NH listeners, about 60% of the ER energy was useful for speech intelligibility. For the HI listeners, the efficiency was between 30% and 60%, depending on the hearing loss and the type of interferer. Although the binaural advantage in the different interferer conditions varied significantly, the benefit from ER did not depend on the listening mode (monaural or binaural) in both groups of listeners. This indicates that the auditory system integrates the ER with the DS at an early monaural stage before binaural processing. Due to the significant benefit from ER observed in HI listeners, the results suggest that spatial ER information should be preserved in hearing-aid signal processing.

SESSION: FP20 - 5 DATE: 1/4/2010 TIME: 11H00 - 12H30

THE AUDITORY PROCESSING AND THE CHILDREN BALANCE WITH ALTERATION IN THE PHONOLOGIC AWARENESS: A CASE STUDY

Authors

CARLA CRISTINA BACKES, BRUNA DE FRANCESCHI SCHIRMER, PAULA ANDRETA BARROS DA SILVA, LEONARDO HENRIQUE BUSS, ANGELA GARCIA ROSSI, CAROLINA LISBOA MEZZOMO

Institution

1. UFSM, Universidade Federal de Santa Maria

Abstract

ABSTRACT: Theme: To observe the relation between changes in phonology awareness and the results obtained in the auditory processing and otoneurological assessments in two children, with a degree of kindred, and also to verify the influence of heredity. **Procedures:** Phonological awareness assessments were made through CONFIAS, to the assessment process it was used the SSW, PPS and filtered speech and in the otoneurological assessment it was applied the tests of static and dynamic balance and cerebellar differences, dynamic posturography and vectoelectronystagmography. **Results:** In the phonological awareness assessment, the boy got 16 items in a syllabic level and 11 in a level of phoneme, resulting in 27 items. On the other hand, the girl got 33 and 12 items respectively, in a total of 45 items. In the SSW only S2 showed a change in the PPS and the two children showed gaps. However, in the filtered speech, there were not found particularities as well as in the tests of static and dynamic balance and even in the cerebellar deviations. In the Dynamic Posturography the two children showed alterations and, in the Vectoelectronystagmography only S1 showed a deficit, bilateral hyporeflexia was observed in the caloric test. **Conclusion:** It was noticed changes in the three areas assessed, in both children reported. Thus, knowing the influence of these areas on the proper development of the human being is really important in our professional practicing, and also, the patient will be assessed in a complete way, paying attention to all matters under the jurisdiction of the professional. It is also suggested that more studies and researches should be developed in the area of heredity, more specifically in the area of human communication, because in this research it contributed to the determination of alterations that were found.

SESSION: FP20 - 6 DATE: 1/4/2010 TIME: 11H00 - 12H30

AUDITORY PROCESSING DISORDER AND RIGHT HEMISPHERE COMMUNICATION ABILITIES

Authors

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Institution

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Abstract

Introduction : It has been a larger number of children with auditory processing disorder. In addition to poor performance on speech-sound tasks, those may experience prosodic and difficulty in understanding communication forms that rely on subtle changes in intonation, such as humor and sarcasm, which are right-hemisphere based. This study aimed to investigate the relation between auditory processing disorder and right hemisphere communication abilities: prosody and metaphor interpretation. This research comprises a part of a scientific initiation project (PIBIC) from Speech and hearing course of University of Guarulhos and was approved by The Ethical committee. **Method :** Fifteen children, male and female, aged from 9 to 12 participated on this study. Exclusion criteria included malformation, hearing loss, neurological or cognitive deficit, age and absence of auditory processing disorder. Evaluation processes comprised 4 sessions of fifty minute each. All subjects were individually assessed by a speech and hearing examiner, and were submitted to audiological examination (audiometry and imitancometry) to auditory processing evaluations (Pediatric Speech Intelligibility test, Sttagered Spondaic Word, Dicotit Test and Frequency Pattern Discrimination tests, Speech in noise (Pereira and Schochat, 1996) and to Montreal Communication Evaluation Battery- Metaphor interpretation and Prosodic sections (Brazilian version, Fonseca et al 2008). **Results :** Ongoing results have shown minor subjects who failed on metaphor interpretation tests. It was observed a great number of subjects with prosodic processing deficit, specially regards linguistic and emotional prosodic processing. Subjects repeatedly failed on Frequency Pattern Discrimination, Dicotit Test and Sttagered Spondaic Word tests. **Conclusion:** < b/>It was verified a strong relation between APD and prosodic deficit. As highlight by Bellis (2003) prosodic deficit is frequently associated with some cases of APD, especially when APD is an auditory piece of a more global dysfunction.

SESSION: FP20 - 7 DATE: 1/4/2010 TIME: 11H00 - 12H30

THE EFFECT OF TRAINING THE SELECTIVE ATTENTION ABILITY IN CHILDREN WITH LEARNING DISABILITIES.

Authors

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Institution

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Abstract

Introduction: The neural plasticity makes the improvement of the functioning of the central nervous system possible and the training of the listening skills helps in improving the performance in the temporary auditory processes of individuals with learning disabilities. Objective: This research is focused on evaluating the effect of a training procedure of the hearing ability of the selective attention in individuals with learning disabilities by comparing the pre and post training auditory performances, as well as observing which auditory evaluation procedure (behavioral and electrophysiological) identifies such effect. Methods: descriptive, comparative and transversal research. Approved under # 017/09 protocol, by the Ethics Committee in Research of the University of Franca. Seven students, from 9 to 14 years old, were analyzed in this research, all of them with primary acute learning disabilities, both genders (four males and three females). The data was collected in three stages: first stage - the pre training evaluation; the second step - training the ability of the selective attention; the third step - the post training reevaluation, when the participants were evaluated in two different moments of the process (one week and one month after the training) in order to notice the changes in their auditory performance, according to physiological changes in the CNS. In the pre training evaluation, the individuals were evaluated by the peripheral and central auditory (Tone audiometry, short latency auditory evoked potential I- ABR, long latency auditory evoked potential - Mismatch Negativity - (MMN) and Spondaic Staggered Words- SSW). In the second stage, the individuals had eight sessions of a training program for the selective attention hearing ability (training their verbal dichotic listening and monotheistic recognition, physically distorted sounds and binaural integration). In the third phase, in both periods of the reevaluation of the performance of the selective attention hearing ability the following tests were used: the impedance one, the long latency auditory evoked potential - MMN and Spondaic Staggered Words - SSW. For the data analysis, the statistical tests Wilcoxon and Mann-Whitney were used. Results: There was a statistically significant difference between the average listener in the competitive conditions (right and left), quantitative analysis of the SSW test, pre and post training (p value = 0.0156, p value = 0.0313). In the qualitative analysis of SSW there were differences between the percentage rates of changes presented in the pre-training (48.57%) and in the post-training (14.28%). The variations between the mean amplitude and latency for the CZA1 and CZA2, in the pre and post trainings, they were not statistically significant. Conclusion: We conclude that the training procedures, with the exposure of the auditory system to frequent and repetitive stimuli, promote positive changes in the performance of the auditory abilities. In regards to the auditory ability evaluation tests, the SSW test results showed, with great evidence, the changes in the auditory behavior of the individuals who received the auditory training, when compared to the MMN results. Keywords: learning; neuronal plasticity; hearing disorders.

SESSION: FP20 - 8 DATE: 1/4/2010 TIME: 11H00 - 12H30

AGING EFFECT ON DICHOTIC LISTENING OF CANTONESE

Authors

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Institution

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2. UC, University of Cincinnati

Abstract

Background: Dichotic listening tests are commonly used in assessing children and adults suspected of auditory processing problems, especially in search of interaural asymmetry. In general, the effects of aging on dichotic speech recognition result in poorer performance and larger REAs for older adults relative to findings for young adults. Aim: The primary purpose of the present research study was to determine if differences in dichotic listening performance exist between young adults with normal hearing and older adults with minimal sensorineural hearing loss in the Cantonese-speaking population. Method: Cantonese dichotic digits recognition was evaluated in free-recall, directed-attention right, and directed-attention left response conditions after a pure tone test and a cognitive screening test. All participants were right-handed and included a group of 30 young adults (age range = 20-35; mean = 23.05; SD = 1.94) and 30 older adults (age range = 65-80; mean = 71.67; SD = 4.48) with minimal sensorineural hearing loss. Result: In all conditions, performance by the young adults was better than performance by the older adults. A right-ear advantage (REA) was observed for both groups. Due to a greater deficit in dichotic digits recognition performance for digits presented to the left ear of older subjects, their REAs were larger than those for the young adults. The observed REAs in the young subjects were small (mean REA = 0.08%) and a significant difference in the right and left ear scores was observed in the older group, resulting in a mean REA of 16.08%. Conclusion: The results support an age-related disadvantage in recognition performance for dichotic stimuli presented to the left ear not entirely accounted for by differences in hearing sensitivity between subject groups but may be related to a primary cognitive deficit.

SESSION: FP21 - 2 DATE: 1/4/2010 TIME: 11H00 - 12H30

A NEW METHOD FOR CHARACTERIZING SPEECH AMPLIFICATION BY HEARING AIDS

Authors

TODD FORTUNE

Institution

1. GNR, GN ReSound

Abstract

Existing measurement standards (IEC 60118-x and ANSI S3.22) for hearing aids date back several decades and reflect the typical analogue features available in those days. These standards do not take into account the dramatic increase in processing complexity that has occurred in recent years. Existing standards quantify the electro-acoustic properties of hearing aids in response to simple test signals (e.g. sinusoids) but they do not address performance in response to real-life speech. The European Hearing Instrument Manufacturer Association (EHIMA) has created the ISMADHA working group to develop a new standard. The proposed standard includes a new speech-like test signal (International Speech Test Signal or ISTS), a new set of standard audiograms and a new measurement method for characterizing speech amplification. The ISTS represents concatenated speech that has been mixed across six languages, creating a non-intelligible but highly realistic speech-like signal that can be used internationally. A new set of standard audiograms has been created that is based on a vector quantization analysis of more than 28000 audiograms. Speech gain is measured using the ISTS as the input signal. The input signal is analyzed to find the 30%, 65% and 99% percentile levels, and for each of these segments the corresponding output level is found using an exact time alignment procedure. By subtracting inputs level from output levels the corresponding instantaneous percentile speech gains are calculated across frequency. Speech gains for different types of signal processing, compression characteristics, audiograms, prescriptive methods, and feature settings have been gathered. Numerous examples of how the method may be used and how data may be interpreted will be provided. The purpose of the talk is to describe how the method may be used to quantify hearing aid performance in response to a realistic speech-like test signal.

SESSION: FP21 - 3 DATE: 1/4/2010 TIME: 11H00 - 12H30

WRONG EARMOLD: LESS BENEFIT

Authors

BAYER ERICH

Institution

1. Privat Business, Hoergeraete Seifert

Abstract

Wrong earmold: Less benefit All over the world, the hearing aid as an industrial "raw product" has to be "refined" to an "individual hearing system" by hearing aid acousticians / audiologists. To do this, we have to think about the technique and the earmold. Reality is, that the bridge between the technique and the ear is forgotten too often. This is why it is also these practitioners' task to give basic parameters of the earmoulds a critical analysis as well as to express (audiologically orientated) demands. · How can we make the ITE- / CIC-systems as inconspicuous and as "open" as possible. · RIC moulds should be geared to the requirement catalogue of CIC shells. · Earmoulds filling up the auditory canal completely from the concha to the end where the sound leaves the SE body, are required for no more than 15% of all hearing aid fittings. · Working with occluding earmoulds, the sealing zone should face the eardrum and short ventings should be used as often as possible. This results in normal speech recognition of the own voice and/or voice control even with moderate to severe hearing losses. This aspect is important not only in paediatric fitting. · (Comparative) fitting of all slim-tube systems is possible using a simple modification of the earmould Result: It is obligatory to review and restructure earmould design options as the choice of an unsuitable (individual) earmould inevitably produces suboptimal fitting results.

SESSION: FP21 - 4 DATE: 1/4/2010 TIME: 11H00 - 12H30

THE PERCEPTIBILITY, ACCEPTABILITY, AND BENEFIT OF TRANSITIONING TO NEW GAIN TARGETS IN EXPERIENCED HEARING AID WEARERS WITH MODERATELY SEVERE TO PROFOUND HEARING LOSS

Authors

ELIZABETH CONVERY, GITTE KEIDSER

Institution

1. NAL, National Acoustic Laboratories

Abstract

Hearing aid users with moderately severe to profound hearing loss often resist updating their amplification for as long as possible because the change to their auditory world can be disorienting. One consequence of this is a delay in the potential benefit they may derive from advances in signal processing technology. In the current study, the impact of a gradual transition to new amplification characteristics on experienced hearing aid users with moderately severe to profound hearing loss was investigated in a double-blinded, randomized controlled field trial. Twenty-three participants, whose current hearing aids provided more mid-frequency gain and less high-frequency gain than would be prescribed by NAL-RP, were fitted with digital hearing aids matched to their own devices' gain/frequency response, with half the group progressing to their NAL-RP target over the 15-week test period and half the group maintaining their initial settings throughout the study. Speech discrimination and loudness scaling testing was completed at 3-week intervals, and subjective feedback was gathered through structured questionnaires and a paired comparison task. The results of the

study showed that participants were subjectively accepting of their new amplification characteristics, as evidenced by relatively constant ratings of device performance over time. Perception of loudness, sound quality, speech intelligibility, and own voice volume did not change significantly throughout the study. Participants in the experimental group reported a similar level of perceptual disturbance to those in the control group, although they did report the emergence of new sounds and the cessation of familiar sounds more frequently. Similarly, experimental participants reported more changes to their experience of uncomfortable loudness than did participants in the control group. Objectively, participants in the experimental group performed more poorly on a test of speech discrimination as the study progressed, although there was no change in objective loudness perception. According to paired comparison tests, there was an overall subjective preference for the original gain/frequency response among all participants, although participants in the experimental group did show an increase in preference for the new gain/frequency response by the end of the study.

SESSION: FP21 - 5 DATE: 1/4/2010 TIME: 11H00 - 12H30

APPLYING FREQUENCY LOWERING STRATEGIES FOR YOUNG PEOPLE WITH PROFOUND HEARING LOSS

Authors

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Institution

1. FWA, Fundacion Widex Audiologia
2. JSAC, Jenny Smith Audiological Consultancy
3. RLU, Ramon Llull University of Barcelona

Abstract

Recent advances in integrated signal processing have enabled the development of hearing aids which offer linear frequency transposition as an alternative way of accessing important high frequency speech sounds. This technology has been shown to have significant benefits for children with steeply sloping high frequency hearing loss, particularly in terms of improved speech perception and speech production. The technology is incorporated in hearing aids which have the additional advantages of feedback cancellation and pre-peak detection automatic output control. These features enable higher achievable gain without distortion, at the limit of the fitting range. It is therefore possible to provide appropriate audibility for speech and language development in power hearing aids which do not have extreme output levels. It was hypothesised that these combined technologies may provide benefits for children with severe/profound hearing loss. This paper reports on a study of the changes in aided performance observed in older children with severe-profound hearing impairment, who trialled frequency lowering technology in the Widex Mind 440 hearing aid. The candidates comprised 8 young people aged between 7 and 25 years, divided into two groups based on their audiometric configuration. The first group consisted of 5 children with a mean pure tone average of 99 dB. The second group had more profound hearing loss, with a mean pure tone average of 105 dB. All participants attended the Fundació Widex Audiologia in Barcelona and were oral communicators integrated in mainstream schools. They were confident and reliable hearing aid wearers with excellent spoken Spanish, high language levels and no other disability. The hearing aids were fitted using standardised procedures and verified using aided thresholds. Hearing aid benefit with and without frequency transposition was measured in terms of phonemic identification, speech production and voice quality after 4, 8 and 12 weeks of hearing aid use. Subjective comments from both the participants and their parents were recorded throughout the study. The paper will report the overall results and discuss the changes observed.

SESSION: FP21 - 6 DATE: 1/4/2010 TIME: 11H00 - 12H30

COMBINED EFFECT OF ALCOHOL AND OCCUPATIONAL EXPOSURE TO NOISE ON HEARING LOSS IN STEEL FACTORY WORKERS

Authors

SIMARA LOPES CRUZ, RAQUEL FERNANDES DE OLIVEIRA BELTRÃO, ANA KARINA BURITI

Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO

Abstract

BACKGROUND: EVIDENCE HAS ACCUMULATED CONCERNING THE ADVERSE EFFECTS OF ALCOHOL ON HEARING ACUITY, BUT IT IS NOT CLEAR WHETHER ALCOHOL MODIFIES THE ASSOCIATION BETWEEN EXPOSURE TO NOISE AND HEARING LOSS. **AIMS:** TO EXAMINE THE SYNERGISTIC EFFECT OF THESE VARIABLES ON HEARING. **METHODS:** DATA USED WERE DERIVED FROM PERIODIC HEALTH EXAMINATIONS FOR 3870 STEEL COMPANY WORKERS AT BRAZILIAN NORTHEAST AND INCLUDED AUDIOMETRY TESTING AND INFORMATION ON ALCOHOLIC HABITS, OCCUPATIONAL EXPOSURE TO NOISE WAS DETERMINED BASED ON COMPANY RECORDS. LOGISTIC REGRESSION WAS USED TO EXAMINE THE DOSE-RESPONSE ASSOCIATION BETWEEN ALCOHOL AND HEARING LOSS. THE METHOD USED WAS CASE-CONTROL TO CALCULATE THE PREVALENCE OF HEARING LOSS FOR EACH COMBINATION OF ALCOHOL AND NOISE EXPOSURE FACTORS, TAKING NON-SMOKERS NOT EXPOSED TO OCCUPATIONAL NOISE AS A REFERENCE. THE INTERACTION BETWEEN ALCOHOL AND NOISE EXPOSURE WAS ASSESSED USING A SYNERGISTIC INDEX, WHICH EQUALS 1 WHEN THE JOINT EFFECTS IN ADDITIVE. **RESULTS:** ALCOHOLIC WAS ASSOCIATED WITH INCREASED ODDS OF HAVING HIGH FREQUENCY HEARING LOSS IN A DOSE-RESPONSE MANNER. THE ANALISES FOR HIGH FREQUENCY HEARING LOSS AMONG ALCOHOL EXPOSED TO OCCUPATIONAL NOISE WAS 2.56, WHILE THE ANALISES FOR ALCOHOL NOT EXPOSED TO NOISE WAS 1,57 AND NON-SMOKERS EXPOSED TO NOISE WAS 1,77. THE SYNERGISTIC INDEX WAS 1.16. ALCOHOLISM WAS NOT ASSOCIATED WITH LOW FREQUENCY HEARING LOSS. **CONCLUSIONS:** ALCOHOLISM MAY BE A RISK FACTOR FOR HIGH FREQUENCY HEARING LOSS, AND ITS COMBINED EFFECT ON HEARING WITH EXPOSURE TO OCCUPATIONAL NOISE IS ADDITIVE.

SESSION: FP21 - 7 DATE: 1/4/2010 TIME: 11H00 - 12H30

THE LITTEARS® AUDITORY QUESTIONNAIRE – RESULTS IN A CI GROUP

Authors

ILONA ANDERSON, JOANNA BRACHMAIER, DENISE SHEPHERD, EDDA AMANN

Institution

1. MED-EL, MED-EL, Worldwide Headquarters

Abstract

Newborn hearing screening and early intervention for congenital hearing loss have created a need for assessment tools for very young children. A multidisciplinary evaluation of children's development is now becoming the gold standard in clinical practice, though not many reliable diagnostic instruments exist for very young children. The LittleARS® Auditory Questionnaire (LEAQ) was created to assess the auditory skills of a growing population of infants and toddlers who receive hearing instruments. The LEAQ relies on parental reporting, which has been shown to be a reliable way of assessing child development. Here we will present results with this tool in a group of children who received very early cochlear implantation. The LEAQ is the first module of the LittleARS comprehensive test battery for children under the age of two who have normal hearing (NH), cochlear implants (CIs) or hearing aid(s). The LEAQ is a parent questionnaire comprised of 35 "yes/no" questions which can be administered in a brief parent interview or sent home. 73 children who received unilateral CIs were assessed longitudinally and their performance was compared to that of a NH group. All children in the CI group reached the maximum possible score on the LEAQ by 16 months after activation of their CI. In comparison, the NH group reached the maximum score by 24 months of age. The LEAQ is a quick and effective tool for assessing the auditory skills of very young children with or without hearing loss. In our study, the auditory skills of children with CI progressed very quickly after implantation and were comparable with those of NH peers.

SESSION: FP21 - 8 DATE: 1/4/2010 TIME: 11H00 - 12H30

HEARING AID FITTING FOLLOW UP: THE LONG TERM EXPERIENCE OF NISA II - PIRITUBA

Authors

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Institution

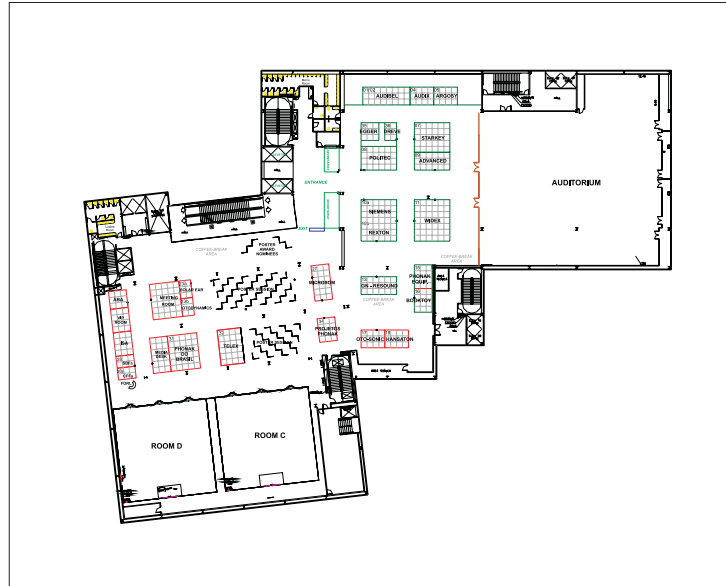
1. NISAI PIRITUBA PMS, NISA II PIRITUBA - PREFEITURA DO MUNICIPIO DE SÃO PAULO
2. AUDIO.COM, AUDIO.COM

Abstract:

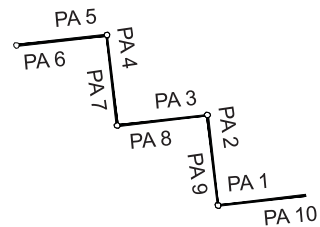
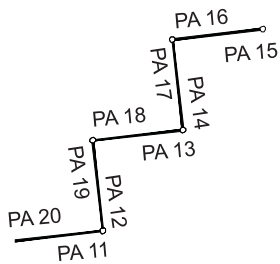
The Hearing Health Integrated Centre Pirituba (NISA II) is a Public Hearing Health Service of medium complexity in the Universal Health System (SUS), located in São Paulo City. It was started on September 2006, and more than 1000 patients had their hearing aids fitted. Several attempts were made in order to have those patients continuing followed up, as recommended by Health State Department, but they were not successful due to patient evasion. This study proposes a new follow-up protocol. **Objectives:** Recall the protocols, the appointment schedules, monitoring all the process, from the patient first appointment throughout the hearing aid fitting and follow-up. **Methods:** Group sessions were arranged in order to verify fitting problems that may arise, and allows experience exchanges among members. The audiologist and a Social Worker were present. The patients also had their ears checked and scheduled for ENT appointment, audiometric evaluation, hearing aid evaluation. This study was composed by 30 patients wearing their hearing aids for one year and still on warranty period. Two group sessions of 15 patients and their companions were settled and lasted one hour each. They were positioned in a large circle to facilitate communication and after a brief explanation about the group proposal, they were requested to talk about their hearing aids experiences. **Results:** Twenty two patients attended to the group session. All complaints and difficulties related were discussed as arisen, and some problems were solved without the need for further appointments. Even though, every patient had an appointment scheduled. **Discussed issues:** • not attending to appointments; • counseling and orientation: how to proceed when the hearing aid is not functioning, progressive hearing loss, ENT occurrences, and need of continuous evaluation; • battery issues; • humidity issues; **Conclusions:** The issues discussed revealed the implications of hearing aid fitting continuing follow-up, even after a long period of use of the hearing aid. Counseling and continuous orientation reinforce the meaning of communication improving quality of life, as a consequence of the effective use of the hearing aid. Besides, the experience confirmed the importance of appointment attendance in order to have informations about the hearing aid use and its accessories recycled. The experience also supported Protocol changes, hearing aids First aid clinic creation, and spontaneous visits schedule.

POSTERS AWARD NOMINEES

POSTER AWARD NOMINEE LOCATION MAP



POSTER AWARD NOMINEES



SESSION: PA1 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

PREVALENCE OF HEARING IMPAIRMENT IN CHILDREN AT RISK

Autores

FERNANDA ALVES BOTELHO, MARIA CÂNDIDA FERRAREZ BOUZADA, LUCIANA MACEDO RESENDE, CYNTHIA FRANCISCA XAVIER SILVA, EDUARDO ARAÚJO OLIVEIRA

Instituição

1. UFMG, UNIVERSIDADE FEDERAL DE MINAS GERAIS

Resumo:

The objective was to assess the prevalence of hearing loss in newborns with risk indicators born and followed in the Hospital das Clínicas / UFMG from June 2006 to July 2008. To correlate the possible variables related to hearing loss. We evaluated 188 newborns and collected the data from patient history through interviews with the parents and review of medical records. The evoked otoacoustic emissions by distortion product was examined hearing behavior observed. When changes occurred since the first examination the test was repeated at the next pediatric consultation. In cases where the changes persisted, the child was referred for evaluation of the external and middle ear through the acoustic impedance, and when necessary to medical evaluate. It was reviewed after medical intervention. Those that had not shown conductive change were evaluated through the Brain Auditory Evoked Potential. Among the 188 children evaluated, two (1.1%) were excluded because the results could not be determined by the end of data collection. 174 (92.6%) showed audiological assessment scores within the normal range. We found 12 children with hearing impairment, which represents 6.3% of the population studied, and in 3 of these the deficit was retrocochlear and in 10 cochlear. It was found that the unilateral hearing impairment occurred in 2 children and in 10 the deficit was bilateral. In conclusion, the high prevalence of hearing impairment in this population demonstrates the importance of performing early audiological evaluation and thus provide an immediate intervention to minimize the potential damage to child development.

SESSION: PA2 - DATE: 29/03/10 and 31/03/10 TIME: 08h00 – 18h00

CONGENITAL TOXOPLASMOSIS: AUDITORY AND LANGUAGE OUTCOMES IN CHILDREN WITH EARLY DIAGNOSIS AND TREATMENT

Autores

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Instituição

1. UFMG, Universidade Federal de Minas Gerais

2. UNIFESP, Universidade Federal de São Paulo

Resumo:

Purpose: To describe auditory and language outcomes in children with early diagnosis and treatment for congenital toxoplasmosis. Methods: A cross-sectional study included all children diagnosed with congenital toxoplasmosis through the Minas Gerais State Neonatal Screening Program, between September 2006 and March 2007. All children received early treatment according to Brawn's criteria, before 2,5 months of age, and were periodically assisted by a team of specialists which included pediatricians, ophthalmologists and speech therapists and audiologists. Hearing was evaluated with the following procedures: tympanometry, transient evoked otoacoustic emissions, distortion product otoacoustic emissions, behavioral observation audiometry and brainstem auditory evoked potentials. Hearing function and sensitivity was estimated and audiological results were classified as normal, conductive hearing loss, sensoryneural hearing loss and central dysfunction. Language performance was assessed through a screening tool, ADL, which classifies deficiencies as global, receptive or expressive. All abnormal findings in the study were statistically compared to the variables studied. Univariate analysis was conducted using the chi-square (Fisher's Exact test). Results: Between September 2006 and March 2007, 106 children were diagnosed with congenital toxoplasmosis through the neonatal screening, and included in the study. Data analysis showed normal hearing in 60 children (56,6%), while 13 children (12,3%) had conductive hearing loss, 4 children (3,8%) had sensoryneural hearing loss and 29 children (27,4%) presented central hearing dysfunction. Comparison between hearing problems and language deficits were statistically significant (p=0,00). No statistical association was found among the comparison of children with additional risks for hearing loss other than toxoplasmosis and children who only presented toxoplasmosis as a risk factor. This finding suggests audiological outcomes were due to congenital toxoplasmosis alone. Conclusions: Even with early diagnostic and treatment a high incidence of hearing problems and language delays is observed, raising the question upon the virulence of the parasite in this particular region.

SESSION: PA3 - DATE: 29/03/10 and 31/03/10 TIME: 08h00 – 18h00

COMPARATIVE STUDY OF HIGH FREQUENCY AUDIOMETRY (HFA) IN PATIENTS WITH TINNITUS AND DIABETES

Autores

JULIANA MARIA SOARES CAVALCANTE, LUCIANA DA MATA LUPOLI, PAULA CANDARELLA DE PADUA RODRIGUES, IARA AGUIAR REZENDE, JESSICA GALETTI MARTINS, ADRIANA RIBEIRO TAVARES ANASTASIO

Instituição

1. FMRP-USP, FACULDADE DE MEDICINA DE RIBEIRAO PRETO - USP

Resumo:

Introduction: The high frequency audiometry (HFA) is a subjective test of hearing, performed in soundproof room, with calibrated earphones to emit sounds from 8000 to 16,000 Hz. The audibility thresholds of high frequencies in patients with tinnitus and diabetes should be investigated, where changes in the sensitivity of these frequencies are indicative of early alterations, such that are the first causes in the majority of diseases affecting the inner ear. Aim: Compare the tone thresholds in HFA in patients with tinnitus and diabetes mellitus type II. Methods: The sample consisted of two groups: tinnitus group (TG): consisting of 11 patients of both genders, where aged ranging from 39 to 66 years, average of 55,4 years, with tinnitus. Participants in this group were recruited by medical clinic tinnitus of hospital; diabetes group (DG): consisting of nine patients of both genders, where age ranging from 44 to 69 years, average of 54.9 years diagnosed by a specialist physician of hospital. Were included in both groups patients who presented normal conventional audiometry, ie, average hearing thresholds for frequencies of 500, 1000, 2000, 3000 and 4000 up to 25 dB HL in both ears, but with amended audiogram (greater than 25dBNA) in at least one frequency of 250 to 8000Hz. The conventional pure tone audiometry and high frequency audiometry were performed out using a model Unity, Siemens, with the earphones HDA 200 brand Sennheiser. To search the thresholds in conventional audiometry were selected frequencies of 250 to 8000 Hz. In high-frequency audiometry had been investigated the frequencies of 9,000 to 16,000 Hz frequencies, which are available for equipment. In the absence of answers, has been added to 10dB for analysis of results. The average pure tone thresholds (dB) for HFA in TG was 46.59 (9kHz), 46.36 (10kHz), 59.09 (11.200Hz), 68.40 (12.500Hz), 66.36 (14,000 Hz) and 60.22 (16.000), and the DG was 35.27 (9kHz), 36.38 (10kHz), 42.22 (11.200Hz), 50.55 (12.500Hz), 57.77 (14.000Hz) and 54.44 (16.000). There was no significant difference for the variable tested ear in both groups. For frequencies of 9, 10, 11.2 and 12.5 kHz, the TG had presented worse hearing thresholds than the DG group, with statistically significant difference. There was no statistical difference in the frequencies of 14 and 16 kHz, but showed worse thresholds for the group with tinnitus as well. For both groups, we could see a worsening in hearing sensitivity with increasing frequency tested, except in 14 and 16kHz. Conclusion: The thresholds for the HFA group with tinnitus were worse than for the group with diabetes, with significant difference in the frequency range 9 at 12.5 kHz.

SESSION PA4 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

BEES' LIFE TO DEAF: AN INTERACTION BETWEEN THE BIOMEDICAL INFORMATICS AND THE SPEECH

Autores

LUANA HERMANN DE FREITAS, SILVANA GIULIATTI, ADEMILSON ESPENCER EGEA SOARES, ANA CLAUDIA MIRANDOLA BARBOSA REIS

Instituição

1. USP, Universidade de São Paulo

Resumo:

Information technology is one way to facilitate learning. The initiative of this project has arisen from problems and the possibility of solving them through the College of Medicine's teachers and students involvement. The Department of Genetics of FMRP-USP is considered by IBRA, International Bee Research Association, as a reference laboratory for the Americas in biology and genetics of bees, recognizing group's great potential to develop research, promote international events and, most of all, teaching, extension and training. Bees Course for Golden Age is in its seventh edition and as part of the Open University for Third Age in USP, is the basis for the development of the project. This course, with better visual support, will be a valuable opportunity for deaf, providing equal opportunity in employment. The goal is developing materials to assist teaching staff involved in the extension course. Softwares were used for animation geared to learning in making improvements in the material. Practical classes' itineraries contextualizing student activities, evaluation forms, statistical and graphic illustration of the major difficulties and problems encountered were raised. It was also made the monitoring the work of speech with the deaf and contact with the Brazilian sign language and better understanding of how communication occurs in these cases. A pilot material was designed to be used in the extension course, with which teachers will be better able to explain the techniques involved in the process. It was also developed a web portal that allows interaction between students and teachers, providing materials, curiosities and forums. The project contributes to the advancement of teaching the deaf, reducing the social-economic exclusion, resulting in a more balanced community cultural and financially.

SESSION PA5 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

FROM OEA TO P300: THE INHIBITORY EFFECT

Autores

ELIANE SCHOCHAT, CARLA GENTILE MATAS, ALESSANDRA GIANNELLA SAMELLI, RENATA MOTA MAMEDE CARVALLO

Instituição

1. USP, Universidade de São Paulo

Resumo:

Introduction: The inhibitory auditory system is being investigated using otoacoustic emissions in order to verify the amplitude reduction evoked by contralateral stimulation. Few studies have been done exploring the inhibitory effect using Auditory Evoked Potentials. Aim: The aim of the study was to verify the effect of contralateral white noise on transient evoked otoacoustic emissions and on short, middle and late auditory evoked potentials. Methods: Twenty five subjects aged 18 to 30 years-old, both genders, participated of this study. Inclusion criteria were: no hearing complaints, no middle ear disorder, and normal pure tone thresholds bilaterally. Subjects underwent short, middle and late auditory evoked potentials as well as transient evoked otoacoustic emissions, all of them with and without white noise. Results: A statistical analysis revealed that the otoacoustic emissions values did significantly differ between the two conditions with and without noise; the condition without noise presenting higher amplitude than the condition with noise. Regarding ABR latency measures, waves III & V exhibited statistically significant difference comparing both conditions and wave I showed a marginal statistical significance. On the other hand, only wave I amplitude exhibited significant difference. In analysis of Na and Pa waves there

was only a marginal difference to Pa latency in C3 electrode site and to Na-Pa amplitude in C4. For waves N1, P2 e P300 latencies, there was no statistically significant difference, but for N1 and P2 amplitudes there was significant difference with and without noise and marginal significance to P300 amplitude. In general, the latencies were increased at noise conditions, whereas the amplitudes were diminished at noise conditions for short, middle and late latency responses, although not all the analysis has showed difference statistically significant. Also, a qualitative analysis was made to verify when shift between with and without noise conditions, for each subject. This analysis shows inhibitory effect resulting from contralateral stimulation for the different levels of the auditory system stimulated as revealed by 25 subjects for otoacoustic emissions; 24 for ABR; 23 for MLR; 22 for LEP; 20 for P300 and 15 subjects presented presence of this effect for all tests. Conclusion: These results indicated that most of subjects presented modifications of responses between conditions with and without noise in all tests, suggesting that efferent system is acting in both caudal and rostral portions of auditory system. The combined use of both otoacoustic emissions and auditory evoked potentials may increase the knowledge about the inhibitory effect of the auditory system, even though they may be different mechanisms.

SESSION: PA6 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

P300 WITH TONAL AND SPEECH STIMULI IN WORKERS EXPOSED TO OCCUPATIONAL NOISE

Autores

CAMILA POLO MASSA, ALESSANDRA GIANNELLA SAMELLI, CARLA GENTILE MATAS, ELIANE SCHOCHAT

Instituição

1. USP, Universidade de São Paulo

Resumo:

Introduction: Long-term noise exposure may damage the cochlea, causing loss of hearing sensibility and can also lead to various physiological impairments, like dysfunctions of the immune system, heart, blood circulation, and respiration. Recently, the effects of noise on the cortical auditory processing of speech and non-speech stimuli have been investigated using late auditory evoked potentials. These results of auditory potentials suggested that long-term noise may affect brain processes in a manner which has effects on sound discrimination accuracy and attention, by affecting the speed, strength, and topography of the neural auditory responses. Although high levels of continuous background noise pose a growing problem to the everyday life of numerous individuals in modern society, evidence for long-term effects on neural activity is not abundant. Aim: The aim of the study was to evaluate central auditory pathways using late auditory evoked potentials (speech and tonal stimuli) in noise-exposed workers in absence of peripheral hearing losses. Methods: Thirty one male subjects aged 25 to 55 years-old participated of this study divided in two groups: research group (RG) - eighteen subjects (mean age of 41 years old) exposed to high levels sound pressure noise (≥ 85 dBA dairy, more than five years) and control group (CG) - thirteen subjects (mean age of 35 years old) not exposed. Inclusion criteria were: no hearing complaints, no middle ear disorder, and normal hearing bilaterally. Subjects underwent late auditory evoked potentials - P300 with speech (/ba/ and /da/) and tonal (1000 and 2000 Hz tone-burst) stimuli. ANOVA was used to statistical analysis. Results: There was no statistically significant difference between groups regarding age or between right and left ears of each group. For P300 wave with tone-burst stimuli, CG presented mean latency of 318,97 ms and RG of 333,21 ms (p -value = 0,08); for P300 with speech stimuli, mean latency was 340,03 ms for CG and 356,94 ms for RG (p -value = 0,08). Conclusion: These results showed that for both stimuli used, RG presented P300 latencies increased (marginal significance) when compared to P300 latencies of CG. These data could indicate that RG need more time to process auditory stimuli and suggest that long-term noise exposure may modify the central auditory pathways functioning, even without peripheral hearing losses.

SESSION: PA7 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

PROTOCOL TO ASSESS THE HEARING SERVICE

Autores

LUIZA AUGUSTA ROSA ROSSI BARBOSA, SANDRA MARIA FREITAS VILLELA VIEIRA, CLÁUDIA REGINA TACCOLINI MANZONI, MAGNA LUCIELE NASCIMENTO PEREIRA

Instituição

1. UNIMONTES, Universidade Estadual de Montes Claros

Resumo:

Patients with hearing problem seeking the services of hearing health in order to improve his hearing and therefore communicative performance. The effectiveness of the treatment needs to be evaluated. Purpose: Assess the adequacy of an instrument, which is in phase of implantation, elaborated by the Secretaria Municipal de Saúde de São Paulo regarding the hearing health service and the use of hearing aids. Methods: The instrument consists of 17 questions that assess the service and the user's satisfaction. The assessment of the service comprises the medical attention in general, waiting time for the hearing aid, and the return(s) after receiving it. The user's satisfaction assesses the period of time the hearing aid is used during the day and at what times in the patient's life its use has brought improvement. It was applied for 17 subjects, ages 21 to 91 years, mean 61.8 years. Eleven were male. Results: The indicator for service assessment suggests pondering over testing with more than one device. The indicator for satisfaction suggests the need to modify the score regarding the period of time the device is used and, regarding the improvement in certain places, it is necessary to add the place of use of the device. Conclusion: It is necessary to reformulate and reevaluate the instrument presented. Despite its limitation due to the small number of individuals studied, it was found that the respondents are relatively satisfied, although there are complaints as to the adaptability to the hearing aid.

SESSION PA8- DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

SPEECH PERCEPTION IN NOISE AND AUDITORY PROCESSING DISORDER

Autores

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Instituição

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2. U de M, Université de Montréal

3. CHU Ste-Justine, Centre de recherche du CHU Ste-Justine

4. IUGM, Centre de recherche de l'IUGM

Resumo:

A hallmark listening problem of individuals presenting with Auditory Processing Disorder (APD) is their speech recognition in noise. The underlying cause of their difficulties in unfavourable listening conditions is unknown. The objective of this presentation was to explore the underlying nature of the speech perception problems in noise in the case of APD. The Test de Phrases dans le Bruit (TPB) was developed to explore the underlying origins of the speech perception difficulties in noise in the case of APD, in order to identify if they are related to an auditory dysfunction, a language-based dysfunction or both. The TPB consists of five lists of 40 recorded sentences, including 20 high predictable (HP) sentences and 20 low predictable (LP) sentences, and a speech babble. The familiarity of each sentence final key word was tested with a group of children from five to seven years old. The intelligibility in noise of the sentences and the degree of predictability were also measured with adult participants in order to obtain equivalent lists. The actual sentence list sets of the TPB have been tested with a group of 15 adults and a group of 69 children without any hearing problem before its use with children presenting with APD. To achieve the general goal of the study, ten participants identified with APD (APD group) were assessed with the TPB, as well as ten age and gender matched children with normal auditory processing functions (control group). The mean performances of the APD group were significantly lower than the ones of the control group on the TPB sentence keyword recognition in noise of the HP and the LP sentences at the signal to noise ratios of 0, +3 and +4 dB. The group average of the HP and LP difference of scores was similar between the groups at each of the tested signal to noise ratio. These results suggest that, as a group, children with APD use linguistic contextual information when listening to speech in background noise to the same extent as the ones of the control group. According to these analyses, the underlying origin of the speech perception problems in noise in the case of APD would be related to an auditory dysfunction. However, examination of the group data analyses differed from the individual analyses. The verification of the individual patterns revealed different profiles suggesting that further substantiation of these preliminary findings is warranted. A better understanding of the listening difficulties in noise exhibited by individuals with APD should lead to specific and efficacious intervention programs.

SESSION PA9 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

GENERALIZATION OF ACOUSTIC TEMPORAL ORDER DETECTION SKILL LEARNING: TWO EXPERIMENTAL STUDIES IN CHILDREN WITH DYSLEXIA

Autores

CRISTINA FERRAZ BORGES MURPHY, ELIANE SCHOCHAT

Instituição

1. USP, Universidade de São Paulo

Resumo:

PURPOSE: based on the hypothesis that the post-training improvement found in the auditory training might demonstrate the procedure learning used instead of demonstrating perceptual learning, this research aimed at investigating the phenomenon of learning generalization of a specific skill of auditory temporal processing (temporal order detection) in children with dyslexia. METHODS: To do so, the frequency order discrimination task training was applied in children with dyslexia and its effect after training was analyzed in the same trained task and in a different task (duration order discrimination) involving the temporal order discrimination too. In Study 1, the performance of the experimental group (trained group with dyslexia) in the Frequency Pattern and Duration Pattern Test was compared with a control group (untrained group with dyslexia) before and after training. In Study 2, a group with dyslexia was compared at three different time intervals: 2 months before auditory training, at the start and at the end of training. During the 2 months previous to auditory training, participants only attended speech therapy sessions; which was considered a control intervention. In Study 1, the trained group was made up of 12 children with dyslexia (9 boys and 3 girls, mean age 10.9) and the untrained group comprised 28 children with dyslexia (19 boys and 9 girls, mean age 10.4). In Study 2, the untrained group of Study 1 was submitted to the auditory training after participating in the first study and a third evaluation was performed following the first study, containing the same tests. As a result of dropouts between both studies, of the 28 children in the untrained group of Study 1, 18 remained in Study 2 (12 boys and six girls, mean age 10.1). The auditory training was performed using a software program specifically designed for the training of temporal order detection. Tasks of frequency order with two stimuli were initially performed, followed by frequency ordering with three stimuli. Training was carried out during two months in each participant's home and, periodically, the results were sent automatically to the researcher through the internet for follow-up. RESULTS and CONCLUSION: Analysis of variance for repeated measures, non-parametric analysis of variance of repeated ordinal data were used to compare groups and evaluate treatment effect. Significance level was set in 0.05. In Study 1, the trained group had significant improvement after training only for frequency ordering task, compared with the untrained group ($p < 0.001$), suggesting only task learning. In Study 2, the group showed improvement at the last interval in both tasks: frequency ordering ($p < 0.001$) and duration ordering ($p = 0.01$), suggesting perceptual learning. The presence

of methodological differences between the studies, as well as the relation between trained task and evaluated tasks are discussed. Further studies are necessary so that a better understanding of this phenomenon can be achieved.

SESSION PA10 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

INFLUENCE OF LEVEL OF EDUCATIONAL LEVEL ON DICHOTIC SENTENCE IDENTIFICATION TEST (DSI) IN BRAZILIAN PORTUGUESE

Autores

ADRIANA NEVES ANDRADE, DANIELA GIL, MARIA CECÍLIA MARTINELLI IORIO

Instituição

1. UNIFESP, Universidade Federal de São Paulo

Resumo:

INTRODUCTION: The Dichotic Sentence Identification Test (DSI) is an instrument used to evaluate auditory processing in individuals with peripheral hearing loss. A Compact Disc (CD) with a Brazilian Portuguese version of the DSI was developed the sentences were taken from the Brazilian Portuguese version of the Synthetic Sentence Identification Test. The CD of DSI has six tracks: calibration, training, binaural integration, directed attention of right and left ears, auditory training. **OBJECTIVE:** To compare the performance in the Brazilian Portuguese version of the DSI test considering: right and left ears and level of education in normal listeners. **METHOD:** This study was approved by the Ethics Board of the Federal University of São Paulo Nº 0322/07 and received financial support from Fundação de Amparo à Pesquisa do Estado de São Paulo. This investigation included 200 subjects right-handed, both genders, divided into seven groups according to years education: 3 to 7 years (n = 14), 8 years (n = 10), 9 to 10 years (n = 10), 11 years (n = 42), 12 to 15 years (n = 64), 16 years (n = 36), 17 years or more (n = 24). All subjects have undergone to assessment of hand dominance of Edinburgh, basic audiological evaluation (clinical history, otoscopy, pure tone and speech audiometry, acoustic immittance measures), and behavioral auditory processing tests (sound localization test, verbal and non-verbal sounds in sequence, dichotic digits test) exclude peripheral hearing impairment and/or auditory processing disorder. DSI was applied at 50 dBHL in four stages: training, binaural integration and directed report (right and left ears). Minitab 15, SPSS 11 were used in statistical analysis with a significance level of 0.05. Descriptive and inferential analysis (analysis of variance and covariance with repeated measures, Spearman correlation coefficient, Kruskal-Wallis test and Bonferroni method were also used). **RESULTS:** The subjects evaluated had an average education of 13.1 years and normal results on tests selected for the hearing and auditory process evaluation. For the DSI test, the educational level has a dependent relationship with the percentages of correct answers in each step of the test (p = 0.000) and with each ear (p = 0.009). There was a statistically significant positive correlation between the education level and the percentage of correct answers to all stages of the DSI test in both ears and interaction effect between the stages of testing and ear for categories 8 (p = 0.011), 11 (p = 0.020) and 12 to 15 years (p = 0.002) of education. There was an effect of education level on the results obtained in each step of DSI test, with the exception of directed report for the right ear (p = 0.100). **CONCLUSIONS:** In comparing the performance considering the variables in the DSI test the conclusions were: there is advantage of the right ear in training and binaural integration, the higher the educational level the better the performance.

SESSION PA11 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

PERFORMANCE OF STUDENTS WITH LEARNING DISABILITY AND DYSLLEXIA ON AUDITORY PROCESSING TESTS

Autores

ADRIANA MARQUES DE OLIVEIRA, FÁBIO HENRIQUE PINHEIRO, ANA CLAUDIA VIEIRA CARDOSO, SIMONE APARECIDA CAPELLINI

Instituição

1. FFC/UNESP/Marília, Departamento de Fonoaudiologia FFC/ UNESP/Campus de Marília

Resumo:

Background: Performance of students with learning disability and dyslexia on auditory processing tests. **Aim:** characterizing the performance of students with learning disabilities and dyslexia according to their auditory abilities and relating the results found to the performance of students without learning difficulties. **Method:** Thirty students ranging from the ages 8 to 12 years old, of both genders, participated in this study and were divided as follows: Group I (GI): composed of 10 students with interdisciplinary diagnosis of learning disabilities. Group II (GII): composed of 10 students with diagnosis of dyslexia. Group III (GIII): composed of 10 students, attending from grades two to four, with good academic performance, paired up according to gender and age with groups 1 and 2. A basic auditory evaluation and an evaluation of central auditory processing were conducted. **Statistic analysis** using non-parametric tests McNemar and parametric test Wilcoxon were also performed in order to verify possible differences between both ears. **Results:** the results indicate that GIII showed higher performance in all tests for the evaluation of the central auditory processing when compared to GI and GII. GI showed the lowest average performance in the tests used. **Conclusion:** through the tests performed, the results of the central auditory processing tests in students diagnosed with learning disabilities and dyslexia are below the average of the students without difficulties, which might indicate alterations in auditory abilities that compromise the performance of these students in the classroom.

SESSION PA13 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

TRANSLATION AND ADAPTATION OF THE QUESTIONNAIRE “BELIEFS AND ATTITUDES ON HEARING LOSS PREVENTION” INTO BRAZILIAN PORTUGUESE

Autores

LUCIANA BRAMATTI, THAIS CATALANI MORATA, JAIR MENDES MARQUES

Instituição

1. UTP, Universidade Tuiuti do Paraná

Resumo:

Introduction According to the Brazilian Society of Otolaryngology, the lack of information is one important factor that contributes to increased numbers of acquired hearing disorders. **Objective:** The objective of this study was to evaluate the Brazilian Portuguese version of the instrument “Beliefs and Attitudes on Hearing Loss Prevention”, developed by the National Institute for Occupational Safety and Health in 1996. The original instrument aimed to evaluate the knowledge of noise exposed workers about noise, their beliefs and attitudes towards it and preventive measures. **Method:** Development of the Portuguese scale followed these steps: translation from English into Brazilian Portuguese, pre-test with a group of 10 workers comparable to the target population, linguistic adaptation, review of the grammatical and idiomatic equivalence, and reverse translation into English to verify that the instrument remained true to its original version. Following this, the Portuguese instrument was validated with the group of 31 workers. Participating workers were from a meat-packing company. Seventeen of them were males and 14 were females, and their mean age was 29 years and 7 months. The questions were constructed using a 5-point Likert scale in which 1 meant “disagree completely” and 5 meant “agree completely.” A factorial analysis was conducted to verify construct validity of correlated questionnaire items. Participants responded to the first questionnaire (version A) and 15 days later responded to the second questionnaire (Version B). **Results:** The validity of the entire instrument was demonstrated by a Cronbach’s Alpha of 0,8146 for the version A of the instrument and 0,8569 for the Version B. The significant correlations among related questionnaire items indicate the validity of its format and content for its use with a Brazilian Portuguese population of workers. **Conclusions:** The questionnaire was translated and adapted to Brazilian Portuguese and will facilitate the evaluation of attitudes and beliefs of Brazilian-Portuguese speaking workers towards noise and hearing loss prevention.

SESSION PA14 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

NOISE AND AGE: ANALYSIS OF ITS INFLUENCE IN HEARING

Autores

CLAUDIA GIGLIO GONÇALVES, PEDRO HENRIQUE MOTA

Instituição

1. UTP, Universidade Tuiuti do Paraná

Resumo:

Background: among the factors that may cause hearing alterations in adults are age and exposure to noise. These factors are considered additive because their effects cause damages in hair cells of Corti’s organ. **Objective:** to verify whether exposure to occupational noise is an important risk for hearing alterations in adults in the age group from 50 to 70 years, in addition to age-related hearing stress. **Method:** we did a historical cohort study of audiograms of 71 men from 50 to 70 years divided in two groups (group I with occupational exposure to noise and group II without register of exposure to noise) for comparing hearing profiles. Complementing qualitative analysis, a quantitative analysis was carried out using Student’s T test to check confidence for inferences. We used a confidence interval (CI) of 95 % to describe the precision of the estimates. **Results:** the two groups do not present significant differences regarding age and there is predominance (67.6%) of subjects from 50 to 55 years of age, 14 subjects (20%) has bilateral normal audition and the others present neurosensorial hearing loss. There is an association between noise and hearing alterations, with significant differences between the groups as regards hearing thresholds from 3000Hz on, and Group 1 subjects condition were worse. **Conclusion:** hearing thresholds of subjects with ages from 50 to 70 years are worse in the group exposed to noise. Noise is a risk factor more serious than age for neurosensorial hearing alterations.

SESSION PA15 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

PORTABLE DIGITAL MUSIC PLAYERS: EFFECTS FOR THE HEARING SYSTEM

Autores

IZABELLA DOS SANTOS, CHRISTIANE MARQUES DO COUTO

Instituição

1. UNICAMP, Universidade Estadual de Campinas

Resumo:

Portable digital music players and headphones have been more frequently used, especially to listen to music, mainly among university students. However, it is used for several hours and with a high intensity sound, that can be harmful for the hearing. Therefore, the aim of this research is to characterize the use of portable digital music players by youngs, evaluating which acoustic intensity level they are exposed to, the existence of hearing loss or a cochlear dysfunction, as well as to orientate them about hearing habits. For this research, 44 university students, aged 18-30 years, answered a questionnaire about hearing habits and underwent the following tests: tonal audiometry; immittance measurement, distortion product otoacoustic emissions and transient otoacoustic emissions and probe microphone measures. We evaluated the results obtained in each test. The statistical analysis was done using the chi-square test, the Fisher exact test, the Mann-Whitney Wilcoxon test and the correlation coefficient. The level of significance for statistical tests was 5%, it means, $P < 0.05$. It was observed that they have hearing thresholds within normal limits, but with a slight drop in the frequencies of 250 and 6000Hz. It was observed that there is a statistically significant difference between the gender for the 3kHz

frequency, it means, male students reported hearing thresholds generally lower than female ones. For the transitory otoacoustic emissions it was observed that there is a decrease in the response level at higher frequencies, since the distortion product otoacoustic emission showed a greater response level for high frequencies. Regarding tympanometry, all students presented a type A tympanometric curve. About the stapedial reflex, the contralateral and the ipsilateral one, it was observed an absence of response in some cases and an increased differential in others. Regarding the measurement with probe microphone, it was observed that the university students use their equipment in a high intensity sound. There was a significant correlation between the volume used and the distortion product otoacoustic emission at 4 kHz. Regarding the time of use, there was a significant correlation of audiometry for frequencies of 3 and 4kHz, transient otoacoustic emissions for frequencies of 2, 2.8 and 4kHz and distortion product otoacoustic emission frequency of 2.8 and 4kHz, all in the left ear. Through the correlations made between these variables, it was observed that, when there is an increase in the volume of equipment or time of use, the responses obtained in the exams are worse, it means, in the audiometry it is possible to see lower hearing thresholds and in otoacoustic emission it is possible to see a smaller response level. It was observed that the left ear obtained worse response than the right one. It was concluded that there is slight drop in the frequencies of 250 and 6000Hz in hearing threshold of pure tone audiometry and a decrease in the response level of otoacoustic emissions, but they still are within the normal range. Thus, it is necessary to advise the university students about the risks they are exposed to, in order to change attitudes.

SESSION PA16 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

PREVALENCE OF HEARING IMPAIRMENT IN THE CITY OF ITAJAÍ, SANTA CATARINA STATE, BRAZIL

Autores

SHEILA ANDREOLI BALEN, DÉBORA FRIZZO PAGNOSSIM, INDIARA MESQUITA DE FIALHO, LYS MARIA GONDIM, KARLA JEAN ZIMMERMANN, SIMONE MARIOTTO ROGGIA

Instituição

1. UNIVALI, Universidade do Vale do Itajaí

Resumo:

Introduction: Hearing is one of the essential senses in the process of human communication. Any kind of change in the hearing system can bring damage to this process. Therefore, the knowledge about how hearing impairment occurs, its magnitude and its risk factors are determining in the planning of public health administration. In Brazil, studies have been made about the prevalence of hearing impairment, based on the protocol suggested by World Health Organization. These studies have been made in the city of Canoas (RS), and Montenegro (RO). Considering the geographic extension of Brazil and existing population differences, it's necessary to realize other studies following the same methodology. Purpose: To study the prevalence of hearing loss in the city of Itajaí, SC. Methodology: The sampling calculation was made in the EPI-INFO 6 program, in a population of 163'298 inhabitants, with hearing loss occurrence frequency estimated in 10% and error margin of 3%. To determine how many people should be assessed, 10% of the census sectors were randomly chosen and the calculated sample was divided through the number of chosen sectors, resulting in 43 people per sector. Field research was realized from July to November 2008. 499 people were assessed, however, 215 people were excluded because they were part of incomplete houses. Therefore, a sample of 284 assessed people in complete houses was obtained, which represented a loss of 25,65% of the calculated sample. The main reason for not reaching the calculated sample was the heavy rains which hit the city in the second semester of 2008, which many times made the access to the research field impossible. The following procedures were used: questionnaire suggested by WHO. measuring of the ambient noise level, meatoscopy, research of the hearing thresholds at 1000, 2000 and 4000 Hz, tympanometry and bilaterally ipsilateral acoustic reflexes. In children from 0 to 4 years old, otoacoustic emissions evoked by transient stimuli were researched. People with alterations were led to the Audiology Department of UNIVALI for assessment by an ear, nose and throat specialist (otolaryngologist). Results: Of the 284 inhabitants of Itajaí, 133 (46,82%) were males and 151 (53,18%) were females. The analysis concerning the minimal hearing level of the better ear made evident that 69,72% of the subjects had normal hearing, 23,24% mild hearing impairment, 5,28% moderate hearing impairment, and 1,40% severe hearing impairment. It was not observed profound hearing loss and in 0,35% of the cases it was not possible to establish the degree of the hearing impairment because subjects were small children who did not perform tone audiometry. The incapacitating hearing impairments detected at the time were of inhabitants older than 50 years, showing predominance from 70 years of age on. Conclusion: The prevalence of incapacitating hearing impairment (moderate, severe and profound) in the city of Itajaí was of 6,68%.

SESSION: PA17 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

QUALITY INDICATORS FOR THE HEARING HEALTH SERVICES

Autores

MARIA CECÍLIA BEVILACQUA¹, ADRIANE LIMA MORTARI MORET⁷, MARIA ANGELINA NARDI DE SOUZA MARTINEZ², BEATRIZ CAVALCANTI DE ALBUQUERQUE CAIUBY NOVAES², ANDRÉA CINTRA LOPES⁷, ANA CLÁUDIA ANA CLAUDIA MIRÂNDOLA BARBOSA REIS⁸, CARLA MARCONDES CESAR AFFONSO PADOVANI⁵, TELMA FERRAZ DA SILVA³, GABRIELE RAYMANN MOTA⁴, TATIANA MENDES DE MELO¹, MARINA MORETTIN¹

Instituição

1. USP - Bauru, Universidade de São Paulo- Centro de Pesquisas Audiológicas
2. PUC-SP, Pontifícia Universidade Católica de São Paulo
3. CEPRED, Centro Estadual de Prevenção e Reabilitação de Deficiências
4. FUNCRAF-MS, FUNDAÇÃO ESTUDO TRATAMENTO DAS DEFORMIDADES CRÂNIO FACIAIS
5. UNIME, União Metropolitana de Educação e Cultura
6. ULBRA, Universidade Luterana do Brasil
7. FOB-USP, Universidade de São Paulo-Faculdade de Odontologia de Bauru
8. USP- Ribeirão Preto, Universidade de São Paulo- Departamento de Fonoaudiologia

Resumo:

In 2004 the Brazilian Health Ministry established the Hearing Health Care Policy which purpose is to offer integrate care to the hearing impaired patient. The Hearing Health Care Policy did not comprises quality indicators to evaluated the services or standard tool that may contribute to the assistance provided to the hearing impaired patient. Objective: Investigating what the main quality indicators are as regards the hearing aids processes of selection, indication and fitting as auditory rehabilitation for hearing impaired adults provided by the Hearing Health Services. Method: 1291 adult participants were longitudinally evaluated at their entry in the hearing health service (after the audiological diagnosis), three and nine months later they received the hearing aid. The tools used for evaluation were determined according to patients' age group and conducted during the three moments of the study. After performing the data analysis of this study it was possible to investigate what the main quality indicators were as regards the processes of selection, indication and fitting the personal hearing aid as auditory rehabilitation for hearing impaired adults provided by the Hearing Health Services. An experts group was selected in order to acknowledge quality indicators proposed. Results: The following indicators were proposed: Indicator 1 - Execution of insertion gain during equipment fitting and routine personal sound amplification; Indicator 2 - 30% of patients shall be referred by basic care and 30% by other services classified as Medium Complexity by the Unified Health System; Indicator 3 - The service must have, at least, 50% of patients' frequency who received hearing aids and returns to accompaniment; Indicator 4 - 70% of total patients assisted by the services and score IOI-HA questionnaire above 30; Indicator 5 - As regards hearing aids usage, it is recommended to use at least for 8h in 70% of patients; Indicator 6 - 100% of assisted adults must realize a auditory rehabilitation , which must involve orientation and/or advising and/or auditory training; Indicator 7 - 60% of patients assisted by the services presents a score lower than 30% in the APHAB questionnaire total score, in the post-fitting period; Indicator 8 - 60% of patients assisted by the services presents a score lower than 25 points on total score of the HHIA questionnaire, in the post-fitting period; Indicator 9- 60% of patients assisted by the services presents a score higher than 5 points in the total SADL score. The indicator regarding H.A. usage (indicator 5) had the most approval by experts group and those concerning patients entry and accompaniment (indicator 2 e 3) were the most discussed concerning usefulness to services evaluation. Conclusion: Profound evaluations about indicators must be realized from experts' analyzes, though by this moment we can conclude that the indicator concerning hearing aids usage must work as criterion to services quality evaluation. Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico- CNPq

SESSION: PA18 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

ANALYSIS OF COMMUNICATIVE INTERACTION OF TEACHER WITH THE DEAF STUDENT AFTER A YEAR OF THE PROGRAM OF FONOAUDIOLOGIC ACCOMPANIMENT

Autores

FERNANDA DE LOURDES ANTONIO, ELIANE MARIA CARRIT DELGADO-PINHEIRO

Instituição

1. UNESP, Universidade Estadual Paulista "Júlio de Mesquita Filho"

Resumo:

Introduction : The information for teachers about the impact of the use of communication strategies, in the school environment, with the deaf student, it is essential to facilitate learning of these students. Objective : To analyze the communicative interaction of teacher with deaf student after a year of program of fonoaudiologic accompaniment. Methods : Participants were 20 teachers of deaf students who use hearing aids or cochlear implant and attend fonoaudiologic treatment so school clinic that uses the auri-oral approach. It was filmed the teacher-deaf student's interaction in the context of the classroom before and after the program of accompaniment. The program of fonoaudiologic accompaniment occurred during a school year. We used a protocol for the analysis of the observation or the teacher-student's interaction. The protocol consists of 15 items related to communication strategies, measured by a Lickert Scale. The strategies used by teachers were classified as: "never observed", "observed" and "always observed". The recordings were scored, independently, by tree researchers in the area and found the correlation between them. Results : In the strategies analyzed, 8 strategies changed in frequency between the rating of "never observed" to "observed" or "always observed". Remained in the some classification, 4 strategies. Communication strategies that were more often as "always observed", after the program of fonoaudiologic accompaniment are related to, for example, speaking at the same level (height) of the child (70%); repeating the message when necessary (70%); emphasizing keywords (80%); using simple sentences (90%). Conclusion : It was evident, after the program fonoaudiologic accompaniment, the use of strategies that facilitates interaction, dialogue, and deaf student's learning. It is very important the continuity of program that accompany the teacher during the school year. It is important also to consider the positive attitudes of the teacher to work with the deaf student and the need to reduce the number of students in each classroom.

SESSION PA19 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

TESTS OF SPEECH PERCEPTION IN NOISE: SYSTEMATIC REVIEW

Autores
MÁRCIA APARECIDA GRIVOL, MARIANE PERIN DA SILVA, PATRÍCIA FERNANDES GARCIA, ADRIANE LIMA MORTARI MORET, MARIA CECÍLIA BEVILACQUA, REGINA TANGERINO DE SOUZA JACOB

Instituição

1. FOB/USP, Faculdade de Odontologia de Bauru/Universidade de São Paulo

Resumo:

Theme: hearing loss, regardless of type and degree, has a major impact on the communication impairing the ability of auditory perception, widening further the presence of a competitive noise. Aim: a systematic review of the literature to investigate the tests of speech perception in noise used in adults with hearing loss. Methods: It was performed searches in databases and web sites with the keywords: hearing loss, noise, evaluation, and adult speech perception. The selected articles that focused on the title and summary of the issue to be investigated and articles in English, Spanish or Portuguese and published in the databases searched in full by the available database at the University of São Paulo, Brazil. Results: After exclusions, 100 articles were analyzed according to standard of evidence and recommendations, where they found 48 tests of speech perception in noise, and the Hearing in Noise Test (HINT) to greater use (18.26%). The type of noise was predominant noise speech (71.87%), the fixed type (65.22%). The SNR of presentation was 10 dB (31.30%). The samples were characterized in: cochlear implant users, users of hearing aids, hearing impaired non-users of hearing aids, normal (control group) and users of BAHÁ and were different in size and age. Conclusion: It's highlight the importance of testing in noise, however, the literature review there was no standardized procedure for the application of tests of speech perception in noise in adults with and how to test used. Measurements of speech in noise in hearing rehabilitation are essential for providing information in support of the advice with realistic expectations and encourage the most appropriate intervention for the client, including an indication of directional microphones, noise reducer, FM systems and auditory training. National studies are necessary in this line to integrate the best possible research evidence with clinical experience and appreciation of the patient. Keywords: speech perception, noise, adult, hearing loss, evaluation

SESSION PA20 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

THE PERFORMANCE-INTENSITY FUNCTION THROUGH PORTUGUESE SENTENCE LIST TESTS AS STIMULUS

Autores

NILVIA HERONDINA SOARES AURÉLIO, KARINE THAÍS BECKER, ALEXANDRE HUNDERTMARCK LESSA, MARISTELA JULIO COSTA

Instituição

1. UFSM, Universidade Federal de Santa Maria

Resumo:

Introduction: To the establishment of conversation, besides listening, it is necessary that the individual could recognize the auditory stimulus. The complaints related to the difficult of this ability are very common, and to evaluate them, speech recognition tests are applied. However, it must to take care to measure it in situations near to real, possible through audiologic tests which use speech recognition tests as stimulus. Trying to provide relevant information to audiology area, it had determined performance-intensity function through Portuguese Sentence Lists test (PSL). Purpose: To determine the performance-intensity function using the PSL test in individuals with normal hearing and individuals with sensorineural hearing loss and compare the obtained results in these groups. Methods: The study was performed at Hearing Aids Lab from Federal University of Santa Maria, between september 2008 and march 2009. After some explanations about the aim and procedures, the individuals agreed to participate and assigned a Consent Form. Thus, the sample was complained by 59 individuals, with ages ranging from 18 to 86 years-old, with speech recognition threshold (SRT) lesser than 65 dB NA in the best ear and divided in: group A, compound by individuals with normal hearing; group B with mild to moderately-severe sensorineural hearing loss individuals. The subjects were submitted to an anamnesis, basic audiologic evaluation and, in a free field, the PSL test, to determine the Voice Detection Thresholds (VDT), the Recognition Sentence in the Silence Thresholds (RSST) and the Maximum Percentual Indexes of Sentences Recognition in the Silence (MPIRSRS), in both groups. The results were analyzed through a descriptive statistics, and to compare the variables between the groups, was resorted the U Test by Mann-Whitney. Results: To the group A, were found average levels of 16,47 dB NPS (A) to VDT, 23,77 dB NPS (A) to RSST and 31,23 dB NPS (A) to MPIRSRS. To the group B, the values found were 38,38 dB NPS (A) to VDT; 50,35 dB NPS (A) to RSST and 59,65 dB NPS (A) to MPIRSRS. On the statistic analysis were found a significant statistical differences between the groups, with advantage to group A. Conclusion: It was obtained the performance-intensity function to the studied groups. It can be inferred that an increase of 7dB NPS (A) is enough to the individuals with normal hearing pass from the sound detection level to a threshold level, and the increase of 7 dB NPS (A) to pass from the threshold level to a total comprehension of the discourse. But to make the individuals with hearing loss pass from sound detection level to the threshold level were demanded nearly 12 dB dB NPS (A). And around 9 dB NPS (A) above the threshold to obtain the maximum recognition. The data allow to infer that each variation of 1 dB NPS (A) on the intensity of the sentence presentation, in a free field, in the silence, has caused a changing of 6,77% in the speech recognition to the normal hearing individuals and 4,70% in the group of hearing loss individuals.

SESSION PA21 - DATE: 29/03/10 AND 31/03/10 TIME: 08H00 – 18H00

COCHLEAR IMPLANT IN PATENTS PRESENTED WITH HYPOPLASIA OF THE EIGHTH CRANIAL PAIR.

Autores

MARIA CECÍLIA BEVILACQUA, NATÁLIA BARRETO FREDERIGUE-LOPES, SÍLVIO GARCIA MEIRA JUNIOR, TRÍSSIA MARIA FARAH VASSOLER, LEANDRA TABANEZ NASCIMENTO, LUZIA MARIAPPOZZOBOM VENTURA, MARTA MARIA RESEGUE-COPPI

Instituição

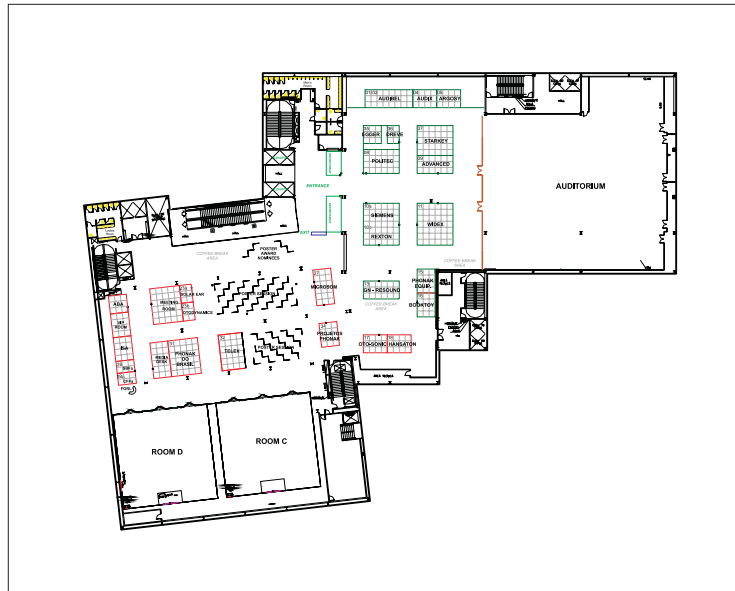
1. USP/Bauru, Universidade de São Paulo

Resumo:

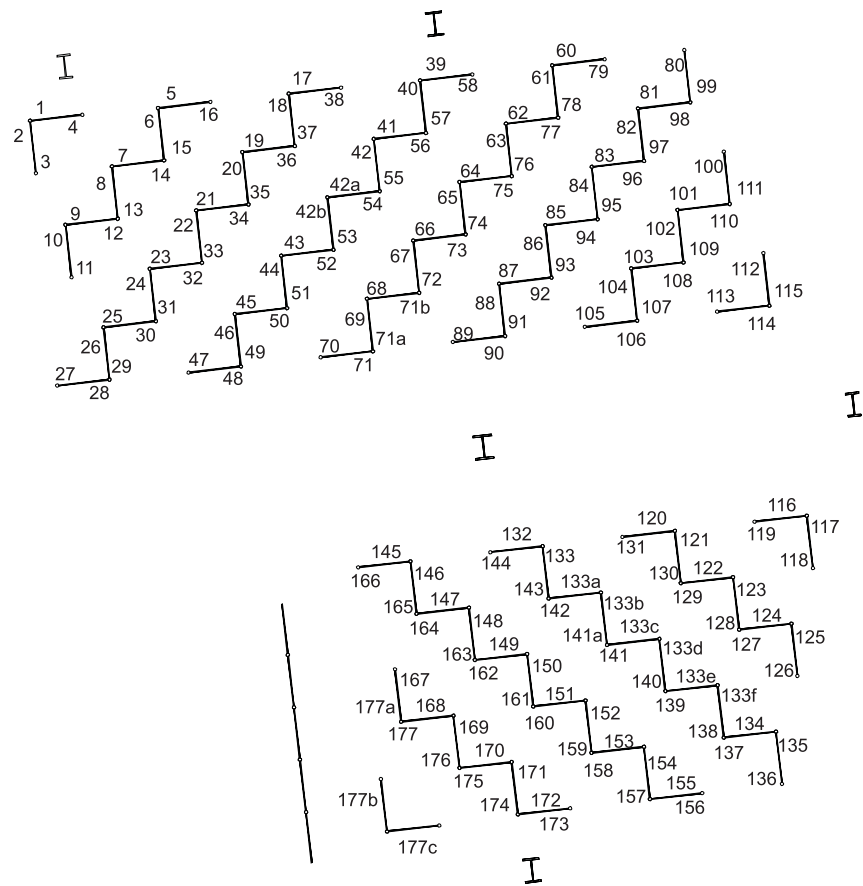
Aim: To evaluate the performance of hearing, language and findings in the mapping of individuals presented with hearing nerve hypoplasia and cochlear implant (CI) users. Method: Analysis of the records of eight individuals users of CI, presented with hearing nerve hypoplasia, attended at the Audiological Research Center of the Craniofacial Anomalies Rehabilitation Hospital - HRAC/USP/Campus Bauru. Were evaluated: pre-surgical data - including results of the free field audiometry (FFA) without and with the hearing aid (HA), of the transient evoked otoacoustic emissions and distortion product (TEOAE and DPEOAE), brainstem auditory evoked potentials (BAEP) measurements, computerized tomography (CT) and magnetic nuclear resonance (MR) -, hearing performance - FFA with CI and classification in auditory speech perception categories -, language - behavioral observation and classification in language categories -, and data from mapping - stimulation parameters and results of NRT and ESRT research. Results: On CT and MR, were observed auditory nerve hypoplasia in all individuals and cochlear malformations in two cases. FFA with HA evidenced a response symmetry between the ears in five individuals and asymmetry in three. The presence of TEOAE and DPEOAE was observed in two individuals, of whom one presented the absence of BAEP with recording of cochlear microphonism (CM) and the other, absence of BAEP with no CM; for the others, TEOAE and DPEOAE were absent, being that one presented absence of e BAEP with CM, bilaterally, and one presented absence of BAEP with unilateral CM. On mapping, it was necessary to increase the pulse duration for seven individuals, with decrease of signal processing speed, for six. NRT was not observed in four individuals, two presented asystematic responses, one presented response upon pulse increasing, and one presented response with pulse standard duration. No recording was seen on ESRT, when there was absence of response on NRT; however, in two cases in which the response was asystematic on NRT, the presence of ESRT was observed in one and the absence in the other. The comparison of FFA with no HA, with binaural HA, and with CI showed improvement of thresholds with HA, in realltion to the condition with no amplification and that the thresholds with CI were better than those with HA, in all individuals evaluated. The classification into auditory speech perception categories demonstrated an advance in the auditory skills of all individuals, following two years of CI use. Nevertheless, three individuals reached just pattern perception and another three, the recognition of closed-set words. As for language categories, three individuals presented isolated words, one presented the formation of three-element phrases, and another, two-word expressions. The remaining individuals presented fluency in their oral language, being that, of these, two already formed phrases with more than four elements, prior to CI activation. Conclusion: the CI showed to be beneficial to the development of auditory skills, mainly, as to detection and discrimination. However, most cases presented limitations in the development of more complex auditory skills. Limitation as to the development of oral language abilities, mainly as to phrase formation, was observed.

POSTER ABSTRACTS

POSTER SESSION I LOCATION MAP



POSTER SESSION I



POSTER SESSION I - DATE: 29/3/2010 - TIME: 8H00 - 18H00 - PANEL 1

AUDITORY MEMORY AND AUDITORY LOCALIZATION IN PSYCHOACTIVE DRUG ADDICTED SUBJECTS ENROLLED AT A CENTER OF INTEGRATED MENTAL HEALTH

Authors

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Institution

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2. CAISM, Centro de Atenção Integrada à Saúde Mental

Abstract: Introduction: The anatomical and physiological integrity of the neurological system is an important prerequisite for the development and maintenance of communication and therefore, the socialization of human beings. The chronic use of psychoactive substances can produce effects on auditory, cognitive, memory and attention processing skills, due to its action on the central nervous system. Objective: In order to characterize the relationship between psychoactive substance use and possible changes in auditory processing, the aim of this study was to evaluate the skills of auditory memory and auditory localization in subjects who spontaneously seek for treatment at a Center for Integrated Mental Health. Methods: 28 adults drug addicted freely participated after a full explanation of the project. Subjects were asked to attend one hour before or after psychiatrist appointment, to evaluate: 1) auditory memory for words and nonwords, 2) simplified assessment protocol of auditory processing – auditory localization skill, sequential auditory memory for verbal and non-verbal sounds. Results: The sample population included in this study was very heterogeneous: 21 were male, 7 female, mean age was 37 ± 9,6 years, and the education level observed was: completed elementary in 2 / 28, incomplete elementary in 4 / 28, completed high school in 8 / 28, incomplete high school in 7 / 28 and unfinished undergraduate in 6 / 28. About the use of psychoactive substances 13/28 were addicted only to one drug and 15/28 were addicted to more than one drug, being alcohol, marijuana and crack the substances most commonly used. In the evaluation of auditory processing, 44% of the individuals presented a performance compatible with the reference values. We observed 89% of normal results at ability of sound localization, 74% of subjects showed normal performance for non verbal sounds at the auditory sequential memory and 63% for verbal sounds. In the analysis of auditory memory performance, the results were consistent with the standard expected, differences in auditory span between words and nonwords, words being better than the nonwords (F=16.03, p < 0.001). However, both the total number of correct recall of words and nonwords, and the level of auditory span, evidenced that 76% of subjects showed poor performance compared with reference group (mean=3.4 words; span nonword mean=2.4, total correct words = 62.0%, total hits nonwords = 42.4%). Conclusion: This pattern of responses indicates reduced processing of linguistic information, especially in complex tasks such as the span of nonwords, for this population of chronic drugs users. These tests can help to propose specific treatment strategies.

POSTER SESSION I - DATE: 29/3/2010 - TIME: 8H00 - 18H00 - PANEL 2

STRUCTURAL ABNORMALITIES AND DYSFUNCTION OF THE AUDITORY CORTEX IN INFANTS WITH NONSYNDROMIC CLEFT LIP AND/OR PALATE

Authors

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Institution

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Abstract: Background: Hearing loss as a common co-morbidity in children with cleft lip and/or palate has been well documented. Most previous studies have focused on peripheral hearing impairments, or the middle ear disease prevalent in this group. More recently, cortical malformation and auditory processing dysfunction in individuals with cleft lip/palate have been reported. Objective: The purposes of our research were: (1) To investigate and compare the anatomical structure and function of the auditory cortex in infants with nonsyndromic cleft lip and/or palate (NSCLP) and normal controls; (2) To initiate further studies that determine the auditory processing abilities of children with NSCLP. Methods: 27 infants aged from 6 to 24 months (mean age=15.4 months, SD=5.9 months), with NSCLP and normal peripheral hearing function, participated the study. 27 non-cleft children matched for age and sex were included as normal controls. Brain images acquired from magnetic resonance imaging (MRI) were evaluated using a specially designed software package. The volume of brain structures related to the central auditory nervous system (CANS), including the brain stem, thalamus, auditory cortex (superior temporal gyrus, STG), and average thickness of STG, were calculated and analyzed. Mismatch negativity (MMN), an evoked potential indicating auditory discrimination abilities which is mainly generated in the auditory cortex, was used to estimate the function of the auditory cortex. Results: Compared with the normal infants, the NSCLP group had smaller volume in the cerebrum and brain stem (controlled for body height and cerebral volume, respectively), but no overall significant group difference was found in our study. However, infants with NSCLP were found to have smaller volume in the left thalamus and auditory cortex, and reduced average thickness in the auditory cortex (controlled by left cerebral volume) and a significant between groups difference was obtained. Another conspicuous finding was that the average difference in thickness of the auditory cortex between the two groups was more distinct with increasing age, from a very slight difference in subjects at 6 months to nearly 12% difference at 24 months of age. The results of MMN recording showed considerable inter-subject and intra-individual variability, with better results being acquired using the mean peak amplitude multiplied by duration as an index, and distinct differences were found between groups. The infants with NSCLP were found to have reduced MMN amplitude and duration compared to normal children, indicating potential impairment of the auditory discrimination abilities in this group. Conclusion: Our study revealed that infants with NSCLP could have auditory impairment at the cortical level, in view of their having anatomical structural abnormalities and cortical auditory dysfunction, even when normal peripheral hearing function was noted. Compared with non-NSCLP children, the development of the CANS and the maturation of the auditory cortex in cleft infants might be inhibited by developmental factors. These findings may lead to new directions for research and treatment of NSCLP, and suggest that central auditory processing abilities in patients with NSCLP should be routinely monitored and individuals with processing disorders provided with appropriate habilitation.

POSTER SESSION I - DATE: 29/3/2010 - TIME: 8H00 - 18H00 - PANEL 3

RELATIONSHIP BETWEEN LEVEL OF BLOOD LEAD AND PERFORMANCE ON THE AUDITORY PROCESSING

Authors

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Institution

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Abstract: Relationship between level of lead in blood and performance on the auditory processing Introduction: lead poisoning affects all body systems, especially the nervous system. The clinical manifestations depend on the intensity, duration of exposure and individual sensitivity. The accepted level of lead in blood, according to the American Center for Disease Control is up to 10 mg / dL. The lead contamination may affect the development of central nervous system, may cause deficits in attention, concentration, memory, intelligence, learning, perceptual processes, interpersonal and psychomotor development, among others. About the effects of lead in the auditory system, there is no consensus in the literature. For the correct development of auditory processing (localization and lateralization of sound discrimination and auditory pattern recognition, temporal aspects of hearing, auditory performance with competing acoustic signals and the degradation of the signal there is a need for functional and structural integrity of the peripheral auditory and central systems. Objective: investigate whether there is relation between the level of lead in blood and possible alterations in auditory processing. Methodology: 73 children, male and female, aged 7 to 15 years, living in the city of Bauru in the area where there was emission of lead particles above the permitted limit, with blood lead level less than g/dL, and auditory tests (audiometry and tympanometry) within normal limits m10. Auditory Fusion Test-Revised (AFT-R) subtest 1 (which was adopted as the result of poor performance higher than or equal to 60 ms), and dichotic listening test (free attention) were used to assess the auditory processing. According to the number of rights, it is considered as a good performance for the right ear, results >85% (9 years old); >82% (7 to 8 years old) for the left ear and >95% (9 years old) for the right year. The Spearman test was used to determine the correlation among data. Results and Discussion: The level of lead in blood ranged from 10 to 30.2 g / dL, standard mg / dL, and the average corresponding to 15.8 (standard deviation of 4.8). 60.3% of these children had poor performance in the AFT-R, or higher results to 60ms. In the dichotic listening test, 25% of children had a good performance for the right ear and left ear, 38.5% had poor performance in the right ear and left ear, 7.7% had poor performance only in the right ear and 28.8% had poor performance in the left ear. There was no statistical significance between the level of lead and the results of tests of auditory processing. Conclusion: The performance of children contaminated with lead on the auditory processing test was lower than reported in the literature, which indicates the association between lead contamination and poor performance in the auditory processing.

POSTER SESSION I - DATE: 29/3/2010 - TIME: 8H00 - 18H00 - PANEL 4

RESULTS OF A SCREENING PROGRAM OF AUDITORY PROCESSING IN SCHOOL.

Authors

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Institution

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2. CEDAC, Centro de Diagnóstico Auditivo de Cuiabá

Abstract: Introduction: Auditory Processing Disorder (APD) is the inability of the individual to attend, discriminate, recognize, remember and / or understand information presented to the ear canal, even with normal levels of intelligence and peripheral hearing, and may be correlated with various difficulties school. Therefore, it is necessary to make referrals for early assessment of the APD in order to minimize the difficulties faced by the students through a therapy more specific and effective, preventing and / or reducing repetition. Aim: To provide an epidemiological profile of central auditory skills of children who study in regular education schools in the city of Várzea Grande. Methodology: The study involved 250 children in 2nd grade of elementary school in the city of Várzea Grande by otoscopy, immittance, and otoacoustic emissions and screening of the APD. Results: A total of 250 children involved in 2nd year of regular schools in the city of Várzea Grande-MT were evaluated . There was a lot of pathologies in children with otoscopy, about 18% with alterations in impedance, but no child with alterations indicative of sensorineural hearing loss. We observed a large number of children who failed the screening of auditory processing. Conclusion: We conclude from this study, the need to be built with the school community strategies and activities to stimulate auditory skills.

POSTER SESSION I - DATE: 29/3/2010 - TIME: 8H00 - 18H00 - PANEL 5

AUDITORY PROCESSING FINDINGS IN LOW-VISION CHILDREN

Authors

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Institution

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Abstract: Introduction: the visual function is extremely important for humans to relate to the external environment. However, when this sensory function is outdated, the human body uses the remaining organs to interact with the external environment. A child with low vision will depend mainly on the auditory system for a possible construction of the mental representation of space. Purpose: to describe auditory processing findings from 5 children diagnosed with low-vision attending the ophthalmologic department at são geraldo hospital from universidade federal de minas gerais. Methods: case report. Sample includes 5 children, both genders, mean age of 11 years, gathered through congenital or acquired low-vision diagnostic. Here are presented preliminary findings from an ongoing study following approved by the ethical committee from ufmg under the number 117/09. Research includes: (1)signed free informed consent; (2)profile of informations such as hearing aspects and complaints, clinical manifestations, academic and global development; (3)basic hearing evaluation – tonal audiometry, speech recognition in silence and timpanometry and stapedius reflex; (4)auditory processing evaluation including sound localization, sequential verbal and non-verbal memory tasks, duration pattern sequence, staggered spondaic words and speech in noise test; (5)data analysys. Results: no children presented auditory complaints. All 5 children presentd normal hearing acuity with mtp of 9,26dbna mean threshold for the right ear and 9,00dbna for the left ear. Speech perception in silence had mean value of 97,2% for the right ear and 97,6% for the left ear. All timpanometric and stapedius reflexes results were within normal limits. Auditory processes evaluated showed normal result patterns: sound localization, verbal and non-verbal temporal ordering. Duration pattern sequence test had a mean value of 82% correct answers for the right ear and 90% for the left ear. Speech in noise test correct mean score was 93,6% for both ears. All 5 cases presented abnormal results at ssw, with mean errors score for the right non competing condition, right competing, left competing and left non competing were respectively 4,4; 10,2; 11,4 and 3,4. Diagnostic as well as degree of vision impairment did not correlate to auditory findings. Conclusion: low-vision children may present differentiated auditory perception. A better auditory processing performance may be due to hemispheric reorganizations of neurons involved in the processing of sensory and cognitive informations from the auditory pathway. Nevertheless, in the present study temporal ordering and monaural low redundancy speech recognition had normal performance, while binaural interaction tasks were not within normal limits as expected.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 6

THE PERFORMANCE OF 7- TO 12- YEAR-OLD BRAZILIAN CHILDREN ON GAPS IN NOISE TEST

Authors

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Institution

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2. UnG, Universidade Guarulhos
3. USP, Universidade São Paulo

Abstract: Auditory temporal resolution ability refers to the shortest time required to segregate or to resolve acoustic events. This ability is important to human speech comprehension and it is a prerequisite condition for both linguistic and reading abilities. The Gaps in Noise Test (GIN) is a clinical test developed to measure gap detection thresholds (Musiek et al., 2004). It is necessary to establish norms in normal hearing children in order to use the GIN test to auditory processing evaluation in Brazil. Objective: to investigate the performance of 7- to 12- year-old Brazilian Children on GIN and to verify the existence of ear, gender and age effect. Method: 82 children were submitted to an audiological evaluation to exclude hearing loss and/or auditory processing disorders. The GIN test was applied in 37 subjects (20 students of a public school and 17 of a private school). Results indicated that the gap detection threshold was similar in both right and left ears and in male and female. The right and left ear gap detection threshold mean were respectively 5,6 ms and 5,7 ms for 7- to 8-year-old children, 5,25 ms and 5 ms for 8 years and 1 month to 9 year old children, 4,75 ms and 5 ms for 9 years and 1 month to 10-year old children, 4,8 ms and 5,4 ms for 10 years and 1 month to 11-year old children, 4,64 ms and 4,85 ms for 11 years and 1 month to 12-year old children. Conclusions: Children improved their performance on GIN test with the increase of age. No ear or gender effect was observed.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 7

TEMPORAL ORDERING TESTS IN CHILDREN WITH STUTTERING DIAGNOSIS

Authors

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Institution

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Abstract: The auditory processing is extremely important for the language development; a disorder in the central auditory function can cause damages to the language acquisition and development. The (central) auditory processing evaluation is very important for the analysis and identification of the communication disorders. Studies show that there are ample correlations between the stuttering and (central) auditory processing disorders. The goal of this research was to evaluate the central auditory processing in children with stuttering diagnosis and to characterize and to compare the results with the control group. We evaluate 20 individuals between 9 and 12 years of age, both genders. The Group I (GI) was composed by 10 individuals with stuttering diagnosis and the Group II (GII) was composed by 10 individuals, without complaints or signals of psychiatric or neurological disorders, speech, hearing, language and/or learning difficulties. We evaluate the peripheral auditory function by pure tone threshold audiometry, speech threshold and word recognition, tympanometry and the acoustic reflex, and we apply a battery of behavioral tests for the central auditory function evaluation, emphasizing the temporal ordering tests, using the Pitch Pattern Sequence Test (PPS) Duration Pattern Sequence Test (DPS) .The analysis of our results show that Group II presented a better performance in the two tests applied when compared with Group I and, that the Group I 's children, eight (80%) had presented altered responses for the Pitch Pattern Sequence Test and, all children had presented altered response for the Duration Pattern Sequence Test. Our findings allow us to conclude that children with stuttering diagnosis had presented an worse performance for the applied tests when compared with the control group and had presented (central) auditory processing disorder.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 8

HEARING ABILITIES IN CHILDREN WITH DYSLLEXIA AND ATTENTION DEFICIT HYPERACTIVITY DISORDER

Authors

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Institution

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Abstract: Hearing abilities in children with Dyslexia and Attention Deficit Hyperactivity Disorder Abstract Background: auditory processing, dyslexia and attention deficit hyperactivity disorder (ADHD). Aim: to analyze hearing abilities in children with Dyslexia and ADHD, comparing to a control group. Method: The study was developed in the Speech and Hearing Department - Medical School - University of São Paulo. The study evaluated 30 children, 7 to 12 years of age, divided into three groups: a control group of 10 children, a study group of 10 children with dyslexia and a study group of 10 children with ADHD. All participants were submitted to the following auditory processing tests: Speech in Noise, Dichotic Digits and Frequency Pattern. For statistical analysis, ANOVA and Tukey test for equality of proportions were used. The level of significance was set at $p < 0.05$. Results: concerning the Speech in Noise Test, there was significant difference between the control group and ADHD group ($p < 0,001$), with the ADHD group demonstrating significantly lower performance; for the Dichotic Digits test, there was significant difference between the three groups ($p < 0,001$), with lower performance for the ADHD group, following by dyslexic and control group; for the Frequency Pattern, there was a marginal effect ($p=0,056$) with the ADHD group demonstrating lower performance, following by dyslexic and control group. Conclusion: ADHD group showed poorer performance in all hearing abilities tested when compared to the dyslexic and control group. This result suggests a relationship between attention and hearing abilities. Key Words Attention Deficit Disorder with Hyperactivity - Dyslexia - Children - Hearing

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 -PANEL 9

AUDITORY TRAINING IN ADULT WITH TRAUMATIC BRAIN INJURY: ELECTROPHYSIOLOGICAL AND BEHAVIOR CHANGES IN AUDITORY PROCESSING AND COGNITIVE FUNCTIONS

Authors

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Institution

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Abstract: Purpose: The purpose of this single-subject case study was to investigate auditory processing and cognitive functions of an adult with traumatic brain injury (TBI) before and after auditory training. Methods: A 49-year-old man with severe auditory comprehension impairment, twelve years post TBI, was submitted to a formal auditory training, during 8 weeks, after the diagnoses of auditory processing disorder. The auditory evoked potential P300, behavioral auditory processing tests (SSW, Speech in noise, Frequency Pattern and verbal and non-verbal memory) and a brief cognitive evaluation (delayed recall of ten simple figures test, a category fluency test and clock drawing test) was applied before (PRE) and after auditory training (POST). Results: regarding P300, there was a great improvement in wave amplitude in both ears (OD - PRE 7,45 POST 15,18/ OE - PRE 5,95 POST 10,67) and almost all auditory abilities (SSW - OD - PRE 80% POST 90% / OE PRE 70% POST 85%; Speech in Noise - OD - PRE 84% POS 84% / OE PRE 72% POS 84%; Frequency Pattern - PRE 75% POST 95%; verbal memory - PRE 66,6% POST 100%), except for non-verbal memory (PRE 33% POST 33%). Concerning cognitive functions, the verbal fluency (PRE 10 POST 16) and 3 categories of memory (immediate memory - PRE 80% POST 90%, delayed recall - PRE 70% POST 100%, recognition - PRE 90% POST 100%) improved. There are no changes for 2 categories of memory (incidental memory - PRE 50% POST 50% and learning - PRE 10 POST 10) and clock-drawing test (PRE 90% POST 90%). Conclusion: The results showed evidence of plasticity after auditory training with improvement in both auditory abilities and cognitive function. Future studies are needed to investigate more precisely the influence of auditory training on cognitive functions.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 10

ASSESSMENT OF AUDITORY PROCESSING WITH CHILDREN TREATED IN THE PSYCHOPEDAGOGY SECTOR OF A POOR COMMUNITY.

Authors

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Institution

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Abstract: Introduction: : The presence of hearing disabilities is one of the most compromising aspects of the oral and/or written language (PEREIRA, NAVAS, SANTOS, 2002). Deprivation of various kinds, such as cultural and nutritional, are often aggravations suffered by children who come from poor communities, most of which attend public schools, whose system has been severely criticized by the academic community (Abdala, 2004), the civil society and the mass media. The importance of the joint work of professionals in the education and health sectors aiming to contribute to the success of schoolchildren through research and actions is growing. Paraisópolis is São Paulo's second largest poor community where the Einstein Program of the Paraisópolis Community develops social and educational actions, in addition to prevention and orientation, medical and hospital care serving 10,000 children of the community. Objective: to describe the general result of the assessments of auditory processing (normal or altered) carried out between January and October 2009 with children treated in the psychopedagogy sector of PECP. Methodology: the data was obtained upon consultation of the database of the Audiology and Psychopedagogy sectors of this Program. Patients undergoing psychopedagogical treatment who performed the assessment of auditory processing were chosen, totaling 17 children. Results: 17 patients undergoing psychopedagogical treatment performed the assessment of auditory processing; 4 of which (24%) showed normal results and 13 (76%) showed altered results in this assessment. Conclusion: The data obtained points to a strong correlation between the learning difficulties of the children analyzed and to alterations of auditory processing, which reinforces the importance of the joint work of professionals in the education and health sectors on diagnosis and rehabilitation aiming to provide favorable conditions for the learning development of these children

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 11

HEARING, COGNITION AND SPEECH PERCEPTION IN NORMAL AGING: SYSTEMATIC REVIEW OF THE LITERATURE AND EVIDENCE.

Authors

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Institution

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Abstract: The decadence of peripheral hearing plus to a complication in information processing follows aging process, implying in a greater difficulty in elderly speech intelligibility. This study evaluates evidences in literature about correlation between aging auditory abilities and cognitive functions. It was realized a systematic review of literature, using articles published in the last two decades, researched at Medline, Scielo and Lilacs database. It was selected about prospective clinical trials and reviewed texts that reported correlation between audition and cognition. Each article was evaluated concerning to the evidence level, according to "Oxford Centre for Evidence-Based Levels of evidence". Altogether it was found 59 articles among 1992 and 2009, treating specifically about the cognitive and auditory aging aspects, being 27,11 national and 72,88% international .From all studies about correlation and interaction between auditory and cognitive abilities, 20% were about descriptive literature reviews (evidence level 3a), 65 % were case-control studies (evidence level 3b), 5 % were case-control studies with poor or non-independet reference standard (evidence level 4), 5 % were validated cohort studies only in fragmented samples (evidence level 3b), 5 % were case report (including Cohort or less quality case-control) and finally, 5 % were validated cohort studies, with a good reference standard , diagnostic criteria tested in a single clinical center (evidence level 1b).a Few of authors use adequate methods aiming to evaluate and establish a correlation factor between these two variables. The recommended grade of most studies reviewed were B, which represents experimental or observational studies with less consistency. The lack of standardized protocols to evaluate central auditory function and cognitive functions, plus to methodological variation between studies found compromised the meta-analysis or a more accurate comparison between studies. Keywords: Hearing in elderly, aged, auditory processing, cognition

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 12

INFORMATION PROCESSING: RELATIONSHIP OF ATTENTION TO TEMPORAL PROCESSING

Authors

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Abstract: The human body is constantly requested, by internal and external stimuli, to reach through the sense organs. After these stimuli, the visual and auditory perceptions are responsible for the initial input to any process of information. Many of auditory information is influenced by time (temporal condition). The sounds has duration, intensity and frequency characteristics, acoustic cues that need to be addressed by the listener, so that they can arrange the segments of the speech they heard in a sequential order defined by the standards of language acquisition. This analysis is essential for the understanding of semantic content (messages heard). Temporal processing is the perception of sound or sound changes within a limited period of time. Theories of information processing give special importance to attention, because it is responsible for selecting information to be processed or ignored. It is believed that all that is perceived depends primarily on where attention is directed to and that changes in perception can compromise information processing. **OBJECTIVE:** This study aimed to verify the effect of attention to temporal processing in the input of information processing. **METHODS:** This research was defined as quantitative and qualitative cross-sectional and descriptive. The sample was composed of 20 college students, who had good academic results. They aged between 20 to 30 years old, all of them without hearing difficulties and were male or female. The individuals were submitted to anamnesis, basic audition evaluation and speech assessment tests of auditory processing (MLD, RGD, SSW and PSI) and to a selected neuropsychological battery of tests Luria-Nebraska. **RESULTS:** None of the subjects of this study, who had adequate information processing and presented impairment of attention had a performance that could characterize damage in temporal processing abilities. Moreover, none of the subjects who has presented damage in temporal abilities has also presented impairments which has made compromise of attention has tabled amendments that would characterize damage in temporal processing abilities. Similarly, none of the participants who presented results indicating temporal processes, presented an impairment of attention. **CONCLUSION:** The results of this study led to the identification that subtle impairments in attention are not sufficient to cause damage in temporal processing and then compromise the input of information processing. In addition, these results corroborated with the connexionism paradigm, which maintains about a parallel and distributed processing in which there is not a limited amount of information for each input. On the other hand, it is understood that the number of 20 subjects is not statistically significant for the generalization of our findings. This study was just the beginning of the search for the inter-relationship between knowledge and understanding in the fields of knowledge concerned.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 13

AUDITORY PROCESSING ASSESSMENT RESULTS IN CHILDREN FROM A PUBLIC SCHOOL SETTING

Authors

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Institution

1. UFMG, Universidade Federal de Minas Gerais

Abstract: **PURPOSE:** Apply a simplified evaluation of auditory processing in children aged 8 to 13 years, describe their findings and correlate them with complaints and / or symptoms of change in auditory processing reported by caretakers. **METHODS** Cross-sectional study whose sample consisted of 22 children aged 8 to 13 years, students at a public school in Belo Horizonte. The entire sample was subjected to the research of hearing threshold and simplified assessment of auditory processing. **RESULTS** All participants had hearing thresholds within normal limits according to Davis and Silverman (1970). The simplified evaluation of auditory processing, observed that only one child (4.3%) had abnormal sound localization test results. In the testing of sequential verbal and non-verbal memory, the prevalence of abnormal results was 8.7% and 17.4% respectively. In this study, we observed that 21.7% of children (n = 5) showed some change in this assessment. There were no statistically significant relationships between the results of the evaluation within the group studied. There was a tendency to association in the correlation between the complaint of difficulty in reading comprehension and change in a simplified evaluation of auditory processing. **CONCLUSION** There were no statistically significant relationships between the results of the evaluation within a group presenting complaints and / or symptoms of change in auditory processing.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 14

LONG LATENCY EVOKED RESPONSES ANALYSIS IN SCHOOL-AGED CHILDREN WITH AND WITHOUT AUDITORY PROCESSING DISORDERS SYMPTOMS

Authors

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Institution

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Abstract: **AIM:** The purpose of this research was to analyse the electrophysiological long latency responses - P300 in school-aged children from 8 to 13 years with and without Auditory Processing Disorder symptoms. **METHODS:** This is a cross-sectional descriptive study in which 36 children aged eight to 13 years, 15 children presenting auditory processing disorders symptoms and 21 children without learning complaints. All children underwent clinical history, pure tone audiometry, speech audiometry and electrophysiological assessment (P300). **RESULTS:** Concerning the P300 results, the mean latencies of the right ear in the group without symptoms was 314.06 milliseconds and average latencies of the left ear of the same group was 319.61 milliseconds. The group with symptoms had a mean latency for the right ear of 320.67 milliseconds and the left ear, presented an average latency of 323.41 milliseconds. The relationship between sex and outcome of P300 found in the right ear average of 317.60 ms for females and average latency of 316.12 ms (SD 30.79) for males. For the left ear, we find average latency of 323.22 ms for females and an average of 319.37 ms (SD 30.84) for males. Comparing the groups regarding the presence of symptoms and change in the presence of P300 was found the result of $P = 0.10$. By analyzing the symptoms of Auditory Processing Disorder and P300 found that the most common symptoms are impaired attention to the sound, followed by difficulty in understanding speech in noisy environments, lower school performance, difficulty in understanding what you read, difficult to understand metaphors and problems in writing. **CONCLUSIONS:** There was no statistically significant differences in the average latency of P300 between control and study groups, between sex and outcome between the P300 and the symptoms of Auditory Processing Disorder and hearing evaluation electrophysiological long latency (P300), except for symptom difficulty in understanding metaphors.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 15

CHARACTERIZATION OF ALTERED AUDITORY ABILITIES IN A CASE OF AUDITORY NEUROPATHY

Authors

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Institution

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Abstract: **Introduction:** Auditory neuropathy is described in the literature as a change in neural synchrony, characterized by a discrepancy between the cochlear nerve and the auditory system, can significantly affect speech understanding, especially in noisy environment. The ability to understand speech in noisy environments is related to competitive abilities involved in the central auditory processing, such as auditory closure, binaural separation, figure-ground, localization and lateralization. **Objective:** To characterize the altered auditory abilities in a patient diagnosed with auditory neuropathy by means of behavioral tests of auditory processing evaluation. **Method:** The study of an individual 65 years old male diagnosed with auditory neuropathy, characterized by asymmetric hearing loss, auditory discrimination incompatible with pure tone thresholds, auditory evoked potentials with absent otoacoustic emissions by distortion product in both ears and cochlear microphonics in the left ear. Were tested: speech recognition index, Speech in Noise (S / N +5), The Pediatric Speech Intelligibility (PSI) test under the conditions of competitive contralateral message (PSI-CCM), with the signal-to-noise ratio of 0 and -40dB, and ipsilateral competitive message (SSI-ICM), with the signal-to-noise ratio of 0, -10, -15, dichotic listening test and Pitch Pattern Sequence test (PPS). **Results:** The patient studied showed a detection rate below normal limits in all tests, with worse performance in the left ear. **Conclusion:** Auditory neuropathy impairs significantly skills related to auditory processing disorders. The knowledge of the skills change through the assessment of central auditory processing is useful in functional characterization of the disorder, which may contribute to the planning and monitoring of the rehabilitation process

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 16

DYSLEXIA: AUDITORY PROCESSING TESTS AND CONTRALATERAL SUPPRESSION OF TRANSIENT OTOACOUSTIC EMISSION

Authors

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Institution

1. UNICAMP, Universidade Estadual de Campinas

Abstract: Sponsored by São Paulo Research Foundation - FAPESP **Introduction:** The reason to evaluate the auditory processing in school children with and without learning difficulties is based in the hypothesis that a specific perceptual hearing deficit can be the base of many learning problems. The function of medial olivocochlear efferent system (responsible for cochlea response modulation) has been also studied in this group of children. This efferent system can be evaluated by the suppression effect of transient otoacoustic emission (TOAE), when the contralateral stimulation by competitive noise has an inhibitory effect on the functioning of the outer hair-cell, reducing the level of these emissions. **Aim:** Analyze the auditory processing and the suppression effect of TOAE in dyslexia children. **Specific aims:** Analyze the answers of dyslexia children in auditory processing tests, considering ear and gender; verify the activity of the efferent system through the suppression of the TOAE, considering ear and gender; correlate the results of auditory processing tests with the suppression effect of TOAE. **Method:** 27 dyslexia children, from both genders and with ages between 9 and 16 years old were evaluated. They were submitted at Audiometry, Speech Recognition Threshold, Tympanometry, Auditory Processing Tests (sound localization, verbal and non-verbal sound sequential memory test, dichotic digits test, frequency and duration pattern test, gaps in noise) and assessment of the suppression effect of TOAE (obtained from the subtraction: signal/noise without contralateral noise - signal/noise with contralateral noise). **Results:** Analyzing the tests' results, we found that 96% of dyslexia children presented alteration at least in one auditory processing test, demonstrating difficulties in auditory ability such as: verbal and non-verbal sound memory, selective attention and temporal order; there was a statistically significant difference between ears in the gaps in noise (percentage) and dichotic digits tests. Results have also shown absence of suppression of TOAE in 95% of children at least in one ear and about 57% presented absence in both ears. There wasn't statistically significant correlation between the assessment of auditory processing, considering performance (% correct answers) and the normal/altered classification, and results of assessment of the suppression effect of TOAE; the group is homogeneous in regards to gender. **Conclusions:** The dyslexia children from this study presented performance below expected for their age in assessment auditory processing and suppression effect of TOAE reduced, doesn't showing significant difference between genders and correlation between tests; there was significant difference between the performance of ears in the gaps in noise and dichotic digits tests, suggesting maturational delay. Complete auditory assessment in dyslexia children is essential not only in the interdisciplinary diagnostic but also for the leading of therapeutic intervention.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 17

ABILITIES OF TEMPORAL RESOLUTION IN VIOLINIST MUSICIANS AND NON- MUSICIANS

Authors

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Abstract: **Introduction:** Researches on the (central) auditory processing (C) AP) stand out by associating musicality to it. Temporal resolution is defined as the perception within a restricted time interval in which each individual can discriminate between two auditory signals. **Objective:** To observe the performance of temporal violinist musicians and non-musicians. **Method:** This study comprised 20 violinist musicians and 20 non-musicians semi-paired according to age and education level, all male, submitted to basic audiological evaluation and testing Gaps In Noise (GIN). **Results:** Performance in the GIN group of musicians was not statistically significant in the control group ($p = 0.33$) for the right ear (RE) and ($p = 0.15$)

for the left ear (LE). The correlation between the average high frequencies for the LE on the GIN test for RE was ($r = 0.662$, $p = 0.001$). The average frequencies for both ears in the musician group were statistically significant with the highest values for RE ($p = 0.001$). Conclusion: There was no difference between the performances on the GIN test for both groups. The audiometric threshold of high frequencies seemed to be relevant in carrying out the GIN test for both groups. Daily exposure time to music was not considered a facilitator of the performance on the GIN.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 18

ABILITIES OF SEQUENCING TEMPORAL IN MUSICIANS VIOLINISTS AND NON MUSICIANS.

Authors

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Abstract: Introduction: The auditory temporal processing (ATP) is the perception or alteration of sound within a restricted time interval. Ability of processing refers to the process of two or more auditory stimuli in their order of occurrence in time. Objective: To compare the abilities of processing between violinist musicians and non-musicians from the results obtained on the pattern pitch sequence test (PPST).Methods: The study comprised 20 violinist musicians and 20 non-musicians, semi-paired according to age and education level, all males, submitted to basic audiological evaluation and PPST.Results: Performance on the PPST in the comparison between groups was statistically significant for the right ear (RE) ($p = 0.003$) and the left ear (LE) ($p = 0.002$) in the group of musicians. It also showed the results obtained on the PPST in RE when correlated to the variables for mean high frequencies ($r = -0.604$, $p = 0.0047$), mean-tone ($r = -0.553$, $p = 0.011$) and mean low frequencies ($r = -0.499$, $p = 0.02$) in the same ear. In the analysis between the ears for each group, the mean values for high frequency were statistically significant, and the RE values were higher ($p < 0.001$).Conclusion: The performance of the group of musicians in the PPS group was higher compared to the non-musicians. It is worth mentioning the relevance of the auditory thresholds for low, sharp and mean-tone frequencies in the performance on the PPST in the RE.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 19

ANALYSIS OF INTER HEMISPHERIC MATURATION IN CHILDREN WITH AND WITHOUT (CENTRAL) AUDITORY PROCESSING DISORDERS.

Authors

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Institution

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Abstract: Introduction: When the dichotic digits test presents better performance in the right ear, this is generally explained by the efficient participation of the left hemisphere (dominant hemisphere for the speech representation). Digits presented to the left ear arrive at the right hemisphere (not dominant for the speech representation) and need to cross the corpus callosum so that the left hemisphere can recognize the information, configuring a longer trajectory. Thus, an advantage is observed of the right ear in the dichotic digits test in children due the immaturity of the corpus callosum. For the pattern pitch sequence test (PPST) the ability is differentiated according to the age group. This process is also related to the maturational effect. Objective: To verify the performance of interhemispheric abilities in children with and without (central) auditory processing disorders ((C) APD) in three age groups. Methods: The study comprised 56 children, divided into two groups. Group A consisted of 34 children aged 8, 10 and 12 years with (C) APD, and group B, without alterations, was composed of 22 children from a public school. Results: With regards to gender, 25 children (44.64%) were girls and 31 (55.36%) boys. By comparing the groups, there was a statistically significant relation for the left competitive condition (LCC) of the SSW test ($p = 0.003$); binaural integration on the left (BIL) of the dichotic digits test ($p < 0.001$) and pattern pitch sequence test (PPST) under humming condition; ($p = 0.005$) for the control group. By comparing genders, the variables BIL ($p = 0.005$) and PPS ($p = 0.029$) were identified as statistically significant for females and LCC ($p = 0.038$) and BIL ($p = 0.014$) for males, in group B. When considering the age for children in group B, the variable BIL was statistically significant, ($p = 0.011$) for the 8 year old group and ($p = 0.022$) for the 10 year old group. For the 12 year old group, the variable in focus was PPS ($p=0,044$). Conclusion: This study showed the maturity difference between the interhemispheric abilities and nonverbal between the groups, corroborating the literature.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 20

BEHAVIORAL AUDITORY PROCESSING EVALUATION AFTER TRAUMATIC BRAIN INJURY

Authors

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Institution

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Abstract: Purpose: The evaluation of the central auditory system is very important in individuals after traumatic brain injury (TBI) since the extreme acceleration and deceleration of the head may cause brain deformation. Either the peripheral levels of the auditory pathway - external, middle and inner ears - or the central level, may be compromised by the trauma. Therefore the evaluation of the integrity of the peripheral and central auditory nervous system cannot be ignored in these cases. Objective: To characterize the performance of individuals post TBI in behavioral auditory processing tests. Methods: Eight individuals of both sexes aged between 14 and 42 years old (mean 29.3), with normal hearing (pure tone thresholds lower than 25dB between 250 Hz and 4000 Hz) with brain lesions diagnosed by imaging studies have undergone the following behavioral auditory processing tests: sound localization test, memory for verbal and nonverbal sounds in sequence, speech in noise, dichotic digits, SSW in Portuguese, Consonant-Vowel, Random Gap Detection, PSI/SSI (ICM-ipsilateral competitive message) and Duration Pattern tests. All tests were administered in sound booth using recorded stimuli, except for sound localization and memory for verbal and nonverbal sounds in sequence, which were performed in sound field. Results: All subjects showed at least one test with altered results. Considering alterations in each test separately, the results were 12.5% for sound localization, 25% and 12.5% for verbal and nonverbal sounds in sequence respectively, 12.5% for speech in noise, 62, 5% duration pattern, 50% for random gap detection, 37.5% for consonant-vowel, 12.5% for SSI/PSI-ICM and 87.5% for SSW. These results indicated damage in decoding in 87,5%, encoding in 25%, organization in 87.5% and supra-segmental in 50%. Auditory processing disorder was classified as mild in 25%, moderate in 25% and severe in 37.5%. 12,5% of the subjects did not fail in the tests used to quantify the disorder degree. Conclusion: Auditory processing is impaired in post-traumatic brain injured patients, affecting the hearing skills of selective attention and temporal processing; therefore its evaluation is essential in this population in order to complement the diagnosis, to identify possible sequels, and also to contribute in the rehabilitation of these individuals.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 21

PERFORMANCE IN MONOTIC AND DICHOTIC TESTS OF AUDITORY PROCESSING IN CHILDREN WITH ISOLATED CLEFT LIP

Authors

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Institution

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Abstract: Auditory processing refers to when the brain recognizes and interprets the sounds around someone. The difficulty in perceptual processing of information in the Central Nervous System represented by a low performance in one or more auditory skills, such as location, lateralization, auditory discrimination, auditory pattern recognition, temporal processing deficits and others are characterized as Auditory Processing Disorders. Individuals who identify sounds within normal standards may present some difficulty in their interpretation resulting in language, speech and learning disorders. Studies report that isolated cleft lip and palate does not affect auditory sensitivity thus, it is important to assess peripheral and total hearing. Thus, this study aims to verify the performance of children with isolated cleft lip in behavioral tests of the auditory processing. Twenty children, both genders, aged 7 to 10 years, diagnosed with isolated cleft lip, chosen randomly in a specialized hospital for treatment of craniofacial malformation. All children had normal middle ear function and peripheral hearing, verified by a audiometry an imitanciometry and underwent Monotic and Dichotic Tests (Monotic tests: Pediatric Test of Speech Intelligibility with Ipsilateral Competitive Message - PSI/MCI and the Synthetic Sentences Test with Ipsilateral Competitive Message - SSI/MCI; Dichotic tests: Pediatric Test of Speech Intelligibility with Contralateral Competitive Message - PSI/MCC, Synthetic Sentences Test with Contralateral Competitive Message - SSI/MCC, Alternate Disyllable Test - SSW, and the Dichotic Digits Test - DD). The Pediatric Test of Speech Intelligibility and the Synthetic Sentences Test are phrases recognition tests by figures identification (PSI) and written sentences (SSI), respectively, in the presence of ipsilateral competitive message (monotic hearing) and contralateral message (dichotic hearing). Both the PSI and the SSI tests assess the skill of background figure for verbal sounds and provide information about the physiological auditory mechanism of verbal sound recognition in monotic and dichotic hearing. The DD and SSW tests assess the background-figure skill for verbal sounds and provide information on the physiological auditory mechanism of verbal sound recognition in dichotic hearing. They also assess the complex temporal ordering skill, providing information on the physiological auditory mechanism of sound discrimination in sequence, when inversions are present in the SSW's. Children had a bad performance when they did not reach the expected scores for their ages in any of the ears and competitive conditions; good performance when they reached these conditions. Results show that 82% of children had poor performance on the SSW test, 64% in the SSI-MCI, 52% in DD and 30% in the PSI / MCC. These findings suggest poor performance in both dichotic and monotic tests. The Dichotic-SSW test was the one of the worst performance on the studied population.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 22

INTERSHIP BETWEEN PHONOLOGICAL DISORDER AND SIMPLIFY AUDITORY PROCESSING IN CHILDREN IN ATTENDANCE IN HOSPITAL DAS CLÍNICAS - UNIVERSIDADE FEDERAL DE MINAS GERAIS SPEECH THERAPY SERVICE

Authors

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Abstract: Introduction: It's fundamental for speech's and language developments to preserve the abilities of analysis and interpretation of sound, as well as memorize and locate sound origin. Those abilities starts at auditory processing and is knows as the capacity to organize and understand sound stimulus and it involves a collection of needed skills to understand, discriminate, recognize, store and understand in formations at brains auditory path. Someone with a loss on those sensorial sounds interpretations occurred by auditory processing disorders could also, present some commitment at acquisition of it's language system. Aims: To study the relationship between phonological disorder in syllabic structures and substitutions and simplify auditory processing, sequential verbal memory (MSV), sequential non verbal memory (MSNV) and sound localization ability in children seen at Hospital das Clínicas (Universidade Federal de Minas Gerais)'s Speech Therapy Service. Methods: Data were gathered from 60 patients' records. Were included individuals with diagnosis of phonological disorder, with normal hearing standards, who had carried out auditory processing tests, with blink reflex, with seven years old or more. It was used to analyze the T Student Test with continue variables and Qui Quadrado for categorical ones. Results: The sample was made up of 30 individuals, 13 (43,3%) women and 17 (56,7%) male, older then 7 years and younger then 12 years old (average 9 years old). In relation to the disorder, the data showed 11 (36,7%) individuals with with substitution processes in syllabic structure, 13 (43,3%) with phonological processes of replacement and 6 structuring processes syllabic. About the auditory process, 18 (60%) Individuals had at least one subprofile changed. For each subprofile changed, it was found that 1 (3,3%) individual had dysfunction in three subprofiles described; 4 (13,3%) subjects had changes in subprofile MSV; 3 (10%) subjects had changes in subprofile MSNV; 2 (6,7%) subjects had changes in subprofile sound location; 7 (23,3%) individual had dysfunction in MSV e MSNV; 1 (3,3%) subjects also had changes in subprofile MSV and sound location.. When compared each type of phonological process disorder and results of auditory processing subprofiles simplified there was no difference statistically significant differences. Conclusions: The results show that there's no statistical evidence between simplify auditory processing and phonological disorders. However, this fact doesn't eliminate the possibility of na intership between those characters, considering the limitation of this study and the sample's size.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 23

LANGUAGE SKILLS IN CHILDREN WITH CENTRAL AUDITORY PROCESSING DISORDER BEFORE AND AFTER AUDITORY TRAINING GROUP

Authors

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Abstract: Introduction: The skills that are involved in decoding, organization, codification of sensory information in auditory and auditory perception are related to the development of speech perception, phonological awareness and consequently the development of oral and written language. Objective: < b/> To compare the oral language abilities in a group of four children with a clinical diagnosis of Auditory Processing Disorder Central before and after auditory training group, lasting 20 sessions. Method: < b/> Participants were four children aged 6 to 9 years and clinically diagnosed with auditory processing disorder evaluated in two steps, before and after auditory training. Was raised a history of Child Development with the protocol applied to the responsible and collect samples of oral language using: Phonology and Vocabulary Test ABFW (Andrade et al, 2004), Syntactic Awareness Test-PCS (Capovilla & Capovilla, 2006), the subtests 1, 4, 8 and 9 of the Illinois Test Psycholinguistic-ITPA (BOGOSSIAN E SANTOS, 1977) and collected samples of spontaneous narrative elicited by a book without text, "The Black Wolf". Results: < b/> in all tests was observed a better performance of the participants in the assessment after hearing training, but in none of the tests had a statistically significant difference between samples of oral language. It was observed that in relation to phonology, three of the four subjects made productive use of phonological processes during the first assessment and that productivity is not decreased after auditory training. Conclusion: In this study the auditory training was not effective in the treatment of language disorders of these individuals. After statistically analyze the data collected, we can conclude that it is necessary the clinical diagnosis of disorder of the central auditory processing should be carried out concurrently to evaluate the language of the subject, inasmuch as speech therapy in these cases, should include work with the auditory skills and oral and written language according the changes found in each patient.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 24

REHABILITATION OF AUDITORY PROCESSING SKILLS ON HEARING AIDS USERS

Authors

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Abstract: Introduction: The decrease in numbers of inner hairy cells after sensorineural hearing loss can cause degeneration of central auditory structures that are responsible for adequate auditory processing. The consequence of auditory deprivation is poor speech discrimination. Satisfaction with hearing aids is about only 65% in the initial process and it can be different depending of acoustic environment. Objective: To evaluate the auditory processing functions of the behind the ear hearing aids (BTE) users' pre and post auditory training. Method: Prospective transversal clinical study. The study included six individuals aged between 32 and 80 years with sensorineural moderate post-lingual hearing loss of undetermined cause, attended by Centro de Estudos e Reabilitação (CER - Fonoaudiologia). BTE users were submitted to speech discrimination tests and APHAB questionnaire pre and post auditory training. Dates were compared using the non parametric Wilcoxon test. Results: Significant statistical differences were showed in the speech discrimination tests used and in the APHAB questionnaire between pre and post evaluations ($p < 0,05$). Conclusion: Auditory training is possible to be applied in BTE users when the tasks are adapted to free field and not only by ears-phones. The present study showed significant differences in the speech discrimination of BTE users after auditory training.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 25

EVALUATION OF THE EFFECTIVENESS OF AUDITORY TRAINING WITH CHILDREN WITH AUDITORY PROCESSING DISORDERS

Authors

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Institution

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Abstract: Introduction: : Central auditory processing involves a series of events by which the brain, through neural connections, encodes what we hear, making the hearing information useful and functional. When there is a disturbance in the processing of sound information we say that there is a central auditory processing disorder. The rehabilitation of this disorder is achieved by Hearing Training. Objective: To verify the effectiveness of Group Hearing Training with school-age children who have changes in their capacity for temporal, sequential memory, association, figure-ground and selective attention, using a pre-established program. Methods: In the present study audiologic al evaluation (pure tone), electrophysiological evaluation (ABR and MMN) and auditory processing evaluation (ASPA) were used to assess the hearing abilities of sound localization in five directions, verbal sequential memory, non-verbal sequential memory - PSI in five non-verbal children, two girls and three boys, diagnosed with auditory processing disorder. The tests were applied before and after speech therapy of auditory processing, which consisted of 20 weekly sessions of 40 minutes each. Results: In the sound localization test, subject 4 presented changes in the pre-intervention results, which were normalized after therapy. The remaining subjects had normal results in both steps of the test. In the test of auditory memory for instrumental sounds, all subjects showed changes in the pre- therapy period, and all except subject 2 showed normal results after auditory training. In the test of auditory memory for verbal sounds, all subjects showed changes in the pre- intervention period (except subject 2, who had not contributed to the test), and only subjects 3 and 4 showed abnormal results after intervention. In the non-verbal dichotic test, all subjects except 4 showed altered results in the attention stage to the right before training, and after training subjects 1 and 5 showed normal results, while subjects 2, 3 and 4 still showed altered results but with a relevant improvement. In the attention stage to the left, only subjects 2 and 3 presented altered results in the pre-intervention period, and only subject 3 continued to show a change after training, but with a relevant improvement. In the PSI test, subjects 3 and 4 showed changes in the monochotic task, but these results were normalized in all relationships after training. Subjects 1, 2 and 5 showed normal results for this test in all relations before and after speech therapy. Conclusion: Group therapy was effective, although further studies are needed.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 26

TEMPORAL RESOLUTION IN SENIOR CITIZENS WITH AND WITHOUT MUSICAL EDUCATION

Authors

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Abstract: The importance of this project is to analyze temporal resolution in elderly individuals who had the opportunity to learn music versus that of those who did not and study the impact of musical education on the preservation of temporal resolution hearing. The objective of this project is to verify the ability of temporal resolution in elderly people over the age of sixty who learned music at an early age and compare their results to those of elderly individuals also over sixty who did not have the opportunity to study music. Material and Method: all the subjects provided their clinical history and were tested for hearing thresholds, Speech Recognition, Dichotic Digit Tests and Gin Gap In Noise Test (the 2 to 20 ms gap in noise identified at least 4 of the 6 times). Thirty volunteers were needed for this test and were separated into two groups: a group of 10 musicians and another of 20 non musicians. Results: the mean age of the musicians was 72.5 years and that of non musicians was 70.5. The difference between Dichotic Digit Tests percentages was significantly different when both groups were compared: the musician group showed an average of 91.56% and the non musician group showed an average of 82.25%. As far as the GIN- Gap In Noise Test was concerned, the musicians identified a significantly smaller average gap, 7.75 ms, than the non musicians, 10.13 ms. Besides, overall, the musician group identified 57.33% of the correct responses whereas the non musicians identified 45.90%. Conclusion: the ability of temporal resolution in senior citizens who learned music at an early age was better preserved than that of senior citizens who did not learn music at an early age.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 27

FINDINGS OF THE CENTRAL AUDITORY PROCESSING EVALUATION IN BRAZILIAN SCHOOL CHILDREN

Authors

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Institution

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Abstract: The Central Auditory Processing (CAP) assessment has been subject of debate as the demand for this procedure has significantly increased in recent years. The auditory system integrity is closely related to learning and language development. The aim of this study was to describe the results of the auditory processing assessment of randomly selected schoolchildren. Thus, the tests were performed on children who did or did not present complaints. The purpose of such assessment is to contribute to the prevention and identification of possible learning and language difficulties and disorders. The sample inclusion criterion for the study was that children should be, at the moment of testing, on the second grade of elementary school. In total, forty-eight children were randomly summoned. However, only fourteen children, aged between seven and eight years, attended the assessment procedures at our clinic. Initially, the children and their parents or guardians were submitted to an interview with questions concerning speech, hearing and language development, difficulties in alphabetization, academic performance and behavioral characteristics. To determine the auditory threshold and discard otological diseases, a basic audiological assessment including pure tone audiometry, speech audiometry (SRT - Speech Reception Threshold and SRI - Speech Recognition Index) and imitancimetry was performed. To analyze the CAP, participants underwent a listening skills assessment through special behavioral tests: sounding localization, sequential memory for verbal and nonverbal sounds, dichotic nonverbal, speech with white noise, and spondaic dichotic - SSW. Such tests measure the ability of an individual to detect sounds and to recognize and differentiate between verbal and nonverbal sounds in difficult listening condition in order to define the ability of following conversations in unfavorable environments. Moreover they can determine auditory inabilities by setting a quantitative measurement parameter of the hearing quality and, therefore, contribute to the diagnosis and treatment of several oral and written communication disorders. The results showed that only 15% of the assessed children presented results within normal limits. The other children showed auditory processing alterations distributed as follow: 15% of non-verbal gnosis; 31% of decoding; and 39% of non-verbal gnosis associated to other alteration. It is noteworthy that 54% of these children had no learning complaints and/or academic alterations whereas the remaining ones presented learning difficulties and/or attention deficits. Through the analysis of data obtained in the present study, we could observe that many children without an a priori complaint showed auditory processing alterations. This result highlights the importance of elucidating the auditory processing influence on the learning process, even when the child does not show significant learning and/or language deficits. This study highlights the importance of early identification of possible auditory processing alterations as a prevention factor for oral and/or written language difficulties and disorders in children.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 28

PERFORMANCE OF CHILDREN WITH ISOLATED CLEFT LIP IN DIOTIC TESTS OF AUDITORY PROCESSING

Authors

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Institution

1. FOB/USP, Faculdade de Odontologia de Bauru-USP

Abstract: Some studies reported that isolated cleft lip (without the palate involvement), does not interfere in hearing. So that, individuals with isolated cleft lip have normal hearing. Alterations in auditory processing may be present even in individuals with normal hearing thresholds. They may have difficulties in sounds interpretation, and therefore, language, speech and learning problems. Objective: To evaluate the performance of children with isolated cleft lip in diotic tests of auditory processing through Sound Localization in Five Directions, Verbal and Non-Verbal Sequential Memory for Sounds tests and Auditory Fusion Test-Revised - AFT-R. Methods: Retrospective study of 19 medical records of patients with isolated cleft lip, of both genders, aged 7 to 10 years, regularly enrolled in a reference hospital in craniofacial anomalies rehabilitation at São Paulo state. The inclusion criteria in this study were: absent complain and/or infection of the upper airway during the tests, normal hearing, and do not have difficulties to understand the tests. The patients were classified as having poor performance those with scores below the normal range and as having good performance those with scores above the normal range. Results: 57.9% of patients had poor performance

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in AFT-R, 26.3% in the Verbal Sequential Memory for Sounds Test, 47.4% in Non-Verbal Sequential Memory for Sounds Test and 15.8% in Sound Localization in Five Directions. Conclusion: In this sample the most patients had poor performance in AFT-R, which assesses the temporal resolution ability. It is important to the perception of small changes in the acoustic speech signal. Alteration in this ability causes difficulties of learning of the acoustic language patterns and speech discrimination.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 29

PERFORMANCE OF TEMPORAL PROCESSING IN CHILDREN WITH AND WITHOUT SPELLING DISORDERS AND LEAD CONTAMINATION

Authors

THAÍS DOS SANTOS GONÇALVES, TAMYNE FERREIRA DUARTE DE MORAES, KARINA KRAHEMBUHL SALVADOR, PATRICIA FERNANDES GARCIA, MAGALI DE LOURDES CALDANA, MARIZA RIBEIRO FENIMAN, PATRÍCIA DE ABREU PINHEIRO CREMITTE

Institution

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Abstract: Introduction: The difficulties in auditory processing fit the changes in sensory abilities can contribute to learning difficulties. The evaluation of auditory processing involves the listener's ability to identify, discriminate and perceive the segmental and suprasegmental aspects of speech. A deficit in any of these aspects may change the sound system and, consequently, cause language and / or writing problems. Regarding spelling disorders (exchange of consonants by sound, or vice versa), we can infer that the child who produces such errors in a systematic way, would find some difficulty to distinguish the phonemes of the deaf phonemes, which could be related to the auditory temporal aspects. Studies suggest that early exposure to lead can bring about a gap in intellectual development or neuropsychological dysfunctions as memory, attention, motor coordination and visuospatial organization. The accepted level of lead concentration in the blood according to the Centers for Disease Control American, is up to 10 $\mu\text{g} / \text{dL}$. Objectives: To compare the performance of temporal processing in children infected with lead, with and without spelling disorders, and investigate whether there is any relationship between the level of lead in blood and the performance on the ability of temporal processing. Methodology: The study included 24 children, both genders, aged 8 to 15 years, living in the city of Bauru, in the area where there was emission of lead above the permissible limit, and audiological tests (audiometry and tympanometry) within normal limits. The Auditory Fusion Test-Revised (AFT-R) subtest 1 (being adopted as the result of poor performance greater than or equal to 60 ms) was used to evaluate the temporal auditory processes. To collect spontaneous writing, the examiner asked the child to write an essay on the day previous the assessment. Children were divided into two groups: group 1 (G1) consisted of children with spelling disorders and group 2 (G2) consisted of children without spelling disorders. To analyze the results the Fisher's Exact Test was used. Results: G1 showed average blood lead level of 14.7 $\mu\text{g} / \text{ml}$. The AFT-R, the average prevalence was 112.9 ms, and found 10 subjects (83%) with poor performance, and 2 (17%) with good performance. The G2 also composed of 12 subjects, mean blood lead level of 16.3 $\mu\text{g} / \text{ml}$, with regard to the AFT-R, the average threshold the group was 75 ms, and in group 6 (50%) had poor performance in the AFT-R, and 6 (50%) had good performance. When performing statistical analysis found no statistically significant difference in the performance of AFT-R between the two groups, and there was no correlation between blood lead level and performance in the AFT-R. Conclusion: The performance of the AFT-R was not statistically different between the groups with and without spelling disorders, and there was no correlation between the level of lead in blood and performance on the AFT-R. It can be concluded that, children contaminated by lead do not necessarily have changes in temporal processing, and that children with abnormal temporal processing may have a regular writing without auditory changes.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 30

TEMPORAL RESOLUTION: PERFORMANCE OF SCHOLAR CHILDREN IN THE GIN TEST - GAPS-IN-NOISE

Authors

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Abstract: Temporal resolution hearing skills are based on the minimum time necessary to solve acoustic events, which is fundamental for speech comprehension and can be assessed through gaps detection tests, as the Gaps-in-noise test (GIN). The aim of the present study was to check the performance of temporal process ability in children with no hearing and/or school difficulties through GIN test, considering both genders and ages between 8 and 10 years old. The GIN test was conducted on 75 school-aged children, divided by age, into three groups. At first, the following procedures were done: anamnesis, otoscopy, hearing assessment and a simple auditory processing assessment. The children with results according to normality, described in the procedures used, were submitted to GIN test - Gaps In Noise. The findings revealed no statistical difference among age groups or ear. The male gender presented slightly better responses than did the female group on percentage of correct responses only. The gap threshold and percentage of correct responses were calculated regardless of the ear, gender or age, and were respectively 4,7ms and 73,6%. The GIN test is a valuable and reliable tool for assessing temporal resolution on children, being an important test for early diagnosis of possible temporal process disorders.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 31

TEST OF SPEAK IN NOISE AND SSW IN YOUNG OF 10 TO 13 YEARS OF AGE WITH AND WITHOUT PERTAINING TO SCHOOL DIFFICULTIES

Authors

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Institution

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Abstract: Introduction: The conventional hearing evaluation provides limited information about the type and degree of loss, but does not explain the difficulty that some individuals have to understand speech in noisy environments despite having normal hearing, so you need to carry out the assessment of the auditory processing (PA). Objective: To compare the performance of young people, aged between 10 and 13 years, with and without school difficulties. In tests: SSW and Speech With Noise. Method: To obtain data were selected 40 young people aged between 10 and 13 years, of both sexes: 20 young people at low risk for changes in the PA/learning (control group), in other words, with no school complaints and 20 young people with risks of changes in the PA/learning (target group), that is, with school problems. After the hearing evaluation, young people were tested for evaluation of the PA: Test Speech with Noise and SSW. Results: The questionnaires were answered by parents and teachers there was no statistically significant difference between groups with regard to episodes of otitis during the first years of life and suggestive changes of auditory processing. There was a statistically significant difference regarding the absence of acoustic reflexes within two frequencies, occurring in 75% of the target group and 30% of the control group. With relation the presence of elevated acoustic reflexes did not find statistical significance between the groups. We obtained statistically significant differences between groups in tests: Speech With Noise and SSW. We found that 95% of the young target group and 30% of the control group showed changes in the test of Speech With Noise. The quantitative analysis of the SSW test, 100% of the target group and 15% of the control group had change. The degree of change in the target group, there were not normal results on the SSW test and the control group, 85% of those obtained normal results, 75% of the target group and 5% of the control group had moderate changes; 0 % of the control group and 15% of the target group showed changes of severe degree, and both groups showed 10% of mild changes. In qualitative analysis, 90% of the target group and 20% of the control group had abnormal results. Regarding the type of change in PA, we obtained coding and organization changes only in the target group, while decoding changes appeared in 60% of those in the control group and 30% of the target group. Conclusion: The results suggest relationships between changes in PA, detected by Speech Tests With Noise and SSW and school difficulties. It is important to guide the teachers on those aspects that are related to changes in PA, so they can refer these young people to assess the PA, allowing intervention Phonological changes recovery and improvement in school.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 32

THE USE OF A SOUND'S MIXER ON THE THERAPY OF AUDITORY PROCESSING

Authors

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Institution

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Abstract: Introduction: The processes of skills related to auditory such as attention, detection, discrimination, location, understanding, when have some disabilities, need work in order to be developed, encouraged and fit able. There are several techniques used for this. A proposal that was effective comprehends therapy in individuals with auditory processing disorders using the mixer. The objective was to provide a therapeutic work that allows simulate situations of our routine in a controlled way. Material: It was used a Behringer mixer, 8 channels with as inputs 2 CD players, a computer and 2 microphones, and in out speakers and 2 amplified boxes and 2 headphones (one for monitoring and the other for the patient). The mixer is electronic equipment used to combine multiple sources of sound in order to get together, resulting in a single output signal for altering the various parameters regardless of the sound, as the sound intensity per channel and global and EQ (bass, mid and treble) that lets you change the timbre of sound per channel and overall. The system allows you to combine recording sounds and/or sounds of the therapist voice. You can combine voice (microphone), signals that were recorded in a CD (music, stories, various noises), or two signals recorded on CD, it is also possible to change the tone and the relative intensity of sounds according to the stage of the patient, both considering presentation in the field and in the headset. It is important to say that were also recorded CDs with different sounds and noises of traffic's city, mixing of the voices, animal sounds and musical instruments. Methodology: It were selected 20 individuals aged between 8 and 14 years old, 12 boys and 8 girls, all diagnosed with auditory processing disorders moderate. They were exposed to various stimulation activities combined using the mixer, for example, as identify the sound of an animal in the presence of noise, listen to a story in a channel or a song among others. The relationship between stimulus intensity and the competitive signal was gradually reduced at each stage of therapy. Results and Conclusion: After 12 sessions these individuals were re-submitted to the battery of tests of auditory processing and the results were very good, 70% of subjects showed improvement in the about verbal sounds, 80% in the ability of auditory closure, 75% for ability to fund figure for verbal sounds, and 90% in temporal ordering, and 78% in the ability of selective attention. Results showing that it is possible to obtain effective improvements in the therapy of auditory processing using controlled simulation of everyday situations.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 33

BEHAVIORAL EVALUATION OF HEARING AND AUDITORY PROCESSING EVALUATION IN CHILDREN BORN PRETERM

Authors

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Institution

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Abstract: Introduction: According to the World Health Organization, infants are considered preterm when they are born with less than 37 gestational weeks. Depending on the type and intensity of factors that acted during their intrauterine life, there may be an increased risk of disability and among the possible sequelae are those related to changes in auditory processing. Children considered at risk for hearing disorders should have their hearing tested early in life and also follow-up tests to monitor the development of listening skills. Purpose: To evaluate the performance of children born preterm in the assessment of auditory processing and to correlate the findings with data from the behavioral assessment of hearing, conducted at 12 months and auditory processing evaluation of term children at the same age. Methods: The sample was divided in two groups: Group 1 was comprised of 16 preterm children, followed at the Hearing Disorders Department, Federal University of São Paulo and Group 2, was composed of 14 full term children at ages 4 to 7 from an early childhood education public school in São Paulo. Records from Group 1 children were analyzed and data regarding the behavioral assessment of hearing at 12 months were collected and the auditory processing evaluation was conducted between ages 4 and 7. Children in Group 2 were submitted to evaluation of auditory processing. Results: For Group 1, the behavioral assessment at 12 months revealed that 19% of children displayed an absence of cochlear-palpebral reflex (CPR) and 19% displayed a delay of the ability of sound localization. For the assessment of auditory processing, changes were observed for at least one auditory mechanism for 93.75% of children. The auditory mechanism of low redundancy monaural speech showed alterations in 50% of children, 43.75% had abnormal temporal processing, 37.5% of children had difficulties in recognition of verbal sounds in dichotic listening and 6.25% had problems with the binaural interaction auditory mechanism. There was a statistically significant association between the delay of sound localization ability at 12 months and the auditory mechanism of temporal processing. There was a statistically significant difference between groups for the results of tests of verbal (p-value < 0.001) and nonverbal (p-value: 0.002) sequential memory, PSI with ipsilateral competing message (p-value: 0.022) and speech test in noise (p-value: 0.014). Conclusions: The evaluation of auditory processing for the

group of preterm children was characterized by a worse performance than for the group of full term children at the memory test for verbal and nonverbal sequence, at the PSI test with ipsilateral competing message (PSI / ICM) and at the speech in noise test. There was a statistically significant association between the delay of sound localization ability at 12 months and the auditory mechanism of temporal processing, that is, all children who presented a delay of this ability at 12 months also displayed abnormalities at processing time at the auditory processing evaluation at ages 4 to 7.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 34

CENTRAL AUDITORY FUNCTION EVALUATION: 811 EXAMS

Authors

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Institution

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3. ANA ALVAREZ, ANA ALVAREZ COGNICÃO E COMUNICAÇÃO

Abstract: Introduction: Auditory function is mediated by the action of the central auditory system, whose function - to compare groups of information and to analyze similarities and differences - is critical for auditory perceptual processes. Central auditory behavioral tests provide specific information about the functional status of the central auditory nervous system as a whole as well as useful data that lead to the identification of auditory abilities and dysfunctions. Objective: To describe central auditory function assessment results in individuals who presented language, learning and attention complaints. Methods: Retrospective study of 811 individuals referred upon medical recommendation for a behavioral central auditory function evaluation in order to determine the existence of auditory deficits underlying speech language impairment, learning disability, and attention deficit complaints. Results: The female population was comprised of 314 (38.72%) and the male population of 497 (61.28%). The mean age was 20 y 5 m. Results were distributed as follows: 191 individuals (23.55%) within reference value for the age; 197 (24.29%) suggestive of central auditory immaturity and/or dysfunction; 226 (27.86) suggestive of central auditory immaturity and/or dysfunction in association to language, memory, attention immaturity and/or impairment; and 196 (24.16) suggestive of cognitive and language impairment only. Discussion: The incidence of auditory dysfunction was higher in individuals between ages six and eight, a fact that can be explained by the hypothesis of central auditory pathway immaturity. After this age bracket, a lower coefficient of incidence was observed, which may represent possible existence of auditory dysfunction per se. Cognitive and language impairment signals were better detected after nine years of age and are possibly related to a delay of higher cortical function and executive control. Conclusion: The tests that constituted the chosen central auditory behavioral battery were efficient to identify the existence of specific auditory dysfunction and to point out the existence of auditory deficit underlying cognitive and language impairments. Test results provided signals that have the potential to enable health professionals to make diagnoses decisions and educational professionals to make more precise recommendations to learning processes and academic success.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 35

FORMAL AUDITORY TRAINING POST HERPES SIMPLEX ENCEPHALITIS: BEHAVIORAL AND ELECTROPHYSIOLOGICAL MONITORING

Authors

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Institution

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Abstract: Introduction: Auditory plasticity can be defined as the alteration of nerve cells to better conform to immediate environmental influences. Studies in the field of Neuroscience affirm that the sensory stimulation is a resource that enables new neural connections and thus leads to behavioral changes. The Formal Auditory Training (FAT) has been an effective clinical practice in the rehabilitation of auditory processing disorder (APD). FAT is a program of intense auditory stimulation that promotes the reorganization of the auditory neural substrate and, consequently, the behavioral improvement. The FAT monitoring can be accomplished either by means of behavioral tests as well as by electrophysiological tests. Objective: To describe the FAT effectiveness on a post herpetic encephalitis individual by means of behavioral and electrophysiological measures. Methods: case study of a 30-year-old woman with diagnosis of herpes simplex encephalitis and presence of linguistic and cognitive alterations. The patient underwent basic audiological assessment, presenting normal tympanometry, present acoustic reflexes and tonal and speech audiometry within the normal range. APD was diagnosed through FAT. In addition, auditory evoked potentials (AEP) of brainstem (ABR), middle (MLR) and long (P300) latency were carried out. The FAT was performed during eight sessions of stimulation of altered auditory skills in an acoustic booth. After the FAT, the AP behavioral analysis and the AEP were once again performed. The effectiveness of the FAT was verified by comparing the percentages of correct responses on behavioral tests and the AEP latency and amplitude values before and after FAT. Results: In the AEP behavioral analysis prior to FAT, the participant performed only three tasks, presenting alteration in the following skills: auditory closure (68% of correct responses on the left ear and 72% on the right ear), and background noise for linguistic sounds (65% of correct responses on the left ear and 75% on the right ear). In the analysis after FAT, improvement was observed in all auditory skills assessed: sound localization (100% correct), auditory closure (92% in the left ear and 88% in the right ear), temporal ordering and inter-hemispheric transfer (90 %), background noise for linguistic (95% on the right ear and 85% on the left ear) and non-linguistic (100% on both ears) sounds. Regarding the electrophysiological assessment after FAT, the following was observed for the ABR: a decrease on absolute latencies of waves I, III and V; an increase on amplitudes of waves I and V in the right ear; and an increase on amplitudes of waves I and V in the left ear. With regards to the MLR, there was a decrease on latency values of the Na component at C4A2 and C3A1, with increased NaPa amplitude at all electrode positions (C3A1, C4A1, C3A2 and C4A2). In the P300 analysis, an amplitude increase was observed such for the right as for the left ear. Conclusion: After FAT, improvement on AP behavioral skills can be evidenced by changes in AEP - mainly amplitude values - even in the case of central auditory nervous system lesion.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 36

THE PERFORMANCE OF CHILDREN WITH AND WITHOUT LEARNING DIFICULTIES IN AUDITORY TEMPORAL RESOLUTION TESTS

Authors

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Abstract: Background: The auditory ability of temporal resolution, as defined by ASHA (American Speech hearing Association) in 1996, is one of the aspects of the temporal processing, that is find between those behaviors that are called of central auditory processing. The temporal resolution can be defined as the capacity to detect intervals of time between auditory stimuli or to detect the lesser time that a person can discriminate between two audible signals (Shinn, 2003; Phillips et. al., 2000). Even so the relations between auditory processing disorder, language impairments and learning disorders are complex, the comorbidity is frequent and particularly many children with learning disorders present alteration in the temporal processing (Cestnik & Jerger, 2000; Bailey & Snowling, 2002; Breir, 2003). The Gaps in Noise Test (GIN) (Musiek et al., 2004) and The Random Gap Detection Test (RGDT) (Keith, 2000) are clinical tests developed to measure gap detection thresholds. Objective: investigate the performance of 9- to 11- year old children, with and without learning difficulties, in two tests of auditory temporal resolution, GIN and RGDT. Method: 33 students of a public school in São Paulo were evaluated, 16 female and 17 male, distributed in two groups: G1 - without learning difficulties and G2 - with learning difficulties. Teachers were responsible for identifying students with and without learning difficulties. All the children were submitted to an audiological evaluation to exclude hearing loss and/or auditory processing disorders. In all the participants were applied the GIN test and the Random Gap Detection Test - RGDT. Results: The right and left ear mean gap detection threshold in GIN test was respectively 5,28 ms and 5,11 ms in G1 and 7,23 and 7,46 in G2. The mean gap detection threshold in RGDT was 10,03 ms in G1 and 28,62 ms in G2. Conclusion: The performance of children without learning difficulties was better than children with learning difficulties in both tests of temporal auditory resolution, RGDT and GIN.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 37

SENSITIVITY AND SPECIFICITY OF THE GIN TEST IN INDIVIDUALS WITH NEUROLOGICAL COMMITMENT AND IN INDIVIDUALS WITH CAPD.

Authors

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Institution

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Abstract: INTRODUCTION: Temporal processing can be defined as a perception of temporal characteristics of the sound, or as a perception of the change in the duration of these characteristics, in a restrict period of time. For these subtle changes to be noticed, the central nervous system needs an accurate processing of the structure of the acoustic stimulus received. The aim of this study was to assess the temporal resolution using the gaps-in-noise test in three groups of subjects: normal group; neurological group and central) auditory processing disorder group. It also aimed to verify the sensitivity and specificity of the test. METHODS: Seventy volunteers of both genders were evaluated. Subjects ranged in age from 16 to 50 years, and were divided in three groups: G1(normal group); G2 (subjects with temporal lobe insult caused by temporal mesial sclerosis) and G3 (subjects with (central) auditory processing disorder). Gin test was conducted on all subjects. The lists 1 and 2 of the gap-in-noise test were applied in all of them. Gap detection threshold and the percentage of correct responses were calculated for all participants. RESULTS: results of the gaps-in-noise test showed that the G2 gap detection thresholds were significantly worse than the G1 and G3 thresholds. The same result was observed for the percentage of correct responses, G2 showed a worse percentage of correct responses than those verified for the G1 and the G3 groups. Individuals of the G3 showed increased gap detection threshold compared with the G1, although this difference was not statistically significant. Gaps-in-noise test showed a good specificity for all groups, and a better sensitivity for the neurological lesions group than for the central auditory processing disorder group. CONCLUSIONS: Individuals with central auditory nervous system lesions showed larger commitment of temporal resolution ability, evaluated through the gaps-in-noise test than normal individuals. Specificity values for all groups in the GIN test were better than sensitivity values. The sensitivity for the neurological lesion group was better than for the central auditory processing disorder group. Agency: CAPES

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 38

SENSITIVITY AND SPECIFICITY OF AUDITORY STEADY-STATE RESPONSE TESTING.

Authors

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Institution

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Abstract: INTRODUCTION: The ASSR test is an electrophysiological test that evaluates, among other aspects, neural synchrony, based on the frequency or amplitude modulation of tones. The target potential is generated when a stimulus is presented in repetition (or modulation) at a rate rapid enough for the response to a given stimulus to overlap the response to the subsequent stimulus. The aim of the present study was to determine the sensitivity and specificity of the ASSR test for the detection of lesions and dysfunctions of the CANS. The focus was on CAPDs, since there have been no studies employing the ASSR test in the investigation of such disorders. METHODS: The sample was divided into three groups: normal-hearing subjects, without auditory complaints or neurological insults (normal group; n=30); subjects with mesial temporal sclerosis (MTS), as diagnosed by imaging exams (MTS group; n=16); and subjects with CAPD, as diagnosed using behavioral tests (CAPD group; n=24). All subjects underwent ASSR testing of both ears at 500 Hz and 2000 Hz. The ASSR testing was conducted using the AUDERA™ system (Grason-Stadler). The protocol includes a fixed frequency modulation of 46 Hz regardless of the frequency tested. For each frequency tested, the combined amplitude modulation is 100% and the frequency modulation is 10%. The difference between ASSR-estimated thresholds and behavioral thresholds (audiometric evaluation) was calculated. RESULTS: Estimated thresholds were significantly higher in the MTS group than in the normal and CAPD groups. In addition, the difference between ASSR-estimated and behavioral thresholds was greatest in the MTS group. At 500 Hz, there was a statistically significant difference between the two ears, in all groups, in terms of the mean difference between the estimated and behavioral thresholds (p=0.010), the mean being greater for the left ear than for the right ear. At 2000 Hz, there were no significant differences between the left and right ears in terms of the mean difference between the estimated and behavioral thresholds (p=0.149). ROC curves were used in order to compare the mean thresholds, by ear and by group. The overall sensitivity of ASSR testing was lower than was its overall specificity. Although the overall specificity was high, it was lower in the CAPD group than in the MTS group. Overall sensitivity was also lower in the CAPD group than in the MTS group. CONCLUSIONS: The results of the present study show that

the ASSR test can be a useful tool for estimating auditory thresholds in normal individuals. In individuals with neurological insult, this test can yield estimated thresholds higher than those obtained in the behavioral evaluation and, in some cases, can result in a poorer audiologic profile. This is an important characteristic of this potential, assuming that the difference between groups is sufficiently pronounced to differentiate the diagnosis. In addition, the ASSR test showed good specificity and proved to be more sensitive to CANS disorders caused by lesions than to those cause by dysfunctions such as CAPD. Agency: CAPES

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 39

EVALUATION OF THE TEMPORAL RESOLUTION IN COCHLEAR IMPLANT USERS

Authors

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Abstract: Abstract Temporal resolution is the ability of perceiving or distinguishing stimulus successively presented within a restrict period of time. This ability has been considered the basis of auditory processing and it is fundamental to the perception of verbal and non-verbal sounds, mainly to what concerns speech comprehension. Objective: To evaluate the development of such ability by the application of specific test in multiple-channel cochlear implant users. Material and Methods: 8 individuals who use multiple-channel cochlear implant, 4 of each sex, between 7 and 24 years old were evaluated. Gap in noise (GIN) test and random gap detection tests (RGDT) were applied in order to evaluate the threshold of temporal resolution, in other words, the shortest interval of time in milliseconds noticed in the presentations of a series of stimulus. Results: The averages of the thresholds of gaps found for GIN and RGDT were, respectively, 17ms and 34.8ms, while in literature it was found average thresholds of 4.9ms and 7.32ms for hearing individuals. It was noticed the correlation statistically significant between the time of use of the device and the results obtained. It was not found any significant correlation between the time of auditive deprivation and the thresholds; however, it was noticed that the shorter the average time of sensory deprivation is, the better the results for GIN are. Although it was not observed any difference statistically significant between the two genders, male individuals presented better results for GIN test. Conclusion: The cochlear implant users evaluated in this research present worst performance for the temporal resolution tasks when compared to results found in literature for hearing individuals.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 40

PREMATURE CHILDREN: STUDY OF THE EFFECT OF SUPPRESSION OF THE OTOACOUSTICS EMISSIONS AND DISCRIMINATION IN NOISE.

Authors

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Institution

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Abstract: Introduction: The sensorial information processing depends on the organic and functional integrity of the entire auditory system, from peripheral regions until the cortical. Thus, people with alteration in functioning on medial olivocochlear efferent system (MOES) may differentiate themselves to people without this alteration when submitted tests of auditory processing. The MOES has important implications in the discrimination of the acoustic signal in the presence of competitive noise. Therefore, it is recommended inclusion of the evaluation effect of suppression of the otoacoustic emission in the set of tests. This inclusion can be especially important when evaluating premature individuals, since they present minor occurrence of suppression of the emissions that term individuals. The aim of this study is to verify the association between occurrence of the effect of suppression and the auditory discrimination in noise in premature children. Methods: Studied population was constituted by 22 children between 5 and 8 years old, being 11 of them born full term (3 female and 8 male) and 11 of them born prematurely treated in neonatal intensive care unit (9 female and 2 male). The patients had been submitted to audiometry, speech audiometry and acoustic immittance measurements. To the auditory discrimination in the noise evaluation, patients had been submitted to the Speaks with Noise with Figures Test, this consists in a presentation of a list of figures, first without noise and then with ipsilateral Speech Noise. The otoacoustic emissions evoked by the linear clicks with intensity of 60dB pe NPS (± 5 dB), had been registered by means of equipment ILO 96, Otodynamics Analyzer, in the absence and presence of contralateral white noise with intensity of 65dB NPS (± 5 dB) emitted for audiometer Maico Hearing Instruments: model MA-18, and phone Telephonics: model TDH-39P. The occurrence and the amplitude of the suppression effect had been verified comparing the variation of the values of the general reply, in each ear, in the presence and absence of the noise suppressor. Results: All the patients had presented auditory thresholds below of 20dB and curve type A, bilaterally. When we evaluated the auditory discrimination in the noise we verified alteration in individuals born prematurely: 36,36% (Right Ear - RE) and 45,45% (Left Ear - LE). We also identified alteration in born full term: 18,18% (RE) and 18,18% (LE). In relation to suppression effect we inquire absence, in the individuals born prematurely: 36,36% (RE) and 9% (LE). The individuals born at full term had absences only in the RE (27.27%). We also verify that individuals born prematurely had presented 9% of association enters the absence of the effect of suppression and the alteration in the auditory discrimination in noise. This same association was not found in the individuals born at full term. Conclusion: Patients that born prematurely present greater frequency of alteration in auditory discrimination in noise and minor occurrence of the effect of suppression, when we compare with children born at full term. Premature patients had also presented association enter the alteration in auditory discrimination in noise and the alteration in the functioning of the MOES

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 41

EVALUATION OF AUDITORY BEHAVIORS OF FIGURE-GROUND AND TEMPORAL RESOLUTION AND THE PERCEPTION OF LIMITATIONS ON COMMUNICATIVE ACTIVITIES OF CHILDREN AND ADOLESCENTS WITH UNILATERAL HEARING LOSS.

Authors

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Abstract: Introduction: The general consensus in the literature is that the binaural hearing is directly related to better sound localization and speech recognition in noise, elimination of head shadow and binaural addition. Individuals with of unilateral hearing loss frequently present language and/or educational difficulties that can lead to limitations of quotidian communicative activities. It can be associated with potential alterations in hearing abilities of relation-figure and temporal resolution. Therefore, it's important to be aware of how the behavior of a hearing with alterations could contribute to limitations on communicative activities on these individuals. Objective: to test the hearing behavior of figure-to-ground and temporal resolution and the self-perception of limitations on activities of children and adolescents with unilateral hearing loss. Method: Participated 38 individuals, between the age of 8 and 19 (average 12.32), divided into: experimental group (with unilateral hearing loss) and control group (normal-hearing individuals), each one formed of 19 individuals, matched according to their gender, age and educational level. They have all been submitted to anamneses, to a complete audiology test and to the procedures of study: a self-report questionnaire of limitations on communicative activities with questions about noisy and silent situations, and sound localization. The participants have been submitted to the Gap-In-Noise and the Pediatric Speech Intelligibility tests at 0, -10 and -15 reference. The statistical analysis has been done through non-parametric tests at the significance level of 0.05. Results: In the experimental group the unilateral hearing loss has been classified as profound in most participants, having started at the pre-schooling stage, with unknown or undefined etiologies (e.g. meningitis, traumas, mumps and measles). Most individuals have presented complaints of learning difficulties, and have shown limitations on communicative activities, of moderate degree predominantly, and especially in noisy situations. The degree and the ear with unilateral hearing loss have not interfered in the severity of the limitation. The worst results, both at the thresholds of gap detection and the Pediatric Speech Intelligibility test on the good ear, have been found in the experimental group. There was no correlation between the thresholds of gap detection on the good ear and the side of the bad one. Conclusions: Individuals with unilateral hearing loss present limitations on communicative activities, especially in noisy environments which are related to worse hearing abilities of temporal resolution and figure-to-ground.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 42

RELATIONSHIP BETWEEN LEVEL OF LEAD IN BLOOD AND PERFORMANCE ON THE AUDITORY PROCESSING SKILLS

Authors

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Institution

1. FOB-USP, Faculdade de Odontologia de Bauru - USP

Abstract: Introduction: Lead poisoning affects all body systems, especially the nervous system. The clinical manifestations depend on the intensity, duration of exposure and individual sensitivity. The accepted level of lead in blood, according to the American Center for Disease Control is up to 10 mg / dL. The lead contamination may affect the development of central nervous system, may cause deficits in attention, concentration, memory, intelligence, learning, perceptual processes, interpersonal and psychomotor development, among others. About the effects of lead in the auditory system, there is no consensus in the literature. For the correct development of auditory processing (localization and lateralization of sound discrimination and auditory pattern recognition, temporal aspects of hearing, auditory performance with competing acoustic signals and the degradation of the signal there is a need for functional and structural integrity of the peripheral auditory and central systems. Objective: Investigate whether there is relation between the level of lead in blood and possible alterations in auditory processing. Methodology: 73 children, male and female, aged 7 to 15 years, living in the city of Bauru in the area where there was emission of lead particles above the permitted limit, with blood lead level less than g/dL, and auditory tests (audiometry and tympanometry) within normal limits $fY10$. Auditory Fusion Test-Revised (AFT-R) subtest 1 (which was adopted as the result of poor performance higher than or equal to 60 ms), and dichotic listening test (free attention) were used to assess the auditory processing. According to the number of rights, it is considered as a good performance for the right ear, results $>85\%$ (9 years old); $>82\%$ (7 to 8 years old) for the left ear and $\geq 95\%$ (9 years old) for the right year. The Spearman test was used to determine the correlation among data. Results and Discussion: The level of lead in blood ranged from 10 to 30.2 g / dL, standard fYg / dL, and the average corresponding to 15.8 (standard deviation of 4.8). 60.3% of these children had poor performance in the AFT-R, or higher results to 60ms. In the dichotic listening test, 25% of children had a good performance for the right ear and left ear, 38.5% had poor performance in the right ear and left ear, 7.7% had poor performance only in the right ear and 28.8% had poor performance in the left ear. There was no statistical significance between the level of lead and the results of tests of auditory processing. Conclusion: The performance of children contaminated with lead on the auditory processing test was lower than reported in the literature, which indicates the association between lead contamination and poor performance in the auditory processing, therefore, the increase in blood lead level doesn't implies in worse performance in tests of auditory processing.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 42A

OCCURRENCE OF RISK INDICATORS FOR HEARING LOSS IN CHILDREN WITH AUDITORY PROCESSING DISORDER.

Authors

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Institution

1. ATEAL, Associação Terapeutica de Estimulação auditiva e linguagem

Abstract: Introduction: Auditory Processing (PA) is the skill set needed to interpret sound patterns, as detected by the peripheral auditory system and is related to the effectiveness and efficiency with which the central auditory nervous system (CANS) uses auditory information. The CANS is less developed in the neonatal period, its maturation occurs gradually until adulthood, and a period of increased formation of neural connections to the four years of age. In the first months of life, in order to monitor the maturation of this system, they resort to behavioral assessment hearing involving speech discrimination and sound source localization, which are closely related to auditory processing. After 6 years of age, the hearing abilities of the PA can be assessed by evaluating the behavioral auditory processing tests of verbal and nonverbal recorded and standardized. Considered a disorder of auditory processing abnormalities in one or more abilities involved in this process. Are there any pre, peri-natal or post that can cause hearing loss due direct interference in the peripheral auditory system, affecting mainly the detection of sounds, these factors are characterized as risk indicators. Whereas the peripheral auditory system and central are closely linked, risk indicators for hearing loss could also lead to changes in central auditory processing. Objective To investigate the occurrence of risk indicators for hearing loss determined by the Joint Committee on Infant Hearing (2007), in children with normal hearing and auditory processing disorder Method The medical records of patients who were evaluated for PA according to Pereira, 1997, from February 2009 to August 2009 in a highly complex institution in São Paulo. It was considered as inclusion criteria, results in the assessment of auditory processing and completion of anamnesis prior to the evaluation of data on complaints and possible presence of one or more risk indicators, including recurrent otitis media early in life. Results

The study included 58 individuals ranging in age from six to thirteen years, and (77.6%) were male and (22.4%) female, 100% of patients had abnormalities in one or more skills hearing and track history. 36 (59.1%) presented no risk factor, 22 (37.9%) had one or more risk indicators for hearing loss, and they in order of prevalence 13 (60%) recurrent otitis in the first years of life, 6 (27.2%) of ICU stay > 5 days, 01 (4.5%) consanguinity, 01 (4.5%) intrauterine infection (toxoplasmosis) and 1 (4.5%) weight less than 1500 grams at birth Conclusion The risk indicators for hearing loss as described by the Joint Committee on Infant Hearing (2007), may influence on the development of hearing abilities in the auditory processing when the peripheral auditory system was not affected and the hearing thresholds are normal, mainly recurrent otitis media persist despite the inactivity of the disease. The behavioral assessment of auditory processing in children over 6 years with a history of recurrent otitis media early in life, even if inactive could contribute to the characterization of an auditory processing disorder, especially in cases where there is hearing complaints, and attentional / or school.

POSTER SESSION I - B DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 42B

BEHAVIORAL ASSESSMENT OF AUDITORY PROCESSING IN CHILDREN WITH NORMAL HEARING AND ABNORMAL ACOUSTIC REFLEX.

Authors

CECILIA CRISTINA CESAR LEOPOLDO LOPES

Institution

1. ATEAL, Associação Terapêutica de Estimulação auditiva e linguagem

Abstract: Introduction: The threshold of the acoustic reflex (AR) is defined as the lowest intensity capable of activating the protection mechanism from the middle ear against sounds strong sounds intensity. It provides information about the auditory pathways, including the brainstem nucleus, which are also related to auditory processing (AP). It is considered normal a difference from 70 to 90 dBNS between the intensity of reflex and hearing threshold in the frequency researched. Some assigned functions from acoustic reflex are also important to the performance of auditory abilities from AP, such as: auditory sign from noise separation, improvement of speech discrimination of high intensities, frequency selectivity and improvement of localization or direction's sense by the binaural interaction of the AR. Therefore, it is possible that changes in the acoustic reflex occur at the same time as disorders of auditory processing. Objective: Characterize children performance in behavioral tests of the AP, with normal hearing and acoustic reflexes contralateral and/or missing ipsilateral or with raised level of sensation. Method: Retrospective study of the evaluation records of 43 patients' AP evaluated in 2008 at Ateal with normal hearing (thresholds of up 25dNA) and altered acoustic reflex. It was considered absent reflexes responses in one or more frequencies, the difference between hearing threshold and contralateral reflex intensity above 90db NS or below 70dbSL. In evaluating of the PA, according to Pereira 1997 it was considered: abnormal tests, sub-sections and degree of disorder. Results: 41 (95.3%) patients presented auditory processing disorder, 100% among those with normal hearing thresholds, however with acoustic reflections against and / or ipsilaterals changed. Changes on each behavioral test evaluated into: (17) 41.4% at speech test with white noise, (21) 51.2 in dichotic digits and in non-verbal, (20) 48.7% SSI and (37) 90.2% in the SSW test. Regarding the classification of the disorder in sub-sections 73.1% (30) patients had a deficit of coding, 95.1% (39) decoding, 41.4% (17) organization and 46.3% (19) gnosis in the non-verbal, and only 7.4% (3) of the patients had impairment in only one case gnosis alone and 92.6% (38) had two or more losses combined gnosis. In rating the degree 14.6% (16) of patients had abnormal mild, 36.5% (15) moderate, 21.95% (17) severe and 26.82% (19) were classified unchanged degree. Conclusion: Patients with reflex changes at normal hearing thresholds may have auditory processing disorder, most often moderate, with combined losses gnosis and primarily change in the SSW test.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 43

QUESTIONNAIRE ABEL – AUDITORY BEHAVIOR IN EVERYDAY LIFE: TRANSLATION, ADAPTATION INTO PORTUGUESE AND COMPARISON OF FACTORS WITH AUDIOLOGICAL MANIFESTATIONS AND CLINICAL HISTORY IN A GROUP OF CHILDREN HEARING AID USERS

Authors

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Institution

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Abstract: Introduction: Hearing aid fitting in children is a challenge for the audiologists. In Brazil, the use of standardized questionnaires for child population during this process isn't common. In other countries, instruments are used to monitor the children progress in auditory and verbal skills, such as the Auditory Behavior in Everyday Life - ABEL. Purpose: To translate and adapt the questionnaire ABEL into Brazilian Portuguese and to make use of this instrument in a parents group of children and young hearing aid users to establish the profile of auditory behavior of these. Method: The translation of the questionnaire was formally authorized by one of its authors. After the translation step, 31 parents and carers of children fitted with hearing aids bilaterally were interviewed, 18 males and 13 females, aged between 4 and 13 years. The interview consisted of clinical history and details of hearing loss using audiological evaluation already carried out. The Portuguese version of ABEL questionnaire was orally administered. It consists of 24 items scored from 0 to 6, divided into three different factors (11 for aural-oral aspect, ten related to auditory awareness and five related to social and conversational skills), and the overall score. The scores were related to the different variables investigated in the clinical history: degree of hearing loss, daily use of hearing aids, speech therapy, the approach used in the same and the school type. Results: There were differences in aural-oral factor by comparing the scores obtained with different degrees of hearing loss in this population (p-value=0,021*) and with different times of daily use of hearing aids (p-value=0,045*): children with lower grades of hearing losses and/or make use of hearing aids by 10h/day or more perform better measured by the questionnaire in this regard. There was a difference in the overall score (p-value=0,021*) and in auditory awareness factor (p-value=0,033*) when compared the daily use of hearing aids with the score shown in the questionnaire: the children who wear hearing aids or 10h/day it has a better performance measured by questionnaire on these aspects. For social and conversational skills factor there wasn't change in score for any of items surveyed in the clinical history. Discussion: The differences in overall score and in the aural-oral factor and auditory awareness factor shows that children with greater degrees of hearing loss and/or do not make effective use of hearing aids have greater damage in the auditory skills, speech and language development. A severe or profound hearing loss affect the contact with the world of sound. The use of hearing aids, which would aim to improve hearing sensitivity, if isn't effectively, doesn't allow the improvement of auditory behavior in daily activities, the behavior of receiving and responding to sound by making use of the oral form of communication and the ability to differentiate the presence and absence of sounds. Conclusion: ABEL questionnaire proved to be a good tool to detail the rehabilitation and development of auditory and verbal skills of children who use hearing aids.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 44

MAXIMIZING LISTENING POTENTIAL AND SPOKEN LANGUAGE DEVELOPMENT IN INFANTS AND YOUNG CHILDREN WITH SIMULTANEOUS BILATERAL COCHLEAR IMPLANTS

Authors

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Institution

1. TIHP, TPH, Toronto Infant Hearing Program, Toronto Public Health

Abstract: Bilateral cochlear implants are now routinely provided to young children with severe to profound hearing loss in Toronto, Canada. Bilateral stimulation enables these children to establish binaural processing and hear with greater ease. Cochlear implants have the ability to access, stimulate and grow auditory neural connections throughout the brain. When this technology is coupled with auditory-verbal intervention, many children have optimal chances of achieving their maximal potential in the development of spoken language. Auditory-verbal therapy (AVT) is an early intervention approach for children who are deaf or hard of hearing. Research studies have shown that the identification of hearing loss, use of appropriate hearing technology, and stimulation of hearing must occur as early as possible in order for the child to benefit from the sensitive periods of neurological and linguistic development. AVT promotes early diagnosis, individualized therapy, state-of-the-art audiological management and hearing technology. Parents and caregivers actively participate in therapy. Through guidance, coaching, and demonstration, parents become the primary facilitators of their child's spoken language development. This poster presentation will discuss the outcomes of children who receive simultaneous bilateral cochlear implants and are enrolled in an auditory-verbal therapy program. The AV approach will be briefly described and its guiding principles provided. Factors impacting performance will be listed. In addition, a case study will be presented and long term goals, expectations and outcomes will be addressed. Finally, parents' perspectives about the intervention and challenges faced will be presented.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 45

THE EFFICACY OF USING WRITTEN MATERIALS FOR AUDIOLOGIC INFORMATIONAL COUNSELING: A PILOT STUDY

Authors

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Institution

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Abstract: Audiologic informational counseling assists patients in understanding the nature and implications of their hearing disorder. Realistic expectations and increased compliance can be expected when patients have an adequate understanding of the nature and cause of their hearing loss and appropriate treatment options. Research in other health fields has shown that providing written and pictorial materials for the patient to take home enhances patient recall of medical information. It also makes the sharing of accurate information with family members more achievable. Unfortunately, this communication technique is underutilized by audiologists when counseling patients regarding audiological information. Given that audiologists are primarily concerned with restoring communication ability to patients, it is incongruous for them to continue to provide detailed diagnostic information and recommendations without using written counseling materials. Dr. Robert Margolis created a series of patient counseling tools for just this purpose. The present study uses Dr. Margolis' Understanding Your Hearing Loss information packet to assess the efficacy of using take-home materials when counseling adult patients about newly diagnosed hearing loss. The participants will be adult patients scheduled for audiologic evaluation at the Callier Center for Communication Disorders. Participants will be new patients to the Center who have not had an audiologic evaluation within the past 3 years. A baseline measure of the participants' knowledge about hearing loss will be given prior to counseling. Half of the participants in the study will be counseled verbally, with the audiologist using a checklist to ensure all appropriate information is given to the participant. No written information will be given to this participant group. The other half of the participants will be counseled using the Understanding Your Hearing Loss materials. This group of participants will be given those materials to take home. All participants will be encouraged to share the information with family members. At a one-month follow-up appointment, the participants will be given a post-test of the information tested in the baseline measure. The difference in scores from the baseline to the post-test will be evaluated to determine if method of counseling has an effect on patient recall. A subjective measure will be included in the post-test to determine whether or not having written information available motivated participants to seek out additional information about their condition (e.g. using the internet), consult other healthcare professionals regarding their diagnosis or treatment, or discuss their hearing loss with family members.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 46

AUDIBILITY THRESHOLDS VERSUS SPEECH RECOGNITION

Authors

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Institution

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Abstract: Introduction: Usually the conventional audiological evaluations do not show faithfully the communicative performance of subject, once the stimuli used and to the test conditions, which do not represent natural everyday conversational situations. Thus, the ability of understanding the speech is an important aspect to be considered in the audiological evaluation, since it permits the analysis of the perceptual communicative function, providing data on how the person understands the spoken message in everyday listening situations. Objective: To analyze the evolution of a patient with bilateral moderately severe sensorineural hearing loss in both ears, with late hearing aids fitting, through sentence recognition threshold in silence (SRTS) and in noise (SRTN), obtained through the Portuguese Sentences Lists Test - PSLT (COSTA, 1998) in free field, on the first day of hearing aids fitting and after three months. Material and Method: A female patient, 23 years old, presenting late onset hearing loss, with a progressive and fluctuant character and family history of hearing loss, whose the older sister has Treacher Collins' Syndrome. The first audiological evaluation, at nine years old, however it wasn't made any kind of audiological rehabilitation, since the patient did not accept it and showed satisfactory communicative, social and school performance. Years later, she returned for an audiological evaluation, presenting hearing difficulties more perceptible. The hearing aids fitting, occurred only in May 2009, when the audiological evaluation evidenced moderately severe bilateral sensorineural hearing loss in both ears and communicative demand increased owing to her ingress at university. Results: The evaluation without a hearing aid using showed that the patient was incapable of recognizing speech, both in silence and in noise, in 75 dB NPS (A) in free field. In the first session of the hearing aids fitting, the result of the SRTS was 72 dB NPS (A) and of the SRTN in a Signal-Noise Ratio (S/N) of +9, then, after three months, the SRTS was 64,5 dB NPS (A) and the S/N of +6. Despite the apparent improvement of the speech recognition abilities with the

use of hearing aids in both situations, the communicative performance of the patient with the PSLT, is lower than expected. Considering that speech in everyday situations occurs around 65 dB NPS and, that in Miranda & Costa (2006) study with normal hearing subjects in the same condition as in the test, the SRTS average was 23 dB NPS (A) and the S/N – 8,72, it is possible to observe how far the patient is from ideal hearing condition even with the hearing aids. Conclusion: Based on this case, it is stressed the importance of including in the audiological evaluation competitive sentences and noise as stimuli, in order to identify the real communicative difficulties, despite the hearing restoration. Also, it is stressed the importance of paying attention to family history, environmental and emotional aspects, in order to better guide patients and relatives, alerting them about the consequences of postponing the intervention of the speech recognition ability, especially in situations of visual support absence.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 47

PUBLIC HEALTH CARE HEARING PROGRAM: EXPECTATIONS, SATISFACTION AND COMPLIANCE IN RELATION TO THE FAMILY INTERVENTION PROGRAM.

Authors

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Abstract: Introduction: Various academic studies have demonstrated the importance of family involvement in guarantying success in the ongoing language development of children and their speech therapy work. Because of this and other factors, it is important to add intervention programs encouraging family involvement in accepting the suffering that parents feel due to the stress caused by the therapy work and the process of participating in the program. Objective: To describe and discuss aspects related to Regarding Adhesion aspects of the program to family involvement and expectations of parents of deaf children attended at the Health Service Hearing of high complexity during the hearing accompaniment as well as the satisfaction of the parents regarding their children's development and hearing and oral language. Method: The study included 40 parents of deaf children ranging in age from 12 to 48 months. Noted that these 40 families had made the diagnosis of hearing loss in children before 18 months of age and who were in speech therapy for at least 6 months. The study was performed at the Children's Hearing Center or better known as the "Centro Audição na Criança" (CeAC / DERDIC - PUC-SP). We used the following analysis of the subjects, including bi-annual evaluations: VRA - Visual reinforcement audiometry (with and without amplification), MCDI - Communicative Development Inventory MacArthur, Fenson (2000); IT MAIS, MUSS and characterization of the socio-demographic profile of families. Results: The rehabilitation was not systematically observed in most cases in which the subjects had hearing loss of moderate to profound. We note that the distance from the housing of these families of local intervention, as well as the difficulties encountered during the journey to the clinic were important factors in the developmental progress of their children to the families of the intervention program. Conclusion: It is important to teach the parents or guardians the importance of the program, attending the program and following through with the indications of the health care professionals. No doubt, this additional education will help them learn more about hearing loss in their child, the impact on oral language, knowledge of electronic devices, and the possibility of education for their children thereby providing subsidies to the proper development of the child. Raising demand is an aid in the adherence of households in intervention programs aimed at the hearing child, encouraging the development of the patient.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 48

PROTOCOL FOR OBSERVATION OF COMMUNICATIVE INTERACTION OF DEAF STUDENTS WHO USE HEARING AIDS OR COCLEAR IMPLANT

Authors

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Institution

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Abstract: Introduction: The impact of hearing loss in childhood can be manifested by the difficulty of development verbal language and learning difficulties at school age. The cochlear implant and the hearing aids are technological resources that minimized the impact of hearing loss in the development of deaf children. However, so that the deaf student, included in regular education, can communicate effectively by listening and speaking, it is necessary that teachers understand and use verbal and behavior communication strategies in the school environment, which can facilitate dialogue with the deaf child. Objective: Develop a protocol for observation of teachers' communicative interaction with deaf students using oral communication in a school environment. Methods: Participants were 16 teachers of deaf students, who use oral communication, regularly enrolled in a City Scholl System in 2009. First it was a pre-established protocol. While preparing the pre-protocol, it was based on the script that analyzes the communicative interaction between an adult and a deaf child written by Cole, 1992. The Lickert Scale was used to score the items. The pre-protocol was made available to participants monthly over a school year, during a program of phonoaudiologic follow up. Participants were instructed to perform weekly records on the situations of communication with the deaf student in classroom. The study also included video recording of communicative interaction between teacher and deaf student in the school environment. The video recordings were used for guiding the teachers' records related to the deaf student in the school environment. All participants' records, in the pre-protocol and in all video recordings were analyzed, considering the communication relationship quality occurred between deaf student and teacher in the context of ordinary classroom. From this analysis, the necessary changes were promoted, coming up with the preparation of a final protocol. Results: Initially the pre-protocol consisted of 24 items. From the analysis of the participants' records, during the course of phonoaudiologic follow-up, the protocol was revised. The items which had more relevance and which occurred in the situation of communication between teacher and deaf student in the classroom, were considered for the preparation of the final protocol, such as explaining the activity to the deaf student first and then for the whole class, repeating the message when necessary, emphasizing keywords, communicating in a meaningful context. The final protocol consisted of 15 items related to communication strategies used by teachers to communicate with deaf students in the school environment. Conclusion: The protocol allowed the monitoring of communication strategies between teacher and deaf student during a school year course. The use of such instrument may contribute to the monitoring of communication strategies used in the school, assisting the development of the verbal language and the learning of deaf students.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 49

PROGRAM OF PHONOAUDIOLOGIC FOLLOW-UP FOR TEACHERS OF DEAF STUDENTS WHO USE ORAL COMMUNICATION AND ATTEND REGULAR SCHOOLS

Authors

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Institution

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Abstract: Introduction: The teachers' understanding on issues related to the student with hearing impairment in the school environment can facilitate the development of this student. The phonoaudiologic follow-up with teachers of deaf students will enable them to be prepared to tackle the educational environment. Objective: to review and monitor phonoaudiologic follow-up for teachers of deaf students who use oral communication and attend regular schools. Methods: Participants were 10 teachers of deaf students on the year first and 16 teachers of deaf students in the second year of the program. All participants work in the City School System. It is noteworthy that one teacher participated in the first and second years of the program. Video recordings were made before and after the follow-up program. The program consisted of monthly meetings with the participants during the academic years of 2008 and 2009. At the meeting, the major topics were presented by means of debates, dialogues, visual aids and discussions of the videotapes, teacher – student relationship and the child – audiologist. The sequence of topics was suggested by the teachers either in the first or in the second year. The topics discussed at the meetings were: hearing aids (HA) adaptation and cochlear implant (CI) surgery, the results of the evolution with and without HA or CI, factors that interfere with communication (distance, environmental noise and reverberation), the frequency modulated system (FM) and communication strategies. Results: Based on the analysis of videotapes, changes were shown in teacher's behavior while interacting with their deaf student, such as, using communication strategies, speaking next to the student and just high enough, using materials to contextualize the teacher's speech, using simple sentence, using keywords and explaining the activity to the deaf student individually. Changes in the physical structure of the classroom were also evidenced, such as the use of carpet and felt underneath the chairs and desks, the use of posters on the wall and the change of the student's position in the classroom. Moreover, during the program of phonoaudiologic follow-up, there was the acquisition of the frequency modulated system for a deaf child, cochlear implant user and the process of applying to purchase this feature for other deaf students of the City Education System was initiated. Besides, the number of students in the classroom has been reduced. Conclusion: The process of phonoaudiologic follow-up was effective, using strategies of discussion and debate rather than lectures. The phonoaudiologic follow-up provided the teachers with both specific knowledge about hearing impairment, and the understanding of the impact of communication strategies on students' learning. Changes in physical structure in the classrooms, the reduction of the number of students and the use of the frequency modulated system improved the learning conditions of deaf students in schools. In the final meeting, the participants appreciated the proposal of the monitoring program of phonoaudiologic follow-up stating that they felt backed up by the development of the work with deaf students.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 50

PERFORMANCE OF THE VERBAL COMPREHENSION IN CHILDREN WITH COCHLEAR IMPLANTS

Authors

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Institution

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Abstract: Language is the capacity to understand and express linguistic signs. Verbal comprehension can be defined as the ability to decode these signs. According to several authors, verbal comprehension precedes verbal expression. So, hearing is essential for the development of verbal expression. Deafness is defined as total or partial loss of the capacity to understand speech through the ear. Deafness impairs verbal comprehension and therefore impairs expression through speech. Technological advances gave people with severe and/or profound deafness the most powerful device that allows access to sounds: the Cochlear Implant (CI). The objective of this study was to evaluate the verbal comprehension of children with cochlear implant through the Comprehension Scale of the Reynell Developmental Language Scales (RDLS). The subjects were ten children with CI (with auditory deficiency acquired before language development) and twelve children without hearing impairment, with ages between four years one month and five years zero months. As the RDLS had never been used in Brazil, we considered the results of the children with normal hearing as the normal standard. The study was done at the Center for Audiology Research of the Hospital for Rehabilitation of Craniofacial Anomalies, University of São Paulo (USP), Brazil. Materials used were: domestic objects, toys, miniatures and figures. Data collection was through the application of the Comprehension Scale of the RDLS (American version). This scale is composed of 10 sections, divided in 67 items that evolve in complexity and evaluate the receptive language. Throughout the sections commands are given and the child must execute them. To each command executed a point is credited. At the end of the evaluation the points are added up. Data from the group of children with CI were compared to data from the group of hearing children. In general, the deaf children had a worse performance compared to the hearing children. However, three of them had similar results to the children without hearing impairment. We also observed that some hearing children had difficulties in some of the same sections and items where the deaf children had difficulties. The deaf children who had the highest scores for verbal comprehension were the ones with shorter time of hearing sense deprivation and longer time using the cochlear implant. Therefore, one concludes that the CI has been effective to supply access to sounds and to make possible the verbal comprehension of deaf children. Therefore, the early diagnosis of deafness and early intervention is extremely important for a better linguistic performance by implanted children. Early implantation would lead to better development of verbal language and, certainly, better academic performance later by the child with CI.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 51

HEARING TIME IN CHILDREN WITH CI X CHRONOLOGICAL AGE IN CHILDREN WITH NORMAL HEARING

Authors

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Abstract: Verbal language is the resource most used to establish effective communication and to make possible a better interaction. The Cochlear Implant (CI) offers considerable



and satisfactory hearing gain for children with severe/deep sensorineural hearing loss giving them access to verbal language. In this work we compared the language development of children with CI to children with normal hearing. We matched hearing time (time since CI placement) of children with CI to chronological age of children with normal hearing. The subjects were: two children with CI (with chronological age of 4y8m and 4y10m and hearing time of 2y2m and 2y8m, respectively) and six children with normal hearing with ages between 2y4m and 2y11m. The children with normal hearing were evaluated at Escola Balão Mágico, Ribeirão Preto/SP and the implanted children at the Centro de Pesquisas Audiológicas (CPA), Hospital de Reabilitação de Anomalias Craniofaciais (HRAC) – USP/Bauru, Brazil. Materials used were: toys, objects, miniatures and pictures. We used the Verbal Expression Scale from Reynell Developmental Scales (RDLs), American version translated to Brazilian Portuguese. The scale is composed of three sections that evaluate different aspects of language: Structure, Vocabulary and Content. In the section Structure, the children with CI performed as well as the children with normal hearing. All used phrases of 3 or more words, verbs in all the verbal times, prepositions and pronouns. In the section Vocabulary, the child with longer time using the CI had results superior to the children with normal hearing. The other implanted child had equal or superior results compared to the children with normal hearing. In the section Content, the children with CI had considerably superior results compared to the children with normal hearing. The implanted children spoke phrases with more information, more connection between phrases and more sentences than the children with normal hearing. In general we can say that when matching implanted children to children with normal hearing according to hearing time, the implanted children performed better than the children with normal hearing. The child with the longest time of use of CI had the better performance. This highlights the importance of early diagnosis of deafness, as well as early cochlear implantation for children that are candidates for CI, because the younger the child at the time of implantation the better it will be her language development regarding perception and intelligibility of the speech.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 52

EVALUATION OF THE VOCABULARY OF CHILDREN WITH COCHLEAR IMPLANT

Authors

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Abstract: International literature regards that the systematic use of the cochlear implant (CI) leads to a gradual increase of vocabulary and connection of the components for construction of more complex sentences. The aim of this study was to analyze the vocabulary of Brazilian children, users of CI. The participants (n=9) were evaluated in three years (2002, 2004 and 2005). Children's chronological age varied between 4 and 5, 6 and 7, and 7 and 8 years, respectively for the first, second and third evaluations. The averages of the time of cochlear implant use were 1 year and 6 months, 3 years and 7 months and 4 years and 9 months, respectively. The implanted children were evaluated at the Center for Audiology Research of the Hospital for Rehabilitation of Craniofacial Anomalies, University of São Paulo (USP). Materials used during examination included toys, domestic objects and figures. The procedure for data collection consisted of the application of the section "Vocabulary" of the Verbal Expression Scale of the Reynell Developmental Scales (RDLs), American version, used for the first time in Brazil by Fortunato (2003). That section contains 22 items arranged in three subtests, with increasing difficulty levels. In the first subtest, the child must nominate concrete objects. In the second subtest, the child must nominate nouns and verbs expressed in figures. In the third subtest, the child must to describe abstract words or concepts. Each correct answer is credited. The procedure of data analysis consisted of comparison of the punctuations obtained by the children in the three evaluations. The results showed a gradual increase of vocabulary of children implanted throughout the years. The averages of the punctuations obtained by the children were 7.6, 14.25 and 18.75, respectively for 2002, 2004 and 2005. More generally, the data obtained for Brazilian children users of CI in this research were similar to those found in the international literature, demonstrating that the continued use of the CI leads to an increase of vocabulary. It is recommended, however, the use of other tests in association with RDLs, which evaluate specifically the vocabulary, for bigger trustworthiness of the results.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 53

RELATIONSHIP BETWEEN TONAL AUDIOMETRY, TINNITUS AND LIFE QUALITY : A PILOT STUDY

Authors

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Institution

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Abstract: Aim: (1) Analyze life quality in patients that suffer tinnitus. (2) Verify correlation between Tonal Audiometry and tinnitus. (3) Verify the correlation between degree of tinnitus, annoyance and the presence of concomitant hearing loss. Methods: Observational study, transversal's type, with convenience sample was developed. Anamneses were applied focusing current and former history of the patient's complaint, as well as the signals and symptoms associated. The anamneses was followed by the questionnaire application, developed by Sanchez et al. (2004), focusing description of tinnitus clinical characteristics and repercussion in patients lives. Additionally the results from the Tonal Audiometry application were collected. To process and analyze the data, the statistical software SPSS v.17 was used. Results: The results show that 65% of the studied population has tinnitus concomitant with some type of hearing loss in one or both ears. 52% of the sample studied presented sensorineural hearing loss, 17% mixed loss, and 30% possessed normal hearing bilaterally. About the degree of annoyance related to the tinnitus using the visual analog scale, 30% of the patients related annoyance degree of 10, 30% considered degree 8, 13% degree 6, 9% degree 4, 9% degree 3, and 4% degree 2. Regarding the interference of the tinnitus in the quality of life, 48% of the patients related interference in sleep, 35% in concentration, 56% in their emotions, and 14% impact on their social life. The female population (48%) related bigger annoyance when compared to the male population. Conclusions: In this study, it was observed that the bigger the degree of the hearing loss, the bigger the annoyance degree related to tinnitus. However patients who possess normal hearing can also have a high degree of tinnitus' annoyance. Some form of interference in the emotions and sleep was observed as a consequence of tinnitus, but it does not interfere in concentration and social activity. It's relevant to point out that tinnitus can also interfere in daily living instrumental activities, as well as superior neural activities, and make patients look for seclusion. Future studies should estimate the improvement of life quality in the affected population.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 54

FAMILY INVOLVEMENT AND FIRST STAGES OF THERAPEUTIC SETTING IN INTERVENTION WITH HEARING IMPAIRED CHILDREN: PRELIMINARY RESULTS

Authors

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Abstract: Introduction: Establishing partnership with parents is extremely important when working with hearing impaired children in the initial intervention process. A number of issues regarding hearing aids, auditory and language experience and daily routine may take up most of the time of the child's visit to the center. Parents meetings, devoted exclusively to understanding expectations, cultural background and knowledge about intervention and school alternatives, can provide a solid basis for further engagement in different educational options. Furthermore, as early diagnosis becomes a reality, choices regarding cochlear implantation, oral or sign language are to be made in the first steps of intervention. Objective: To describe and discuss issues related to familiar involvement and therapeutic setting in the initial stages of early intervention in a Hearing Health High Complexity Service. Particularly, it aims at discussing the impact of parents meetings in addition to regular therapy sessions, in follow up visits ("acompanhamento"), regarding auditory and language development. Methodology: The preliminary results presented at this time include six families of hearing impaired children who were enrolled in early intervention at Center for Hearing in Children (CeAC- Deric) in early 2009. Intervention program involved two different weekly procedures on the same visit: one session focused on hearing aids fitting, auditory and language stimulation as well as orientation about daily routine. On the same visit, before or after therapy, all parents gathered with their children to participate in meetings devoted exclusively to understanding expectations, cultural background and knowledge about intervention and school alternatives. Preliminary results of the impact of the meetings are discussed through video recordings, parents' interviews and a family involvement scale. Results: From the familiar involvement scale application and the interview guide, it was observed that 60% of families presented at least good familiar involvement on children's initial intervention. Due to the video, recording it was possible to verify that the parents who were involved the most and presented higher engagement to the program were also the ones who least absented, after 10 weekly meetings. Some families that haven't participated on the program accounted for work issues. Concerning parents' expectations related to children development, it was remarkable that 90% of them believed their children would develop similarly to a hearing child. Parents' expectations were not directly related to the degree of family involvement. Conclusion: The three procedures used to evaluate familiar involvement degree and engagement to intervention seem to have allowed family placement on beginning therapeutic process with their children, enabling modifications on therapeutic setting, in both family and professional perspectives. Partnership with parents seemed to have enhanced their participation in the process. Longitudinal data regarding impact in auditory and language development are being collected. Key words: Family involvement, early intervention, hearing impaired children

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 55

VOICE QUALITY AND DYNAMIC OF A CHILD-COCHLEAR IMPLANT USER DURING THERAPY SESSION

Authors

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Abstract: Introduction: Evidences to characterize and bring implications and clinical reflections about the relation between speech perception and production in the presence of a case, currently, aimed to make inferences about the definition of directions, procedures and clinical decisions in the presence of hearing and speech disorders. Starting from the applicability of the acoustic analysis as a clinical tool and technological innovations – aiming to offer access with better qualitative and quantitative features to speech sounds – therapeutic strategies that promote the fittings related to the verbal oral speech acquisition aiming to the acoustic/articulatory purpose, bring important knowledge about the case. Therefore, different production and perception conditions contribute to the interaction between the elements that constitute the relation between sound and sense on the construction of vocal quality and dynamics starting from what is assumed by speech sciences. Goal: to describe acoustic and audiological findings on speech samples on a hearing impaired child on speech therapy, aiming to describe the vocal quality and dynamics starting from hypothesis about speech adjustments on the speech development process. Method: the subject studied is three years old, male, sensorineural hearing impaired, severe on the left ear, profound on the right, submitted to a cochlear implantation in the right ear with the age of 1 year and 3 months, and a hearing aid in the opposite ear. Segmental and supra segmental aspects of speech sounds were described, according to therapeutical strategies. The speech samples recorded during spontaneous production and after immediate repetition of the clinician speech production were digitalized and edited from the Sound Forge Edit Software. The acoustic analysis (software PRAAT <http://www.fon.hum.uva.nl/praat>) involved the inspection of the trace of the wave and spectrograms. The auditory-perceptive analysis was realized by VPAS-PB regulation (Camargo e Madureira, 2008), by expert judges of the instrument. Results: changes concerning the variability of constrictions and adjustments of the vocal tract in combination, regularity and elements variety on the evolution of the acoustic parameters of fundamental frequency (f0), duration and intensity during the speech flow, demonstrated the new conditions and hypothesis constructed by the child from the therapeutic strategy that offers better conditions of hearing feedback. Variations about elocution tax, extension and variability of loudness and pitch, and adjustments of lips, mandible, tongue, pharynx, velopharyngeal function, were described from the therapeutic strategy. Conclusion: new possibilities of adjustment were precisely in the direction of the aim, through different glottic and supraglottic modifications lead to better conditions to procedure the articulatory gesture and to be placed as an interlocutor in the game or dialogue. Interactions between elements of the vocal tract and phonatory elements, express the relations between perception and production and compose the clinical method on a dynamic and simultaneous way. Evidences of the process of speech acquisition starting from studies of vocal quality and dynamics with phonetic motivation has brought implications and clinical understanding about the case and contributes for the definition of directions, proceedings and clinical decisions related to hearing and speech disorders.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 56

IMPACT OF AUDITORY REHABILITATION IN RUBINSTEIN-TAYBI SYNDROME: A CASE REPORT

Authors

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Abstract: Introduction: Rubinstein-Taybi syndrome was first described in 1963 and has features such as short stature, broad thumbs and big, facial anomalies, hearing disorders and Otorrinolaringologic malformations. Purpose: The aim of this study was to describe the impact of the aural rehabilitation in a child with Rubinstein-Taybi syndrome. Case report: Patient male, 7 years, with confirmed diagnosis of Rubinstein-Taybi syndrome. It has disturbance of the acquisition and development of speech and language. In addition, the results of the Behavioral Observation Audiometry, and Auditory Brainstem Response (ABR) suggest mixed hearing loss of mild to moderate degree in the right ear and mixed hearing loss of moderate degree in the left ear. The patient uses hearing aids for an year in the right ear and conducts speech therapy weekly with a focus on stimulation of auditory skills and language development using a total communication approach. Results: In terms of hearing the advances made by the patient include reaction to environmental stimuli in a reflexive and posterior spontaneous behavior, developed attention to verbal and nonverbal stimuli, location of the sound source directly to the right and recognize familiar music. The development of language has evolved and the patient demonstrates the following characteristics: reacts to environmental stimuli changing consistently the behavior, recognizes the name, includes verbal requests accompanied by simple gestures. Usually gestures that represent concrete actions to their own needs, such as hit palm, give. The child also uses different vocalizations generalized to the stimulus tone, vocalize during handling of objects, reacts to body contact, maintain eye contact, hit objects, perform simple actions on request, roll ball and play under imitation and spontaneously. In addition, the patient increased attention span in an activity which included trading turns, understand simple commands and respond to no. Conclusion: The results obtained after auditory rehabilitation therapy suggest changes in aspects of hearing. The language evolution was limited, but showed improvement on the reception and cognitive aspects. Expression progress has yet to improve some aspects, mainly articulation issues. There is a need to continue therapy for hearing and speech rehabilitation in order to improve the skills of the patient.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 57

AUDITORY REHABILITATION OF A PATIENT WITH HEREDITARY HEARING LOSS: CASE REPORT

Authors

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Abstract: Introduction: Hereditary hearing loss is characterized by the existence of a family history of hearing loss. It can be caused by environmental factors or genetic factors. It can be syndromic or nonsyndromic. A non-syndromic form occurs when the affected individual has only deafness, with no other problems or defects, with mechanisms of autosomal recessive and dominant inheritance. The hearing loss of an autosomal dominant usually appears after 20 years old, postlingual, being progressive, passing the abnormality to about 50% of children. Objective: To describe the audiological findings and hearing rehabilitation in a patient with hereditary hearing loss. Methods: Female patient, 23 years old. It was performed anamnesis and audiological evaluations before and after the hearing aids (HA), digital micro-channel model and functional gain. Results: In the anamnesis made before the hearing aid fitting, patient reported history of hearing loss in the family, difficulty in understanding what people were talking in a noisy environment since 21 years old, headache and tinnitus. There was no change in the otoscopy but on the audiological evaluation, mild hearing loss, downward sloping in the right ear and moderate sensorineural hearing loss, irregular configuration in the left ear. In tympanometry, curve type A, presence of acoustic stapedial reflex in the afferent pathway ipsi, against lateral and bilateral. After fitting the hearing aid, the patient reported improvement in understanding what people say and reduction of tinnitus. The functional gain, in free field, in a soundproof booth, after two months of adjustment, it showed good results. Speech discrimination test: IRF with HA (88%) and without HA (68%). Conclusion: According to the audiological evaluations performed, we can verify the correlation between our findings to the literature reportings in cases of hereditary hearing loss. And with the monitoring carried out, it is visible the improvement in hearing, about discrimination and speech recognition, with consequent benefit in quality of life for the individual.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 58

PRAGMATIC LONGITUDINAL PROFILE OF A CHILD WITH AUDITORY NEUROPATHY.

Authors

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Abstract: Most of human communication depends on the conversion of ideas into language, which involves all its components participation and interaction - phonological, semantic, syntactic and pragmatic. Pragmatics studies the relationship between the social meaning of language expressed by the interactive content and semantic content expressed by the communicative act itself. Auditory neuropathy is characterized by the auditory nerve impairment, which generates a nerve conduction dyssynchrony, contributing to an impaired speech perception. In hearing impaired children the language acquisition and development process may be hampered, but communication can be stimulated with the therapeutic process. This research aimed to demonstrate the pragmatic communication skills development of a child with auditory neuropathy accompanied in the Faculdade de Odontologia de Bauru, Universidade de São Paulo. J. D. N, male, diagnosed with language development disturbance secondary to an auditory loss - Auditory Neuropathy, was accompanied between 3 and 7 years old. The video recordings to pragmatic evaluation were performed in the clinic, with the presence of the therapist who attended him and were conducted by means of spontaneous conversation situation. Totally, 180 minutes of data collection were recorded on audio and video (30 minutes per semester) since 2007. For data analysis of the pragmatic abilities, the protocols proposed by Lopes (2000) were used. As a result, it was noted that when the individual was five, he had just the direct responses skills (respond to information requests) with yes / no or slurred speech, however, these skills have been enhanced with the complex responses provision already in the second recording (six years old). With seven years old (current age), the child is able to initiate and keep dialogs, to proposes new discourse topics and conducts narratives and arguments. The emergence of more complex communication skills is justified by the evolution on oral language acquisition and development, which is worked during the therapeutic process with the hearing impaired. It is possible to conclude so that the speech therapy provided improvement in communication pragmatic abilities.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 59

CHILD CARRIER OF CHARGE SYNDROME AND COCHLEAR IMPLANT USER: A CASE STUDY

Authors

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Abstract: Introduction: The carriers of Charge Syndrome are a heterogeneous population with many commitments, and the benefits of the cochlear implant are not clear yet. Objective: to describe and to analyze the case of a child with profound hearing loss and carrier of Charge Syndrome that made the cochlear implant surgery in a late age with 4 years old. Method: By analyzing the promptuary registries and film ing of the child, since her ingress at the clinic with 7 month- age, until the present day, with 6 years old. For comparison and reference, were used the "Techniques for assessing auditory speech perception and lipreading enhancement in young deaf children" Geers (1994) and the "Techniques for assessing language development in young deaf children", Bevilacqua et al. (1996).. The case was classified though the observation of the communication abilities which were favored after the cochlear implant activation. Results: Firstly, it was observed an improvement on the speech perception ability that contributes to the auditory abilities increase, achieving the auditory comprehension afterwards two years from the cochlear implant activation. That corresponds to the 6th category (Geers, 1994). About the oral language development, the child is now able to construct phrases with 2 or 3 words, what represents the 3rd category (Bevilacqua, 1996).Conclusion: afterwards 2 years of the cochlear implant activation, this child presents an asynchrony between the auditory and the oral language abilities. Because of the Charge Syndrome, the speech therapy work has been emphasized on a didactic approach, by offering other clues (visual and Tactile-kinesthetic), thereby increasing the communicative intention and the phrasal structure imitation.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 60

INSTRUMENTS FOR ORAL LANGUAGE EVALUATION OF CHILDREN WITH COCHLEAR IMPLANTS: A SYSTEMATIC REVIEW

Authors

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Abstract: It is known that hearing is the human being's main sense for the development of oral language. Consequently, children presented with hearing loss show a significant drawback in their oral communication. Moreover, in the most severe impairments, oral language development may not occur. A resource for the rehabilitation of hearing impaired children is the cochlear implant, a device that aims to replace the cochlea's functions, favoring the development of the oral language. In the presence of such strict relation between hearing and language development, it is important that children with cochlear implant be evaluated before and after the implantation, as well as followed and assessed along the years, so as to measure their language development. Therefore, this systematic review aims at surveying the instruments used in the oral language assessment of children with cochlear implants. Initially, the databases PubMed, Lilacs and Scielo were chosen for the search, and the descriptors cochlear implantation, language, language tests, child, preschool and infant, were used. In addition, the decision to include only articles between the years of 2004 and 2009, was taken, thus, three hundred and seventy-three articles were selected through the search of two different researchers. The abstracts and methods of these articles were analyzed and a number was excluded for the following reasons: repetition between the two researchers; they were not available in Portuguese or English; no reference of oral language assessment, only of speech perception or written language. Thus, 47 papers were analyzed, totaling 76 instruments for oral language assessment, that is, tests, protocols, inventories or computerized programs. Instruments related to vocabulary evaluation were the most cited ones, in the researches, and 80% of the studies were qualified as Cohort ones. Finally, a significant number of tests in the oral language area and a lack of standard methods for the application of these tests, were noticed. Only two Brazilian studies were found and those in the speech-language pathology field do not present high evidence levels.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 61

CONSIDERATIONS ON BILATERAL COCHLEAR IMPLANTS: LITERATURE REVIEW

Authors

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Abstract: It is currently known that the cochlear implant (CI) is the most efficient electronic device pursuing to minimize the effects of severe and profound sensorineural hearing losses. In the scientific community, research presenting the results of the unilateral implantation of this device is commonly found. However, some authors discuss a few limitations of the unilateral cochlear implantation compared to the bilateral implantation. Between the years 2003 and 2009, the main discussion considering the subject refers to the advantages and disadvantages of the bilateral implantation, as well as the surgical time (simultaneous or sequential). Hence, this literature review intends to present the current considerations of the scientific environment regarding bilateral CI. A research was performed on the PubMed database, where 27 scientific papers and 2 congress annals related to the otorhinolaryngological area were selected. The descriptor Bilateral Cochlear Implantation was used. The findings show greater benefits of the bilateral cochlear implantation. Research evidences better auditory performance of the bilaterally implanted in comparison to the unilaterally implanted with or without contralateral hearing aids. The reported benefits include improved sound localization and speech perception in silence and noise, in addition to all the binaural benefits. As to the surgical time, the studies show greater gain with the simultaneous implantation surgery. However it is crucial that the surgical risks are detailed and discussed with the family. From the results found in this study it is concluded that bilateral cochlear implantation offers greater

benefits in comparison to unilateral cochlear implantation with or without the use of a contralateral hearing aid. It is important to emphasize that the unilateral or bilateral, sequential or simultaneous surgery option should be made with parent participation along with a prepared team to orient and undertake the risks and consequences of the choice made.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 62

AUDIBILITY THRESHOLD FOR HIGH FREQUENCIES IN CHILDREN WITH MEDICAL HISTORY OF MULTIPLE EPISODES OF BILATERAL SECRETORY OTITIS MEDIA

Authors

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Abstract: Audibility threshold for high frequencies in children with medical history of multiple episodes of bilateral secretory otitis media. Relatively poorer audibility threshold for high frequency was found in children with medical history of multiple episodes of secretory otitis media. Aim: to characterize the audibility threshold for high frequencies in normal-hearing children with medical history of multiple episodes of bilateral secretory otitis media. Materials and methods: a sample of 31 children, from both genders, was divided in two groups: 14 subjects who had not more than 3 episodes of bilateral secretory otitis media (Group 1) and 17 subjects that experienced at least 4 episodes of this condition (Group 2). Pure-tone air conduction audiometry was tested at frequencies 9,000 to 18,000 Hz. Study design: transversal prospective. Results: there was no difference between audibility thresholds comparing right and left ears of subjects of both Group 1 and Group 2 in all tested frequencies. However, there was difference between audibility thresholds between subjects of Group 2 compared to Group 1 in all tested frequencies. Conclusion: 1- There was an increase in audibility thresholds with the increase in frequency. 2- High frequency audiometry separates subjects with history of at least four episodes of secretory otitis media, suggesting that these episodes are sufficient to promote statistically significant difference in high frequency thresholds.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 63

ORAL LANGUAGE IN A CHILD THAT UNDERWENT A COCHLEAR IMPLANT BEFORE 1 YEAR OF AGE

Authors

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Abstract: Introduction: Communication among individuals happens through verbal language and completely depends on hearing, which constitutes a necessary factor in a child's contact with the world. During childhood, hearing loss can cause delays in speech and language because it interferes in two fundamental processes: the sound reception and the ability of monitoring one's own speech (acoustic-articulatory feedback). In general, speech and language alterations are worse in cases of severe and profound hearing loss. In recent decades, however, the development of multichannel cochlear implant systems (CI) revolutionized the treatment of severe and profound hearing deficiencies. It is known that the first years of life are a critical period for language development, and therefore age of implantation is a very important factor. Middle age implantations are decreasing in the world, and in many centers CI's are implanted before the age of 2. Several studies suggest that the implantation at about the age of 2 results in some advantages in comparison with the implantation after this age, in terms of the early development of the auditory process. Objective: To evaluate the oral language of a hearing impaired submitted to cochlear implant surgery before the age of 1. Methods: A single case study accomplished with a 4-year and 2 month-old child with bilateral profound sensorineural congenital hearing loss implanted at the age of 11 months. The child had been in therapy for hearing habilitation since the age of 7 months (time of the diagnosis) with an oral-aural approach. The tasks from the ABFW - Child Language Test were applied to evaluate the child's oral language, and the phonological and pragmatic aspects were analyzed with the vocabulary and fluency. Results: The child presented scores close to the expected normality pattern for normal hearing children at the same age. Conclusion: This case study demonstrated that if a child is implanted up the age of 1 year and receives intervention under the oral-aural approach, a normal linguistic development can occur comparable to normal hearing children in the same age group.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 64

VALIDITY AND RELIABILITY OF THE HEARING HANDICAP INVENTORY FOR ADULTS - PORTUGUESE TRANSLATION

Authors

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Abstract: Validity and reliability of the Hearing Handicap Inventory for Adults - Portuguese translation Background: There has been an increase in using outcome measures to assess intervention effectiveness in clinical practice. Hearing aid fitting effectiveness can be described as a decrease in the experienced activity limitation (disability) and/or participation restriction (handicap). One form to conduct such investigation is by using self-assessment inventories, such as the Hearing Handicap Inventory for Adults (HHIA). The HHIA was translated into Brazilian Portuguese and has been used extensively in research as well as in clinical practice. However data regarding the validity and reliability of this Portuguese version have not been published. Aim: To evaluate the psychometric properties of the Brazilian Portuguese HHIA, including its validity, reliability and ease of reading. Methods: The Flesch Kincaid readability index was calculated for each item of the HHIA. Thirty normal hearing adults (15 men and 15 women) with age varying from 20 to 60 years old (mean = 38,5 yrs) with no previous knowledge of the HHIA content answered the inventory in a paper and pencil format (Group A). They were also interviewed regarding HHIA ease of understanding. Besides, 113 individuals (52 women and 61 men) with age varying from 21 to 64 yrs old (mean = 53,6 yrs) with post-lingual sensorineural, bilateral hearing loss of varying degrees (Group B) completed the HHIA in an interview format, before hearing aid fitting. Thirty two participants of group B completed the HHIA a second time, two weeks after its first administration. Cronbach's alpha was used to test internal consistency. Test-retest reliability was assessed by means of paired t test and Pearson correlation coefficient. Discriminant validity was evaluated by comparing the results for group A and B by means of the Student's t test. Results: Flesch Kincaid scores showed that in general the HHIA was easy to read. Cronbach's alpha of 0,94 (total score), 0,91 (social scale) and 0,84 (emotional scale) showed the high internal consistency of this inventory. Correlations between test and retest scores were high and significant. Besides, there was no significant difference between test and retest scores. There were significant difference between scores for group A and B (discriminant validity). Conclusion: The HHIA translated into Brazilian Portuguese maintained the reliability and validity of the original English version. Further studies are needed to determine the convergent validity and construct validity of this instrument.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 65

INVENTORY OF FAMILY NEEDS: A TOOL TO GUIDE FAMILIES OF HEARING IMPAIRED CHILDREN

Authors

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Institution

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Abstract: The impact of hearing loss in child development and family dynamics is widely known and the early identification of hearing loss is recommended, requiring, therefore, that the family be the focus of intervention programs. In recent years, we have observed that the discussions and actions related to health education have been strengthened. However, in our country, a few scientific studies have monitored the needs of families whose children are presented with hearing impairment, the relationship of quantity and quality of the guidelines given, the results obtained in the rehabilitation, as well as life quality. This fact may have important implications on the effectiveness of the entire process, from the hearing screening to the auditory rehabilitation. Also, more effort is needed for routine clinical use of instruments and tools that help the therapist as he guides such families, starting from their experiences and reality. Taking into account that Brazil is a country of many socio-economic-cultural differences, it is important to have guidelines based on the family individual needs, so as to better understand and manage the situations which interfere in the whole process. Thus, in order to work especially with the help of families, in the hearing health programs, this study aims at translating and validating, semantically, the instrument "Family Needs Survey", an inventory (E. Yucel, Derim D., D. Celik, 2008) to assist the families with children presented with hearing impairment. This inventory comprises 38 questions, divided into the following subjects: general information, hearing and hearing loss, communication, services and educational resources, family support, community services and care, and financial issues. To achieve the goals, a reverse translation process took place and the semantic validation was performed by 10 mothers of children presented with hearing impairment and 6 professionals (5 speech pathologists and 1 psychologist) in the field of diagnosis, fitting and rehabilitation. Therefore, we have accomplished an instrument for clinical use, from diagnosis to auditory rehabilitation, which may be used in future research.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 66

ELF - EARLY LISTENING FUNCTION: ANALYSIS OF THE RESULTS IN CHILDREN WITH PROFOUND HEARING LOSS

Authors

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Abstract: Theme: Assessment of speech perception protocol in hearing disabled children from zero to three years old within a model of audiological monitoring centered in the family. The instrument ELF - Early Listening Function - was especially developed to be applied by parents at home to evaluate the first hearing abilities presented by the child. Purpose: To implement and analyze the results of ELF questionnaire in Portuguese language in Brazilian children with profound hearing loss who use hearing aids (HA) and cochlear implant (CI). Methods: The translation and cultural adaptation of the ELF questionnaire included the translation of the questionnaire into Portuguese language, linguistic adaptation and revision of grammar, idiomatic equivalents (reversed translations), and cultural adaptation. The ELF questionnaire was used individually by the parents, to assess the hearing ability in quiet and in noise of children, first without the HA and / or IC, and a second time with the use of these at different distances, in 12 auditory detection situations. 18 children were evaluated, 9 males and 9 females, aged 11 months to 3 years old with profound sensorineural hearing loss. T test and analysis of variance were used for statistical analysis. Analysis of the records of these children was performed, in order to get information about time of use of HA and / or activation of the cochlear implant, rehabilitation, and time of acquisition and causes of hearing loss. Results: There was no response to any of the situations without HA or CI. Significant difference between the scores obtained in quiet and in noise was observed and the relation between higher scores and higher intensity of the stimulus (low / normal / high). There was a relation between higher scores on the questionnaire and time of rehabilitation, time of use of hearing aids and activation of the IC. There was no significant difference between the group with HA and IC. Conclusion: The ELF instrument was translated and culturally adapted for the studied population. This was considered a reliable instrument for verifying and monitoring the initial stages of hearing behavior. Investigations are suggested to the ELF with children with different degrees of hearing loss. PIBIC/CNPQ

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 67

ANALYSIS OF BENEFITS OF FM SYSTEM ON SPEECH PERCEPTION FOR DEAF CHILDREN

Authors

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Abstract: Background: In recent years, the advent of digital technology and multichannel cochlear implants have enhanced the process of rehabilitation in the hearing impaired patient,



but yet noisy environment appears as constant complaint to the understanding of speech. According to international studies, the FM system has been touted as the best strategy to reduce the deleterious effects of distance, noise and reverberation on speech recognition. Purpose: To evaluate the benefits of FM system for deaf children, users of hearing aids (HA). Methods: The Brazilian Hearing in Noise Test (HINT) was used to evaluate 14 children aged seven to 17 years old with moderate to profound hearing impairment. The list of sentences were randomly applied in the following situations with HA and HA + FM: silence, noise front, noise right; noise left, and compared the results with noise compose with diffuse noise from four sound fields at 45th, 135th ,225th , and 315th. Results: Significant difference was observed in the recognition threshold of sentences with HA and with FM in all situations proposed, and no advantage of 10dB was observed in SNR with FM, only with diffuse noise from four sound fields at 45th, 135th ,225th , and 315th. Conclusion: The FM system had a favorable S / N ratio of at least +10 dB in pattern situations of test in noise, but with diffuse noise, although the difference between the HA and FM was significant, it did not reach the edge of 10dB advantage proposed by ASHA Guidelines for fitting FM systems. FAPESP

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 68

SPEECH PERCEPTION IN CHILDREN WITH NORMAL HEARING IN DIFFERENT SITUATIONS OF NOISE

Authors

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Abstract: Background: The ability to understand speech is affected by many factors during the assessments, as the level of presentation of the material, the type of presentation, and response characteristics of the listener, including language experiences and conditions of the auditory system. Thus, it emphasizes the importance of testing in noise, since individuals with the same capabilities of speech recognition in silence may have very different results in noisy environments. Aim: To assess speech perception in children with normal hearing in different situations of noise. Methodology: The Brazilian Hearing in Noise Test (HINT) was used to evaluate 21 children aged 7 to 17 years old with hearing within normal limits and without cognitive impairment. The list of sentences were randomly applied in the following situations: silence, noise front (0th), noise right (90th); noise left (90th), noise behind (180 th)and compared the results with noise compose with diffuse noise from four sound fields at 45th, 135th ,225th , and 315th. Results: There was significant difference in the recognition threshold of sentences in noise compose with diffuse noise from four sound fields at 45th, 135th ,225th , and 315th, with better responses to the noise compose. Conclusion: The significantly better responses for the noise compose in the study population suggest caution in the choice of stimulus in evaluations of speech perception in noise in hearing impaired children. FAPESP

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 69

PHONOLOGICAL AWARENESS IN HEARING IMPAIRED CHILDREN ATTENDING AN AURIORAL REHABILITATION PROGRAM

Authors

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Abstract: Metalinguistic skills, especially phonological awareness, are important predictors for the development of written language in hearing children. Some studies have investigated the role of these skills in the appropriation of reading and writing in hearing impaired children. The aim of this study was to evaluate the phonological awareness of 15 children presented with hearing impairment, aged between 7 and 12 years, fitted with hearing aids and/or cochlear implant, attending an everyday program of Aurioral rehabilitation, performing speech therapy twice a week. The Phonological Abilities Profile – PAP (Carvalho, Alvarez, Caetano, 1998) was the instrument proposed to assess the phonological awareness, and applied individually. It was observed that 40% of the children scored within the expected age range and 60% were classified with a score lower than that expected for their age. The phonological awareness tasks with lower scores for all children evaluated were: phoneme level tasks, syllable reversal task and the sequence rhyme task, which requires auditory memory skill. The assessment items that included the analysis, segmentation and syllable adding, were the ones in which the children scored better. Therefore, it is important to emphasize the work with metalinguistic abilities and the auditory memory in speech therapy. Furthermore, metalinguistic skills stimulation group programs can be a useful alternative to optimize the development of reading and writing in hearing impaired children.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 70

LONGITUDINAL PROSPECTIVE STUDY ON UNILATERAL SENSORINEURAL HEARING LOSS IN CHILDREN

Authors

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Institution

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Abstract: Introduction: The increasing expansion of the services of the Hearing Health in Brazil, due to the “Política Nacional de Atenção à Saude Auditiva” (National Policy of Hearing Health Care), 2003, has been favoring the identification and diagnosis of babies with uni lateral hearing loss, which in the past could have passed unnoticed during the first years of life. The hearing difficulties resulting from the unilateral hearing loss can interfere in the development of the speech in children, as they will find it hard to recognize speech in noisy circumstances and also localize sounds. They can have difficulties in understanding the speech from a distance and to follow a group conversation. These difficulties tend to grow with the increasing of the hearing loss degree in the affected ear. Objective: The aim of this research is to develop a longitudinal prospective study following babies and small children diagnosed with unilateral sensorineural hearing loss (SNHL), to be performed in the Hearing in Children Center at Pontifical Catholic University of São Paulo (CeAC/DERDIC/ PUC–SP), Brazil. Methodology: Five children with unilateral SNHL (one with severe degree and four with profound) are being assessed every six and/or four months, depending on the characteristics of the child, to complete the audiology monitoring and to follow the development of speech and language. The protocol of evaluation of speech and language includes interviews with the parents, MacArthur inventories – two versions being used depending on the child’s age and interaction between mother, child and speech therapist, which are being recorded on DVD for further completion Protocol of Behavioral Observation (Zorzi & Hage, 2004). The audiology assessment includes the monitoring of the middle ear conditions and the progression of loss in both ears, the already affected one and the normal functioning one. Results: From the five subjects that have been followed we have a 6- month- old child with hearing difficulties associated to children with unilateral loss. As he has only taken part in one assessment there is still no data for a follow up. For the other four subjects, the partial results show: the audiology diagnosis remains stable until present; the children have not presented any disorder of the outer or middle ear during the assessment period. Concerning speech and language, only one child with profound unilateral hearing loss is behind its age group. The aspects of cognitive development are considered normal for their respective ages. Conclusion: Following a systematic work with the families regarding the implications of the alterations in the hearing and the conditions of the child, the interaction style has been modified and important adjustments have been made. This study shows the difficulties of involving the family in therapeutic programs once the child is able hear in day to day situations. It also points for the need of assessing and intervening before a delay in the development of the child is consolidated. The usage of amplification is an aspect in discussion, explanations and orientation for those families are proving to be effective.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 71

LONGITUDINAL PROSPECTIVE STUDY OF CONDUCTIVE UNILATERAL HEARING LOSS IN CHILDREN

Authors

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Abstract: Introduction: The increasing expansion of the services of the Hearing Health in Brazil, due to the “Política Nacional de Atenção à Saude Auditiva” National Policy of Hearing Health Care, 2003, has been favoring the identification and diagnosis of babies with unilateral hearing loss, which in the past could have passed unnoticed during the first years of life. The hearing difficulties resulting from the unilateral hearing loss can interfere in the development of the speech in children, as they will find it hard to recognize speech in noisy circumstances and also localize sounds. They can have difficulties in understanding the speech from a distance and to follow a group conversation. These difficulties tend to grow with the increasing of the hearing loss degree in the affected ear. In this study, results will be presented. Objective: The aim of this research is to develop a longitudinal prospective study following babies and small children diagnosed with unilateral sensorineural hearing loss (SNHL), to be performed in the Hearing in Children Center at Pontifical Catholic University of São Paulo, Brazil. Methodology: Eight children with moderate unilateral conductive hearing loss are being assessed every six and/or four months, depending on the characteristics of the child, to complete the audiology monitoring and to follow the development of speech and language. The protocol of evaluation of speech and language includes interviews with the parents, MacArthur inventories and interaction between mother, child and speech therapist, which are being recorded on DVD for further completion of Protocol of Behavioral Observation (Zorzi & Hage, 2004). The audiology assessment includes the monitoring of the middle ear conditions and the progression of loss in both ears, the already affected one and the normal functioning one. Results: From the eight subjects, two of them with six months old children have hearing difficulties associated to children with unilateral loss. As they have only taken part in one assessment there is still no data for a follow up. For the other six subjects, the partial results show: the audiology diagnosis remains stable until present in four cases; two children have presented disorder of the middle ear during the assessment period. Concerning speech and language, two children moderate conductive unilateral hearing loss are behind their age group. The aspects of cognitive development are considered normal for their respective ages. In the relationship mothers-children, nothing was noticed regarding spontaneous adjustments that would favor the hearing of the acoustic sound. Conclusion: Following a systematic work with the families regarding the implications of the alterations in the hearing and the conditions of the child, the interaction style has been modified and important adjustments have been made. This study shows the difficulties of involving the family in therapeutic programs once the child is able hear in day to day situations. It also points for the need of assessing and intervening before a delay in the development of the child is consolidated. The usage of amplification is an aspect in discussion, explanations and orientation for those families are proving to be effective.

POSTER SESSION I - A DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 71A

AUDITORY HANDICAP: COMPARATIVE ANALYSIS OF THE OBTAINED RESULTS IN THE QUESTIONNAIRES APPLICATION FOR SENIORS AND CARETAKERS

Authors

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Abstract: The aim of this study was to compare the awareness level of the hearing impairment (HI) in institutionalized elders to the Caregivers knowledge of a long permanence Institution on communication strategy (CS). Audiological findings were analyzed with the handicap self-perception, taking into account the elder hearing impairment degree. Casuistry was composed by 12 senior and 10 caretakers of the same institution. For self-perception analysis of auditory handicap, self-perception evaluation questionnaire was used, NHHI - Nursing Home Hearing Index Handicap, that is a Hearing Handicap Index of Seniors in Asylum, that evaluates the HI Psychosocial aspects and also a questionnaire that analyzed the caretakers ` knowledge about the CS, followed by an educational lecture about HI and CS and questionnaire reapplication. From obtained results, 90% of the caretakers affirmed easily identify a patient with HI; however, 75% of the seniors alleged that had never been investigated about the possible hearing alterations. Only 20% of the seniors interviewees demonstrated that understood the questioned subject and 91.6% told that had never been left aside in conversations for not hear well, and most of these presented neurosensory hearing loss (NHL) of light degree. On the other hand, 30% of the interviewed caretakers have always used repetitions to effective communication with seniors. It was observed that 50% of the seniors use the expressions “what?” or “excuse me? / sorry” when people speak for the first time, of these, only 1 presented NHL of moderate degree, being the others of light degree, although 60% of the caretakers answered that seniors with deep HI always isolate themselves. From interviewees seniors, 91.6% told not to have difficulty in hearing radio or television, nonetheless, 60% of caretakers increase vocal intensity to talk to seniors and 50% told that elders do not simulate understanding. It was still possible to observe

that 60% of seniors use a third person in dialogue. Then, it is understood that most elders do not deviate social activities of which should participate because do not hear well, but it is well-known their discomfort related to the communication lack due to HI. The results indicated that psychosocial aspects, the HI configuration itself and the slow process, but progressive that is found as characteristic of presbycusis influence auditory handicap perception and that most caretakers do not know that seniors present hearing alteration due to ageing, what leads to conclude that the only elders who present difficulties in communication are those who have had HI diagnosis or the ones who wear hearing aid device. CS is, many times, misused, what harms communication even more, however, the lectures had palliative effect, as most caretakers affirmed to practice CS that did not know previously. Thus, it gets necessary the presence of a speech therapist to, if possible, prevent and/or to rehabilitate the speech alterations, from close orientations to the multidisciplinary team to programs of auditory monitoring, irrespective the etiology and the effects they have.

POSTER SESSION I - B DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 71B

DEAF CHILDREN'S FAMILY IDENTITY CONSTRUCTION AFTER NEWBORN HEARING SCREENING

Authors

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Abstract: Communication is a key component in human relations and especially for parents that have to deal with the diagnosis of their child being deaf and are worried about how to communicate with their children. Many professionals looked at the identification of hearing loss, audiology evaluation, medical diagnosis, hearing aid fitting adaption and speech therapy, always keeping the child's welfare in mind. However, the new challenge is the children and families well being. This is small part of the big picture. The incentive behind advanced technology brings forth serious issues and therefore a revolution of mannerism behaviors that are building blocks among the interlocutors and speech therapists. To come to think about the families of the children who were screened and identified deaf in the maternity ward, we began to meet the new challenges to understand what tools they had inside of themselves to better understand and deal with the discovery of their new identity: - parents of deaf children. The analysis results showed that the new identity structural model is established while constructing identities. Parents of deaf children question more and have presented a tendency to seek technological resources to obtain more knowledge to make the right decision for the family, whether to communicate using sign language or spoken language is a complex and an ongoing process. However, establishing the relationship between affirmation and acceptance still needs to be further discussed in society and accepted as part of the early intervention therapeutic process. In this manner, we conclude that these families can more easily achieve their goals when they have laws and social support to back them up.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 72

COMPARISON OF AUDITORY STEADY-STATE RESPONSES AND TONE-EVOKED AUDITORY BRAINSTEM RESPONSE THRESHOLDS IN CHILDREN

Authors

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Abstract: Summary: The tone-evoked ABR to air and bone-conduction is the current "gold standard" threshold to measure auditory sensitivity on infants and children too young for traditional behavioral methods. The auditory steady-state responses (ASSRs) are an alternative to tone-evoked ABR and this technique has recently drawn considerable attention of audiologists. In order for the auditory steady-state response (ASSR) to be incorporated into the children diagnostic test battery, there's the necessity of clinical comparisons concerning the current "gold standard" procedure, the tone-evoked ABR. Objective: The purpose of this study was to compare ASSRs thresholds to tone-evoked ABR thresholds at 500, 1000, 2000, and 4000 Hz on infants and young children with sensorineural hearing loss. Methods: The study included 17 infants and young children whose ages were between 2 months and 3 years old (34 ears), aged from 2 to 36 months, which means an average age of 11 months, with sensorineural hearing loss. The tone-evoked ABR and ASSRs were recorded with an Intelligent Hearing Systems device. For recording the tone-evoked ABR, toneburst stimuli consisted of 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz condensation tones with a Blackman gating function of two cycle rise-fall time and zero plateau were presented at repetition rates of 39.1/s to a maximum level of 100 dB nHL. Threshold was defined as the lowest level that resulted in a replicable wave V response as determined by two judges experienced. For recording the ASSRs, multiple simultaneous tonepip stimuli consisted of a combination of four carrier tones of 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz at repetition rates of 77, 85, 93 and 101 Hz for the left ear and 79, 87, 95 and 103 Hz for the right ear were presented bilaterally to a maximum level of 120 dB SPL. Threshold was defined as the minimum level at which the response could be automatically detected by the system. Results: The Pearson correlation of ASSRs thresholds and tone-evoked ABR thresholds at 500, 1000, 2000 and 4000 Hz exceeded 0.85 for all frequencies, showing a good correlation between ASSRs thresholds and tone-evoked ABR. Conclusions: ASSRs have strong correlations to tone-evoked ABR on infants and young children with sensorineural hearing loss. The results suggest that probably ASSRs will be incorporated into the diagnostic test battery; nevertheless, before ASSRs may be substituted for tone-evoked ABR, additional data is necessary.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 73

AUDITORY STEADY-STATE RESPONSES TO NARROW BAND CE-CHIRPS IN CHILDREN WITH SENSORY-NEURAL HEARING LOSS

Authors

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Abstract: Summary: Multiple auditory steady-state response (ASSR) is a promising tool for objective frequency-specific assessment of hearing thresholds in children. Traditional ASSR stimuli (AM, AM/FM, Exponential) activate a specific area on the basilar membrane. Within this band of stimulation, the stimulus takes time to travel up the basilar membrane (cochlear travel time) causing the stimulated hair cells to fire at slightly different times, broadening and weakening the combined response. Narrow bands CE-chirps have been developed to provide a compensation for cochlear travel time, providing a better synchronization of the neural response. The results are evoked potentials with increased response amplitudes that are easier to detect. The addition of a new detection method, which combines both phase coherence and response magnitude components, but more importantly, which uses additional information carried by the higher response harmonics, has been reported to reduce the test time up to 50% compared to traditional technology. These stimulus and detection technologies have been incorporated into the system Interacoustics ASSR. Apart from any potential time saving the mentioned new ASSR technology may or may not provide, it is very important to document, how these new technologies compare to traditionally used technologies like Tone Burst ABR, when doing threshold assessments in different patient population in clinical practice. This is done by comparing such ASSR results to the gold standard of carefully executed Tone Burst ABR and, when possible, to behavioral testing. Objective: The purpose of this study was to compare ASSR to Tone Burst-ABR and to behavioral thresholds, at 500, 1000, 2000, and 4000 Hz, in infants and young children with sensory-neural hearing loss. Methods: The study included 30 infants and young children ages between 2 months and 6 years old, with various degree of sensory-neural hearing loss. The response thresholds to multiple ASSRs to Narrow Band CE-Chirps using the higher harmonics detection method as implemented in the Interacoustics ECLIPSE and described above, were compared to Tone Burst ABR thresholds, and to the behavioral thresholds. The behavioral tests (BOA/VRA) were performed by a second researcher, who did not have access to the data of electrophysiological assessment (blind study). Results: The correlation factor of ASSR and Tone Burst-ABR thresholds at 500, 1000, 2000 and 4000 Hz exceeded 0.85 for all frequencies, considered though a strong correlation. Between ASSR and behavioral tests, the correlations are strong, with Pearson r values exceeding 0.80 at each of the test frequencies. Conclusions: Multiple ASSR to narrow band CE-chirps detected by higher response harmonics have strong correlation to tone-evoked ABR and to behavioral thresholds in infants and young children. The results suggest that multiple ASSR to narrow band CE-chirps will be soon incorporated into the diagnostic test battery.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 74

COMPARISON OF ALTERNATIVE METHODS IN NEONATAL HEARING SCREENING: TONE-BURST OTOACOUSTIC EMISSIONS AND TIME-FREQUENCY FILTERING

Authors

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Abstract: Introduction: The click-evoked otoacoustic emission (CEOAE) technique has a drawback of high referral rate in first time neonatal hearing screening and an associated high false positive rate. Among several factors, noise has been highlighted as the major contributor to false positive results in OAE screening programmes, particularly affecting lower frequency CEOAE recordings. Two alternative strategies^{1,2} a combined CEOAE plus 1 kHz tone burst evoked OAE (TBOAE) response and a time-frequency filtering technique³ have been developed to improve CEOAE detection rates in the lower frequency ranges, and to concurrently reduce the referral rates in initial CEOAE neonatal hearing screening. Objectives The aim of the present study was to compare the above two methods in a large group of neonates and explore their feasibility in a universal hearing screening program. Methodology: A total of 1079 neonates (2158 ears) from well-baby nurseries were enrolled. Both CEOAEs and TBOAEs were recorded in the nonlinear response mode. CEOAE measurement used the default iQuickScreen⁴ acquisition mode of Echoport ILO 292 USB system (Otodynamics Ltd., UK). A tone burst stimulus with a 1 kHz centre frequency was used to elicit a TBOAE response for each neonate. A SNR iY 3 dB was used to define a clear response at each frequency band. All raw CEOAE data obtained by ILO V6 software were offline transferred into MATLAB programmes which were developed in-house for the further time-frequency filtering. The principal steps for signal processing were to (1) map the original CEOAE recordings on the t-f domain by continuous wavelet transform (CWT), (2) localize the specific area of lower frequency noise on the t-f domain and reduce noise using a 2D t-f filter, then (3) reconstruct the processed signals using an inverse continuous wavelet transform (ICWT). Parents were informed of the results based on the CEOAE-only screening outcomes and referred babies were rescreened within one month of initial screening. Results: Comparing the two alternative protocols, results showed an advantage in using the t-f filtering approach over the 1 kHz TBOAE/CEOAE approach for generating better SNRs, greater pass rates, and lower noise levels at 1 and 1.4 kHz frequency bands (p < .05). In terms of the signal levels at the above two frequency bands, TBOAE responses were significantly greater than in comparable frequency regions for the denoised CEOAE response with the t-f denoising method (p < .05). Conclusion: This study compared the effectiveness of using a combined 1 kHz TBOAE/CEOAE protocol as well as a newly developed signal processing algorithm to improve OAE detection at lower frequency bands, and hence to reduce the number of refer cases in initial OAE screening. Both approaches achieved the research aims, with the t-f denoising approach being better than the combined TBOAE/CEOAE method for improving overall pass rate and OAE detection at low frequency bands.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 75

AUDIOLOGIC FINDINGS IN PSEUDOHYPOACUSIS: CASE REPORT

Authors

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Abstract: INTRODUCTION: Pseudohypacusis or nonorganic hearing loss are terms used to describe a hearing loss that appears greater than can be explained on the basis of pathology of the auditory system. Individuals with pseudohypacusis, usually demonstrate exaggerated behaviors regarding communication, such as putting their hands over the ear in order to amplify the sounds or state they are not hearing anything when asked about their hearing difficulties. During the auditory evaluation, these patients show inconsistent responses, without any specific audiometric configuration and also present disagreements between pure tone and speech stimuli, with better results in speech audiometry. Financial gain and psychosocial aspects such as excuses for lack of success, advancement in position and poor marital situations are cited as contributors to nonorganic hearing loss. OBJECTIVE: To describe the audiological findings in a woman with pseudohypacusis. METHOD: MGOB, 48 years old, female, was referred for audiological evaluation by a ENT doctor. The patient had a normal magnetic resonance of auditory canals and two previous hearing assessments with inconsistent results considering pure tone thresholds, speech audiometry and acoustic immittance measures. Both exams revealed bilateral mild to moderate sensorineural hearing loss. For this case report, procedures included clinical history, pure tone audiometry,



speech audiometry, acoustic immittance measures, transient evoked otoacoustic emissions and auditory brainstem response. RESULTS: In the clinical history the patient reported she had been having great hearing difficulties especially on the right ear for ten years without apparent cause. Auditory evaluation was carried out in two sessions of 45 minutes each. During the first session, the patient showed difficulties for pure tone and speech audiometry revealed results compatible to normal peripheral hearing (normal hearing thresholds, normal acoustic immittance measures, present transient and distortion product evoked otoacoustic emissions). Click evoked auditory brainstem response showed normal nerve conduction for neurologic protocol and electrophysiologic thresholds compatible with normal hearing in the frequency band of 2000-4000 Hz bilaterally. CONCLUSION: Audiological evaluation revealed hearing thresholds within normal limits bilaterally. This case highlights the importance of electroacoustic and electrophysiologic measures as a complement in the differential diagnosis in cases of nonorganic hearing loss.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 76

ASSOCIATION BETWEEN HEARING LOSS AND DEPRESSION IN NON-INSTITUTIONALIZED ELDERLY PEOPLE

Authors

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Abstract: The population aging is a worldwide phenomenon. This process produces various physiological alterations and the auditory system is one of the first observed. Hearing loss causes difficulties in speech comprehension, which in turn originates detachment from family and social groups. This isolation may lead to depression. This study's objective was to verify the association between hearing loss and depression in a group of non-institutionalized elderly. Individuals 60 years and older who performed a complete hearing evaluation, in an acoustic booth, and answered the Geriatric Depression Scale (GDS) questionnaire participated in this study. The audiometry used hearing thresholds for air (250Hz to 8000Hz) and bone conduction (500Hz to 4000Hz), by an Interacoustics model AD-28 audiometer. Using the same equipment, participants tested for speech audiometry (Speech Recognition Percent Index and Speech Reception Threshold). The acoustic immittance measures were performed with the Interacoustics model AT235 middle ear analyzer. The presence and level of hearing loss were determined according to the World Health Organization's (WHO) classification. The analysis of acoustic immittance measures used the classification proposed by Jerger (1970). The study evaluated 54 elderly people, 26 (48.1%) females and 28 (51.9%) males. Their ages varied between 60 and 84 with an average of 70.4 ± 7.16 years of age. Regarding their hearing level, 39 (72.2%) presented altered hearing thresholds, of those 17 (31.5%) had a slight hearing loss and 22 (40.7%) a moderate hearing loss. Twenty-five (46.3%) participants had signs of depression, 23 (42.6%) had slight to moderate depression and 2 (3.7%) severe depression. Data analysis demonstrated association between the presence of hearing loss and depression (p=0.016), considering that of the 25 (46.3%) elderly people with depression, 22 had hearing loss. Even though it is not significant (p=0.18), the association between the level of hearing loss was positive in relationship to the severity of depression signs. In other words, the larger the hearing loss, the larger the severity of depression signs. Data analysis demonstrates a tendency to this association, considering that of the 29 elderly people (53.7%) with absence of depression, the majority presented normal hearing thresholds (41.4%). Taking in to consideration the 23 (42.6%) elderly people with slight to moderate depression signs, only 3 (5.6%) presented normal hearing thresholds. The remaining had slight (14.8%) or moderate (22.23%) hearing loss. Individuals with severe depression (3.7%) presented slight (1.8%) or moderate (1.9%) hearing loss. Therefore, the study concludes that regarding the researched elderly people, there is a strong association between hearing loss and depression signs and a tendency to exist an association between the level of hearing loss and the severity of depression signs

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 77

ASSOCIATION BETWEEN DYSPHONIA AND HEARING LOSS IN MIDDLE-AGE AND ELDERLY PEOPLE

Authors

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Abstract: Aging is a process marked by the decline in functioning of various organs of the body, among them hearing loss and vocal alterations like dysphonia. These disorders are usually diagnosed and treated by speech-language therapist and audiologist. There are indications that, in many cases, hearing loss and dysphonia are associated. The presence of hearing loss may significantly influence vocal quality, aside from the changes brought by aging, as a result of the tendency to increase the voice intensity (loudness), by the difficulties in its perception. Therefore, hearing loss may be a precipitating or aggravating factor of dysphonia. Based on these premises, this study's tried to verify if an association existed between hearing loss and dysphonia in a group of middle-age and elderly adults. The participants screened for hearing loss using a pure tone audiometry test in an acoustically treated booth. Hearing test used thresholds for air conduction (from 250Hz to 8000Hz) and bone conduction (500Hz to 4000Hz), to determine type and level of hearing loss. In order to measure the level of hearing loss the study used the classification proposed by the World Health Organization. To verify the presence of dysphonia, the participants performed perceptual-auditory analysis of the vocal type, from the point of view of three evaluators. The study's sample involved 27 elderly people, 21 (77.8%) females and 6 (22.2%) males. The participant's age ranged between 54 and 89, with an average of 68.5 ± 8.8 years of age. Among the participants, 23 (85.2%) presented hearing loss while 4 (14.8%) were normal. The number of participants with dysphonia, was the same, than those with hearing loss, 23 (85.2%) presented vocal alterations and 4 (14.8%) presented adapted voice, which means without signs of alteration. Data analysis demonstrated evidence of a strong association between dysphonia and hearing loss in the studied group (p=0,000). These results establish the need of joint action among speech-language therapist and audiologist, as well as reinforce the importance of interdisciplinary action for the care of individuals with voice and hearing disorders.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 78

INTENSITY PERCEPTION OF TINNITUS AND TINNITUS HANDICAP INVENTORY RESULTS IN A GROUP OF ELDERLY PEOPLE

Authors

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Abstract: The population aging is a phenomenon observed in both developed and developing countries. Increase in life's expectancy is accompanied by a series of physiological alterations, among them presbiacusis, which is often accompanied by tinnitus. Several authors reported association between tinnitus and the affected individuals' quality of life. This study's aimed to verify the association between intensity of the perception of tinnitus and the handicap level caused by this symptom in a group of elderly individuals, as well as to verify the influence of the sex variable in the level of handicap. In this study 36 elderly people (60 years of age and above) answered a questionnaire on socio-demographics and tinnitus and the Tinnitus Handicap Inventory (THI). Data analysis demonstrated that the major part of the elderly were female (72.2%). The average age was of 68.67 ± 6.84 years. Regarding tinnitus intensity, 16 (44.4%) described their tinnitus as weak; 13 (36.1%) as average and 7 (19.4%) as strong. In relationship to THI scores, 15 elderly (41.6%) showed a handicap level 1; 11 (30.56%) handicap 2; 4 (11.1%) handicap 3; 4 (11.1%) handicap level 4 and 2 (5.5%) handicap level 5. Analyzing the intensity perception of tinnitus described by elderly people and the level of handicap measured through THI, it was observed that there was no statistically significant association (p = 0.251). Likewise there was no association between sex and handicap level (p = 0.300). We concluded, therefore, that the intensity of tinnitus perception described by participants and sex were not determining factors for worsening the handicap caused by tinnitus.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 79

STUDY OF OTOACOUSTIC EMISSIONS IN NORMALLY HEARING WORKERS OF A SHOE INDUSTRY EXPOSED TO INDUSTRIAL NOISE

Authors

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Abstract: A worker exposed to occupational noise risks his/her health and predisposes him/herself to present a range of auditory and extra-auditory effects caused by high levels of sound pressure. Among the auditory effects is hearing loss. Studies have shown evidence that the changes in otoacoustic emission examinations results can be detected before the lowering of audiometric thresholds. Therefore the goal of this research was to verify the presence of transient evoked otoacoustic emissions (TEOAE) in ears of normally hearing people exposed to occupational noise. For this study examined 87 ears of 53 shoe industry workers, stationed at the cutting sector. The decision to study this sector was due to the fact that noise was the only agent present. In other sectors of the industry there was concomitant exposure to noise and chemical products. The evaluation included the patient's medical history, meatoscopy, threshold tonal audiometry, measures of acoustic immittance and the study of transient evoked otoacoustic emissions (TEOAE). The study found that 94.25% of the ears presented TEOAE. There was no side (left or right ear) difference in the number of ears that presented TEOAE. Neither time worked at the industry nor sex were determining factors for the presence of TEOAE. It should be pointed out that all the ears that did not present TEOAE were of individuals exposed to noise for less than one year, suggesting that other causes were responsible for the lesion in external ciliated cells. The study concluded that almost all evaluated workers' ears presented otoacoustic emissions. Therefore, in this group, the exposure to noise was not determining for a lesion of the external ciliated cells. One of the factors that can determine this type of result is the preventive actions adapted by the company.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 80

A STUDY OF OTOACOUSTIC EMISSIONS IN INDIVIDUALS EXPOSED TO NOISE AND CHEMICAL PRODUCTS

Authors

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Abstract: Chemical products are just as harmful as noise to the auditory system, and these factors may act isolated or in synergic form. Aside from audiometry, transient evoked otoacoustic emissions (TEOAE) may be useful in monitoring and preventing hearing loss, because the record of the TEOAE demonstrates alterations in the response before they are registered in hearing threshold. This study has the following objectives: to verify the absence of TEOAE in workers with normal hearing thresholds exposed to noise and/or chemical products, as well as to determine if there was an association between time at work and the absence of otoacoustic emissions. Initially we invited 315 workers of a chemical industry to participate in this study. The industry produces varnish, paint, enamel, and lacquer. Of those workers, 34 could not participate because of their hearing loss. Therefore, 281 normally hearing workers participated of the study, 74 with no risk exposure (administration), 38 exposed to noise, 40 exposed to chemical products and 129 exposed to noise and chemical products. All answered a socio-demographic questionnaire and participated in a meatoscopy, pure tone audiometry and TEOAE tests. The participants ranged in age between 21 and 59, and the length of time worked at the company varied from 6 months to more than 15 years. Among the evaluated workers, 56 (19.9%) presented absence of otoacoustic emissions, 8 (2.8%) being from the sector considered to be of no risk (administration); 8 (2.8%) were exposed to noise; 6 (2.1%) exposed to chemical products and 34 (12%) exposed to noise and chemical products. Along with workers with absent otoacoustic emissions, 9 (3.2%) worked in the company between 6 months and 1 year, 23 (8.1%) between 2 and 5 years, 10 (3.5%) between 6 and 10 years, 5 (1.7%) between 11 and 15 years and 9 (3.2%) for more than 15 years. We observed that, even with exposure to noise and/or chemical products, the majority of workers had otoacoustic emissions present. Analyzing the data according to the type of risk, in chemicals and noise sector there was more absence of TEOAE when

compared to other sectors, followed by the noise sector, indicating that the presence of noise in this company is more disturbing for in alteration of ciliary cells than the chemical factor. The stratification of workers according to the time worked at the company with otoacoustic emissions present revealed differences in the prevalence of absent TEOAE, because the larger number of absences was found in the group that is working for a period of 2-5 years in the company, followed by the 6 to 10 years group. This may be explained by the fact that a large proportion of workers that had been at the company for more than 15 years were part of the group that presented altered hearing thresholds and therefore, were excluded from this study. This indicates, however, that short periods of exposure may be sufficient to make TEOAE absent.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 81

HORMONAL FINGERPRINT AND SOUND PERCEPTION: A SEGMENTATION MODEL TO UNDERSTAND AND PREDICT INDIVIDUALS' HEARING PATTERNS BASED ON OTOACOUSTIC EMISSIONS, SENSITIVITY TO LOUDNESS, AND PRENATAL EXPOSURE TO HORMONES.

Authors

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Abstract: A same sound stimulus of 6 kHz can be perceived 4 times louder by some individuals, and this in a group of age- and gender-matched subjects with no reported hearing disorder. Objectives: Some individuals are more sensitive to loudness and would benefit from an adapted listening experience. This study aimed at explaining the hearing differences among age- and gender-matched individuals with no reported hearing disorders. Method: The experimental group comprised of 16 Caucasian men in their thirties. The OtoAcoustic Emissions of the right ear were measured with a clinical OAE reader. The influence of prenatal hormones was measured on the right hand with a digital vernier calliper. Results: At 6 kHz, 4 subjects presented a Signal to Noise Ratio (SNR) higher than 25dB, 8 subjects presented a SNR between 15 and 24dB, and 4 subjects presented a SNR lower than 14dB. The subjects with the higher SNR reported being sensitive to high-pitched sounds and presented a hormonal fingerprint very testosterone- or estrogen-driven. The subjects with the lower SNR reported no sensitivity to loudness and presented a balanced hormonal fingerprint. Conclusion: It can be concluded that hearing differences among age- and gender-matched individuals is related to prenatal exposure to hormones. Key Words: OAE, SNR, Hearing, Loudness, Hormones, Hormonal Fingerprint, Digit Ratio

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 82

ELECTROPHYSIOLOGICAL HEARING ASSESSMENT IN A GROUP OF INFANTS WITH MYELOMENINGOCELE AND CHIARI II MALFORMATION

Authors

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Abstract: Introduction: Myelomeningocele or spina bífida is the most complex congenital abnormality in the central nervous system compatible with life. In the Chiari II malformation, the cerebellum and part of brainstem decollated downwards, in direction to the neck. This malformation occurs in nearby 90% of the patients with myelomeningocele and one in which five patients with this malformation develop signs and symptoms of cerebral dysfunction. Studies realized with electrophysiological measures of hearing showed that individuals who carry this malformation showed auditory pathway alterations at the brainstem level. Objective: To evaluate the integrity of auditory pathways and the electrophysiological thresholds of newborns with associated mielomeningocele and Chiari II malformations. Method: Seven newborns, male and female participated of the study, four full-term newborns and three pre-term with average of 42,6 weeks of post-conceptual age diagnosed both with mielomeningocele and Chiari II malformation. All the infants underwent evoked transient otoacoustic emissions (TOAE), auro-palpebral reflex and auditory brainstem response (ABR). The TOAE was performed with the equipment Echochek- ILO OAE Screener manufactured by Otodynamics using the "pass and fail" criterion of the equipment, which considers presence of otoacoustic emissions when the responses were 6 dB above of noise in the frequency bands. Auro-palpebral reflex was performed with agogo at 100 dB SPL and was observed the contraction of the orbicularis oculi with the presentation of the stimulus. The ABR was performed in the equipment Smart EP of Intelligent Hearing Systems with click stimuli of rarefaction polarity. Initially, auditory pathway integrity was investigated at 80 dB, considering the absolute latencies of waves I, III and V and I-III, III-V and I-V interpeak latencies. The lowest intensity capable of eliciting wave V with tracing reproducibility was considered as the electrophysiologic threshold. An electrophysiologic threshold of 30 dB was considered normal and for absolute and interpeak latencies the suggested norms of the equipment manufacturer were considered. Results: All the subjects showed presence of TOAE in both ears and 28,6% of the subjects showed absence of auro-palpebral reflex. Regarding to absolute latencies and interpeak latencies in ABR, 42,9% showed alterations in wave V, 85,8% showed alterations in the interpeak I-III and 100% of the subjects showed alterations in the interpeak III-V and I-V, revealing 100% of retrocochlear alteration. Regarding electrophysiologic threshold, 71,5% of the subjects showed threshold within the normal range and 28,5% showed abnormal thresholds. Conclusion: Newborns with mielomeningocele and Chiari II malformations show high occurrence of retrocochlear alterations and, thus, the assessment of evoked auditory potentials and evoked transient otoacoustic emissions are fundamental for the diagnosis and early intervention in this children.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 83

AIR AND BONE CONDUCTION AUDITORY STEADY-STATE RESPONSE IN INFANTS WITH CONDUCTIVE ALTERATION

Authors

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Abstract: Introduction: Middle ear alterations in the first months of life deprive the child of important sensory stimuli essential to normal development. Early identification of hearing disorders has been increasingly more frequent because of the advent of hearing tests in neonatal scenario. Therefore, the improvement of audiological diagnostic techniques is mandatory, especially to measure the degree of auditory deprivation resulting from conductive alteration. The innovation in this area is the auditory steady-state response, which known by the facility and effectiveness in obtaining responses air and bone conduction thresholds. Objective: To identify air and bone conduction auditory steady-state responses in infants with conductive alteration. Method: Fifteen children, between zero and four months of life, from the program of newborn hearing screening of the Federal University of São Paulo – UNIFESP were evaluated. All the children, evaluated in natural sleep, have undergone evoked transient otoacoustic emissions, immittance measures, otorhinolaryngology evaluation and auditory steady-state response. Minimum levels of auditory steady-state response were established in 1000, 2000, 3000 and 4000 Hz using tone pips with a modulation ratio of 77 to 103 Hz by the equipment Smart EP of Intelligent Hearing System. Air conduction stimuli were delivered by insert earphone and the responses were registered with surface electrodes and the detection of the response was performed in the frequency domain by statistic tests. For bone conduction recording, the vibrator was positioned in the forehead, to record the best bone response, also with surface electrodes. Results: All infants showed absence of otoacoustic emissions, type "B" tympanograms with absent of acoustic reflexes. Otorhinolaryngology evaluation showed opacity or retraction of the eardrum with normal external auditory canals according to the age. The responses of steady-state by air conduction were registered between 40-50dBHL and the responses by bone conduction were registered between 10-15dBHL, all based in the equipment correction factors, evidencing a air-bone gap. The exam took approximately 80 minutes. Conclusion: It is possible to identify air and bone conduction auditory steady-state thresholds in infants from zero to four months. The air-bone gap identifies precisely the auditory impairment of the infant. This evaluation is extremely important for the differential diagnosis between the conductive and sensorineural hearing losses allowing the adequate intervention.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 84

RESULTS OF A PROGRAM OF NEWBORN HEARING SCREENING IN CUIABÁ.

Authors

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Abstract: Introduction: The ability to communicate is a distinction of human existence, one of the largest contributors to the welfare of any individual. Within this context, hearing plays a key role, since it is considered the cornerstone on which to build the intricate system of human communication. In this sense, the hearing sensory deprivation in children involves not only their communication, but their potential linguistic, emotional and social. The Brazilian Committee on Hearing Loss in Children recommends that ensure the implementation of Universal Newborn Hearing Screening. The test should be performed in all children at birth or no later than 3 months of age and, if confirmed hearing loss should receive intervention until 6 months. Aim: To present the results in a program of newborn hearing screening in the city of Cuiabá in the period 2008-2009. Methodology: The data gathered refer to infants submitted newborn hearing screening by means of evoked otoacoustic emissions by transient stimulus, using the analyzer EOA Biologic. The tests stored in the computer service were analyzed for the number of infants who passed or failed at the screening, as well as the correlations with the same age and gender. Results: In low-risk group of 1979 newborns tested, 92% passed, failed 2% and 6% did not return to the service making the completion of stage screening and diagnosis inconclusive. In high-risk group, the 110 infants tested, 77% passed, 2% failed and 28% did not return to the service. Conclusion: The results of the program agree with that proposed by international and national references and contributes to a multicenter study in Brazil. Emphasized the importance of monitoring in the period after the screening, in order to avoid high number of children who do not appear in the diagnosis.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 85

THRESHOLD PREDICTION IN CHILDREN WITH SENSORINEURAL HEARING LOSS USING ASSR, TB-ABR, C-ABR AND ACOUSTIC REFLEX.

Authors

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Abstract: Introduction: The mainly question regarding pediatric audiological diagnosis is determining procedures to configure reliable results which can be use to predict hearing thresholds by frequency-specific. Objective: To evaluate the accuracy with which auditory steady-state response (ASSR), tone burst auditory brain stem response (Tb-ABR), click-evoked auditory brainstem response (c-ABR) thresholds and acoustic reflex formulae predict behavioral thresholds in children with sensorineural hearing loss, using a within-subjects design. Methods: ASSR, Tb-ABR and c-ABR and acoustic reflex thresholds were recorded in a group of children with sensorineural hearing loss (23 children age 1 to 7, mean average 3 years). Evoked-potential and acoustic reflex thresholds were recorded and compared with behavioral, pure-tone thresholds. Results: The results suggested both ASSR (0.70- 0.93), and Tb-ABR (0.73 -0.93) thresholds had high correlations to pure-tone thresholds. There was a moderate correlation between c-ABR thresholds and average thresholds of 2 kHz e 4 kHz pure tone audiometry (0.83-0.89). The results suggested that the ASSR and behavior thresholds had low correlation with predict threshold using acoustic reflex formulae but a strong corretation with the presence of sensorineural hearing loss. Conclusion: The ASSR provided reasonably accurate predictions of specific frequencies behavioral threshold as the Tb-ABR. Combined with c-ABR and acoustic reflex for white noise may take the accuracy predicted behavioral threshold.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 86

SPEECH RECOGNITION IN ADULTS AND ELDERLY PEOPLE, HEARING AID USERS, WITH SEVERE HEARING LOSS, WITH UNI AND BILATERAL ADAPTATION

Authors

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Abstract: INTRODUCTION: The binaural adaptation provides advantages, which contributes to a more effective communication. Some patients use the hearing aid unilaterally, due



to hearing loss characteristics or personal choice. The application of the speech recognition tests, with or without hearing aid, helps to evaluate the user's identification of the speech, verifying the changes with the hearing aids use. **PROPOSE:** To verify if the individuals with severe hearing loss are able to recognize the speech with the hearing aids and to analyze the difference between the obtained results with mono or binaural adaptation. **METHODOLOGY:** The study was performed at Hearing Aids Lab from Federal University of Santa Maria, between May and August 2009. Patients from a granted program of hearing aids were evaluated. Obeying the inclusion criteria: age superior to 18 years-old, use of sound amplification at least three months and severe hearing loss, the sample was constituted by 32 individuals divided in two groups: the first one compounded by 7 patients with monoaural adaptation and the second one, compounded by 25 individuals, with binaural adaptation. All the individuals assigned a Consent Form and were submitted to a meatoscopy and to the speech recognition threshold (SRT) with disyllables words, in free field, with and without the hearing aids. The results were analyzed by group and correlated. **RESULTS:** When tested without the hearing aid, none of the patients with monoaural adaptation obtained answers from SRT, although with the hearing aid all of them recognized the speech, with 55 dB NPS (A) average to the group. Among the binaural adaptation users, two of them obtained answers without hearing aids with 65 and 70 dB NPS (A), passing to identify the speech, respectively, in the intensities of 35 and 55 dB NPS (A) in the evaluation with hearing aids; 4 of them do not obtained any answers to the SRT, with or without the amplification. The 19 remaining ones do not obtained answer without the hearing aids, but they recognized the speech with the hearing aids and obtained an average of 57,9 dB NPS (A). **CONCLUSIONS:** even the hearing loss's degree, 87,5% of patients presented satisfactory answer to the SRT with the sound amplification use, both mono or binaural adaptation. According to the specific literature, 65 dB NPS is considered the natural speech intensity and, even the individuals of the first group has made use of the hearing aid only in one ear, they have presented a satisfactory performance, enable to recognize, as well as the patients with two hearing aids.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 87

NORMATIVE VALUES FOR A 3-STEP EUSTACHIAN TUBE FUNCTION TEST

Authors

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Institution

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Abstract: A 3-step Eustachian tube function (ETF) test with intact tympanic membrane can be a valuable tool in diagnosing slight functional alterations in the Eustachian tube performance, which are small enough not to cause the tympanometric results to be pathological. Patients with indication to undergo such test normally present an A-type tympanometry in Jerger's classification, but have complaints that can be related to a malfunctioning of the Eustachian tube, as autophonia, pain or persistent pressure in the ear during or after barometric variations (as in flying), "clicks" in the ear and others. In the international literature searched, we did not find normative values for the pressure shift in the middle ear between the maneuvers done during this test. Therefore, the aim of this study is to identify the normal variation in the middle ear pressure registered after the maneuvers done for a 3-step ETF test with intact tympanic membrane. The study was performed with a sample of 110 subjects with normal audiometric thresholds, A-type tympanometry curves (in Jerger's classification) and presence of acoustical reflexes in both ears, all of them without recent history of ear complaints or pathologies. All subjects were submitted to a 3-step ETF test with intact tympanic membrane in one ear, with an Interacoustics AT235b tympanometer. During the test, a first tympanometric curve was obtained and the peak pressure of the curve was registered (P1); after, the individual was asked to swallow with the nose manually occluded (Toynbee maneuver), and the pressure of the new curve was again registered (P2); finally, the individual was asked to blow hard with the nose and mouth closed (Valsalva maneuver), a new curve was traced and its peak pressure was registered (P3). In normal individuals, it was expected that $P1 > P2 < P3$. In the analysis of the results, the average pressure shift after each maneuver and its standard deviation(s) values were computed and 95% confidence intervals were calculated. We observed that amid P2 and P1 the average shift in the sample was -26,85 daPa (SD = 46,23 daPa); amid P3 and P2, the average shift was +36,45 daPa (SD = 57,08 daPa); and the average difference for P3 and P1 was +9,59 daPa (SD = 47,6 daPa). The 95% confidence intervals showed that a variation between 35,59 daPa and -18,12 daPa can be expected amid P2 and P1; a variation between +25,66 daPa and +47,23 daPa amid P3 and P2; and a difference between -0,60 daPa and +18,59 daPa can be expected for P3 and P1. These CIs are somewhat wider than previous reports from the literature. Thus, although the results show that a large variation can be expected for normal individuals in the test, the confidence intervals calculated can be used to define which individuals do not perform as expected. New research has to be performed to study the validity of the test with pathological ears.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 88

TONE BURST EVOKED OTOACOUSTIC EMISSIONS IN NEONATES AT RISK FOR HEARING LOSS

Authors

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Institution

1. USP, University of São Paulo

Abstract: **INTRODUCTION:** A recent possible research in otoacoustic emissions is the use of a frequency-specific stimulus, the tone burst. **AIM:** to verify the otoacoustic emissions responses evoked by the tone burst stimulus in neonates with risk indicators for hearing loss. **METHOD:** 21 neonates with risk indicators for hearing loss (study group) and 30 neonates without risk indicators for hearing loss (control group) were evaluated by otoacoustic emissions at the frequencies of 2000 and 4000 hertz. **RESULTS:** There was a right ear advantage in female individuals and in the control group, although without statistical significance. The mean values of Response at 2000 hertz were 17,73 dB in the control group and 16,55 dB in the study group for female subjects, and 16,63 dB in the control group and 16,12 dB in the study group for male subjects. At 4000 hertz, the values were 14,63 dB in the control group and 15,09 dB in the study group for female subjects, and 18,57 dB in the control group and 15,06 dB in the study group for male subjects. **CONCLUSION:** The hearing research using the tone burst is a good possibility that may contribute to evaluate the cochlear function in all neonates, with and without risk indicators for hearing loss.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 89

OTOACOUSTIC EMISSIONS SUPPRESSION, WITH TONE BURST, IN NEONATES AT RISK FOR HEARING LOSS

Authors

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Institution

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Abstract: **INTRODUCTION:** Otoacoustic emissions are sounds spontaneously generated inside the normal cochlea, or in response to an acoustic stimulation. One possibility in hearing research is the suppression of otoacoustic emissions which verifies the decrease of its magnitude from a simultaneous acoustic stimulation. It is assumed that this decrease occurs because of the role of the auditory efferent pathway. **AIM:** to verify the activity of the auditory efferent pathway by the contralateral suppression of OAE in neonates with and without risk factors for hearing loss. **METHOD:** 21 neonates at risk for hearing loss (study group), and 30 neonates without risk factors for hearing loss (control group) were assessed through otoacoustic emissions evoked by a frequency-specific stimulus, tone burst, at 2000 and at 4000 hertz, with and without contralateral white noise. **RESULTS:** there was an advantage of the right ear in the control group for female subjects, and in the study group for male subjects, although without statistical significance. The mean values of suppression for the variable response at 2000 hertz were 1,66 dB in the control group and 0,84 dB in the study group, for female subjects, and 1,41 dB in the control group and 2,07 dB in the study group, for male subjects. At 4000 hertz, the mean values of suppression for response were 1,29 dB in the control group and 0,98 dB in the study group, for female subjects, and 1,75 dB in the control group and 2,14 dB in the study group, for male subjects. **CONCLUSION:** From frequency-specific stimuli at 2000 and at 4000 hertz, it was possible to verify the inhibitory effect of the auditory efferent pathway upon the amplitude of otoacoustic emissions in neonates. The use of frequency-specific stimuli may contribute for the assessment of the central auditory function in this population.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 90

PERCEPTION OF THE ELDERLY HEARING HANDICAP DEFICIENT

Authors

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Institution

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Abstract: The object of this work was to evaluate the perception of the hearing handicap elderly by the use of the auto-evaluation questionnaire Hearing Handicap Inventory for the Elderly (HHIE-S), in a population of elderly hearing handicap. There were 60 individuals in the survey, 29 of the male sex and 31 of the female sex, in the age range from 60 to 91 years old, people with hearing handicap of varying degrees. All the individuals showed hearing loss or hearing deficiency. The results analysis showed that there was a parity for the total of the studied individuals that showed a light/moderate perception and significant or severe of the handicap of 45% was the total for both perceptions. The individuals of the male sex show a tendency of noticing more sharply the handicap. As for the age range disposition could be observed that there was a bigger concentration of individuals from 70 to 79 years old, and that for this age range the perception was light /moderate. Thus, it is important for professionals to use the questionnaire for self-evaluation to assess to better assess the social and emotional consequences of hearing handicap in the life of the elderly, to enable better integration of the elderly and avoid the isolation of this population.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 91

STUDY OF OTOACOUSTIC EMISSIONS IN MALNUTRITION CHILDREN IN THE CITY OF FORTALEZA - CE

Authors

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Abstract: Malnutrition, to be caused by an imbalance between intake and metabolism of nutrients, may have implications in the hearing of children with this diagnosis. This study aimed to verify the presence of transient otoacoustic emissions (TEOAE) in undernourished children. This is a cross-sectional study of 16 malnourished children aged between 6 months and 12 years, a total of 31 ears, served in two services of reference from August 2008 to June 2009. A total of 31 ears were evaluated due to a child being malformation and is therefore evaluated only one ear. The test used was the transient otoacoustic emissions, and the criterion used for pass/fail, which proclaim the reproducibility above 70% and signal/noise ratio greater than 6dB. Ten (62,5%) children were male and 6 (37,5%) were female. Of the 31 ears evaluated, 80,6% were present otoacoustic emissions, and 19,4% failed the test. The frequency bands of 1 and 1.5KHz showed the worst results. The moderate degree of malnutrition had a higher failure rate. There was in this study a higher incidence of malnutrition in male children aged between 1 and 3 years with mild malnutrition. The absence of otoacoustic emissions was more common in males and in the left ear.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 92

AUDITORY, SPEECH AND LANGUAGE DEVELOPMENT MONITORING PROGRAM: PREVENTION IN PUBLIC HEALTH FOR CHILDREN WITH RISK FACTORS FOR HEARING LOSS.

Authors

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Institution

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Abstract: Introduction: Prevention aims to avoid disease, its transmission or its aggravation. Prevention methods aim to reduce the number of cases of a disease, to diminish its severity reducing its consequences and increasing levels of individual and collective health. Considering the importance of preventive actions, the Auditory, Speech and Language Development Monitoring Program was implanted in 2002 at ATEAL. It aims the prevention of hearing, speech and language disorders, focusing the detection and immediate intervention when any alteration is detected to resume the expected speech and language development. Children who have been ruled out for hearing loss at the neonatal hearing screening or at the retest, but have risk for progressive hearing loss and/or delayed auditory development were included in the program. Risk criteria for inclusion in the program are based the Joint Committee



on Infant Hearing recommendations. The program lasts from the 6th month through the 7th year of age, with periodic evaluations. It includes assessments of acuity and auditory development, speech and language and observations of global development. Objective: To demonstrate the results of the Program Development Monitoring Auditory, Speech and Language, using the number of detected hearing alterations, either in the accuracy or in the auditory development as well as the number of referrals. Methods: Collection of the data of the hearing evaluations carried out in the children included in the program, born between May 2002 and December 2008. The children who showed deviations from normal patterns in some of the tests were referred to an ENT evaluation, audiological diagnosis and/or speech-language rehabilitation as needed. Results: Between May 2002 and December 2008 1175 children of all 23,832 screened were included in the program. We are currently monitoring 349 children because among those we had some missing appointments (484), dropouts (246), deaths (12), some moved from the city (55) and dismissed (29). Of the total of 349 children who have been monitored, 06 were diagnosed of having hearing loss. Ninety-eight (98) referrals were made to auditory stimulation and/or training, Twenty-four (24) were referred to a speech and language assessment, 73 for ENT evaluation. Conclusion: The results show the importance of the program as a method for prevention, detection and rehabilitation referral. It also highlights early diagnosis of progressive or acquired losses.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 93

BEHAVIORAL ASSESSMENT OF (CENTRAL) AUDITORY PROCESSING AND LONG LATENCY AUDITORY EVOKED POTENTIALS IN ELDERLY PATIENTS WITH MILD COGNITIVE IMPAIRMENT.

Authors

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Abstract: INTRODUCTION: Population ageing is a global phenomenon having direct consequences upon public health systems. One of the main consequences of this population's growing is the prevalence of dementia. The Mild Cognitive Impairment (MCI) is an intermediary stage between the normal ageing and the Alzheimer' dementia, which has as its main characteristic the episodic memory disorder, without other cognitive or functional deficits. The interest on investigating the relation between ageing, MCI, (Central) Auditory Processing and Long Latency Auditory Evoked Potentials (LLAEP) has grown lately due to the existence of elderly patients' complaints about their difficulty to understand speech that are not compatible with their hearing loss thresholds. AIM: To assess the (Central) Auditory Processing and the LLAEP of elderly individuals with Mild Cognitive Impairment (Study Group - SG), and to compare the findings with a Control Group (CG). METHODS: Five individuals with mild cognitive impairment (SG) and five individuals without MCI (CG), ranging in age from 65 to 75 years old, took part in this study. Individuals underwent basic audiological evaluation (pure tone and speech audiometry, immittance measures and acoustic reflex testing), behavioral assessment of (Central) Auditory Processing and LLAEP recording (N1-P2-N2 complex and P300). RESULTS: 40% of the SG and 40% of the CG presented (Central) Auditory Processing Disorder. In the electrophysiological evaluation, the SG presented higher mean values regarding the wave amplitude of N1-P2-N2 complex and of P300 and presented lower mean values regarding the wave latency of N1 and P300, when compared to the CG. CONCLUSIONS: Results suggest that there are no differences between subjects with or without MCI regarding behavioral data. Nevertheless, subjects with MCI presented better results in the LLAEP assessment, especially concerning the amplitude of N1-P2-N2 complex and the latency and amplitude of P300. Such findings may have been influenced by the limited number of subjects and by the great variability inter-subjects of the amplitude and the latency values of LLAEP.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 94

P300 AND N1-P2-N2 COMPLEX IN INDIVIDUALS WITH (CENTRAL) AUDITORY PROCESSING DISORDERS SUBMITTED TO AUDITORY TRAINING.

Authors

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Abstract: INTRODUCTION: The use of electrophysiological tests associated to behavioral evaluation has become a frequent practice in the audiology field enabling a more precise diagnosis and monitoring of the (Central) Auditory Processing Disorder. AIM: the aim of this study was to verify the N1-P2-N2 complex and the P300 characteristics (latency and amplitude) in children with (Central) Auditory Processing Disorder, and also to verify the evolution of such characteristics after Auditory Training. METHODS: 29 individuals with (Central) Auditory Processing Disorder and 29 individuals without (Central) Auditory Processing Disorder were selected, ranging in age from eight to 16 years old, composing respectively the Study Group (SG) and the Control Group (CG). All individuals underwent an initial evaluation of the (Central) Auditory Processing and of the N1-P2-N2 complex and P300 Long Latency Electrophysiological Potentials (1st evaluation). The SG was submitted to an Auditory Training program in acoustic booth during 8 sessions and was reevaluated later by both behavioral and electrophysiological tests (2nd evaluation). The CG was not submitted to an Auditory Training program, and was reevaluated by electrophysiological tests (2nd evaluation) three months after the initial evaluation. RESULTS: There was a significant statistical difference in all behavioral tests used in the (Central) Auditory Processing Evaluation when comparing the SG and the CG in the 1st evaluation, and in the situations pre and post auditory training in the SG. When the electrophysiological data of the SG was compared before and after the Auditory Training, there was a significant statistical difference for the latency of wave P2, the amplitude of waves N1 and P2 and for the latency of wave P300. In the Control Group, no significant statistical differences were found between the initial and the final assessments. Comparing the SG and the CG before the Auditory Training, it was observed a significant statistical difference for the latency of wave N1, the amplitude of wave P2 and for the latency and amplitude of wave P300, and after the Auditory Training of the SG, it was observed a significant statistical difference between the two groups only regarding the amplitude of waves P2 and P300. CONCLUSIONS: The electrophysiological measures of the N1-P2-N2 complex and the P300 seem to be a good instrument for assisting the diagnosis and the therapy monitoring of children with (Central) Auditory Processing Disorder, once these children presented differences in the latency and amplitude measures of such potential after auditory training.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 95

AUDIOLOGICAL EVALUATION IN CEREBELLOPONTINE MENINGIOMA

Authors

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Abstract: Introduction: Meningiomas are usually benign extra-axial tumors originated in arachnoid meninge with slow growth. Cerebellopontine tumors represent between 8% and 15%, among all intracranial tumors and is the second most frequent one, representing 3 to 15% of the cases, preceded by Vestibular Schwannoma. Some undifferentiated meningiomas may be malignant and in these cases, intracranial or distant nervous system metastasis may occur, including lungs, liver and heart. Symptoms will depend on anatomical localization and its adjacent structures and even without nervous system lesions may cause irritative or compression symptoms. The most common signs and symptoms are hearing loss, tinnitus and facial palsy in almost 27% of the cases. The most frequent audiological findings are sensorineural hearing loss, normal tympanometry, absent or elevated acoustic reflexes and abnormal word recognition scores. Electrophysiological evaluation may reveal prolongation of absolute latencies, prolongation of interwave latencies intervals, degradation of waveform and absence of waves. Objective: Describe the audiological findings in a patient diagnosed with meningioma. Case report: Female, 67 years old, complaining of worsening in hearing, tinnitus and fullness in the ear, difficulties in understanding speech and intolerance to loud sounds was evaluated at Electrophysiology Laboratory at Universidade Federal de São Paulo. The patient also mentioned vertigo crisis occurring with fainting, diplopia and accelerated heart rate. Magnetic resonance imaging of internal auditory canals revealed the presence of extra-axial lesions in the right middle fossa occupying cerebellopontine angle, suggesting meningioma. Pure tone audiometry demonstrated bilateral moderate sensorineural hearing loss with word recognition scores of 96% and 100% of correct responses for the right and left ears, respectively. Type A tympanograms and absent acoustic reflexes were obtained in Immittance Measures. Auditory brainstem response (neurological protocol) revealed the presence of generators of waves I, III and V with bilateral prolonged absolute and interwave latency intervals (I-III, III-V and I-V), indicating abnormal conduction of auditory pathways in the brainstem. Conclusion: Audiological and electrophysiological evaluations were altered and were important to clarify the audiological manifestations of meningioma, either in peripheral or in central auditory nervous system.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 96

ELECTROPHYSIOLOGICAL FINDINGS IN DANDY-WALKER CYST

Authors

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Abstract: Introduction: The Dandy-Walker malformations are characterized by a posterior fossa cyst and partial or total agenesis cerebellar vermis, leading to a communication between this cyst and the fourth ventricle, with variable degrees of hydrocephalus. Its incidence is of approximately 1 of 30.000 pregnancies and occurs in 4% of hydrocephalus cases. When the hydrocephalus is present, there are controversies about the conduct. Some advocate individual and simultaneous shunts both for the ventricular system and for the Dandy-Walker cyst. Anomalies associated to the central nervous system occur in nearly 55% of the cases. The main ones are lipoma, agenesis of the corpus callosum, encephalocele, microcephaly and nonspecific changes in the cerebral gyrus. In the presence of associated anomalies, besides significant neurological deficits, mortality rate can reach 71% of the cases. Objective: To describe electrophysiological finding one child diagnosed with Dandy-Walker cyst. Method: One baby with Dandy-Walker Syndrome was referred for electrophysiological evaluation since she had failed newborn screening. Clinical history and two auditory brainstem responses were carried out in order to investigate the integrity of neural auditory pathway. Results: Preterm newborn diagnosed with Dandy-Walker malformation, confirmed by a magnetic resonance in the fifth day of life, 35 and 2/7 of gestational age, female, birth weight: 2870g, stature: 47cm, 22 days in neonatal intensive care unit, with ventriculoperitoneal shunt in the 14th day of life and without complications in post-operative period. It should be noted that her brother (4 years old) is diagnosed with the same pathology, suggesting a genetic component. In the newborn hearing screening performed before the discharge, the baby showed present otoacoustic emissions in the right ear and absence in the left ear, with absent auro-palpebral reflex. In the audiological follow-up, click brainstem evoked response showed absence of responses with presence of cochlear microphonics in both ears. In the second electrophysiological evaluation, the responses were present with reproducibility of waves I, III and V in the left ear (2,33ms, 5,08ms e 7,65ms, respectively), and waves III (5,38ms) and V (7,80ms) were present in the right ear. These results demonstrated significant improvement in nerve conduction of the auditory pathway. Conclusion: These findings showed that the Dandy-Walker cyst is a pathology with possible genetic origin that requires hearing and language monitoring, since it causes changes in the maturational process and in the integrity of the peripheral and central auditory pathways.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 97

ELECTROPHYSIOLOGICAL EVALUATION IN NEONATES OF PREECLAMPTIC WOMEN

Authors

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Abstract: Introduction: Several complications during pregnancy and neonatal period may cause hearing loss like neonatal hypoxia, use of ototoxic drugs, prematurity, among other causes. The pregnancy-induced hypertension or preeclampsia is associated with proteinuria and edema occurring after 20 weeks of pregnancy. It can be mild or severe, and severely reduces blood flow to the placenta, affecting fetal development. Often, you may experience premature labor and complications due to low gestational age and low birth weight. Currently, few studies have associated preeclampsia and its complications with congenital hearing loss. Objective: To report the findings of electrophysiological assessment in neonates of preeclamptic women. Methods and materials: We studied 43 infants, 28 were male and 15 female, by transient evoked otoacoustic emissions (TEOAE) and auditory brainstem response (ABR). The age ranged from 0 to 4 months (average of 2 months). Six infants were born at term and 37 were premature, and 41 had risk factors for hearing loss. Results: TEOAE were present in 39 ears at right and 40 ears at left, with bilateral failure in three cases and one with unilateral failure at right. In ABR, one child had no response at 100 dBnHL only at right, one child had the bilateral electrophysiological threshold at 40 dBnHL, one had conductive pattern response and other one with bilateral failure TEOAE showed electrophysiological threshold to 20 dBnHL, bilaterally. Of these four premature infants, three had other risk factors associated with hearing loss. Conclusion: The majority of neonates of preeclamptic women were premature with others risk factors associated with deafness. We observed that seven ears failure on TEOAE and five on ABR, being one with no response. Although the most infants have shown the presence of TEOAE and normal range for each age assessed in the ABR, 5% of the ears established alterations in both evaluations, showing that the preeclampsia and prematurity associated can be influenced these findings.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 98

EARLY IDENTIFICATION OF HEARING LOSS IN THE WELL BABY AND NEONATAL INTENSIVE CARE UNIT NURSERIES

Authors

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Abstract: Introduction: The early identification of hearing impairment is an important factor for the process of rehabilitation. Actually, it is held by transient evoked otoacoustic emission (TEOAE) and/or distortion product otoacoustic emission and by auditory brainstem response (ABR). The number of children who make such assessments in the first days of life has increased considerably in recent years, aspect reinforced by the results of studies that demonstrate the importance of assessing hearing in the battery of newborn screening tests. Objective: To report the results of universal newborn hearing screening in well baby and neonatal intensive care unit nurseries. Materials and Methods: TEOAE were made in all neonates and in the presence of risk factor for hearing loss and/or on failure in TEOAE, the ABR was made. The neonates were divided into three groups, G1 newborns at term, G2 premature newborns with gestational ages between 32 to 36 weeks and G3 premature newborns with gestational age less than 32 weeks. Results: A total of 1192 newborns, of both sexes, from January to November 2009, were evaluated. Eighty percent belonged to G1, 15% to G2 and 5% to G3. The risk factor for hearing loss, excluding prematurity, was present in 20% of newborns, the G3 was the most affected. On TEOAE, 93,5%, 87,2% e 83,3% had a positive response to the right ear, respectively in G1, G2 and G3 and 93,8%, 87,8% and 81,7% had a positive response to the left ear, respectively in G1, G2 and G3. Were referred for evaluation of ABR, 236 newborns. Of these, 64% attended for the test and 12 ears showed changed records, two conductive and ten sensorineural records. Conclusion: Most of the children had positive results in the TEOAE and ABR, with the largest number of children who had some type of change belonged to the G3, the extremely preterm infants.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 99

TRANSIENT EVOKED OTOACOUSTIC EMISSION IN FULL-TERM INFANTS BORN SMALL AND APPROPRIATE FOR GESTATIONAL AGE

Authors

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Abstract: Introduction: It is estimated that approximately 5% of infants born small for gestational age (SGA). The exact mechanism of fetal growth is not yet fully defined, being dependent on a number of factors: genetic, placental, nutritional, hormonal and others. Pregnancy can be compromised by several conditions that impair or increase fetal growth, increasing the incidence of perinatal complications. Of these, the delay of intrauterine growth is the second leading cause of morbidity and mortality, exceeded only by prematurity. The SGA newborns are characterized by having high risk for respiratory and neurological complications during the prenatal, perinatal and postnatal periods and may have deficits or delays in psychomotor development, language and hearing. Objective: To assess the response amplitude of transient evoked otoacoustic emissions (TEOAE) in full-term infants small and appropriate for gestational age (AGA). Methodology: A cross-sectional study in which data were collected about full-term newborns estimated as small and appropriate for gestational age. All cases performed hearing evaluation by TEOAE. Results: We evaluated 50 full-term infants of both sexes, SGA called the G1 and 50 full-term infants, AGA, called G2 for control. The mean birth weight for G1 was 2519g and 3410g for G2. TEOAEs in both G1 and G2 showed presence of response bilaterally. The mean amplitudes of responses to G1 in the right and left ears were respectively 11,28dB and 13,02dB in the frequency bands of 2kHz, 12,58 and 14,24 at 3kHz and 12,86dB and 12,68dB at 4kHz. For G2 the right and left ears were respectively 12,68dB and 11,84dB at 2kHz, 14,08dB and 13,28dB at 3kHz and 13,48dB and 12,98dB at 4kHz. Conclusion: The AGA infants showed higher amplitudes of TEOAE responses in the right ear in all frequency bands, and the SGA infants had higher amplitudes in the left ear for the frequency bands at 2 and 3kHz. When comparing the G1 vs. G2 we observed that the amplitudes of TEOAE were higher in infants of G1 in the three frequency bands studied, only for the right ear. Demonstrating that the TEOAE is best in full-term infants appropriate for gestational age.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 100

MEASURES OF HEARING IN PARENTS OF INDIVIDUALS WITH AUTOSOMAL RECESSIVE HEARING LOSS

Authors

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Institution

1. FMUSP, Faculdade de Medicina da USP

Abstract: Introduction: Hearing loss is an etiologically heterogeneous condition, which can be classified as syndromic and non-syndromic. The syndromic cases (30%) account for more than 400 diseases or syndromes that include the hearing loss as a clinical sign. Around 70% of hereditary hearing impairment are non-syndromic. Of these, 80% are autosomal recessive. Half of these cases are due to mutations in the GJB2 gene (connexin 26). In autosomal recessive, the affected parents are carriers of a recessive allele that causes deafness, which can be deduced by studying the genealogy of the family or in some cases with known genes, using molecular tests. The study of measures of hearing in parents of these subjects may be useful in identifying mild hearing loss. In addition, this characterization could in future come to show families which individuals could be carriers of recessive genes that cause deafness, especially in cases where there are no molecular tests available. Objective: To study the audiological profile of parents of hearing impaired individuals with autosomal recessive. Method: 36 subjects between 30 and 60 years were evaluated and divided into 2 groups: control group without hearing loss, without use of alcohol and tobacco, without history of noise exposure at high sound pressure levels; and study group formed by consanguineous parents gene carrier for connexin 26, ages 30 to 60 years, 7 male and 7 female. All subjects underwent pure tone audiometry (0.25 to 8 kHz), extended high frequencies audiometry (9 to 20 kHz) and distortion product otoacoustic emissions (DPOAE). Although the control group had higher DPOAE amplitude and lower pure tone thresholds levels in relation to the study group, there were no significant differences between groups, except for DPOAE at frequencies 1001 and 1500Hz. Conclusion: The procedures were not sensitive to determine differences between groups, although there were better results in the control group.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 101

DPOAE EMERGENCE THRESHOLD ESTIMATED BY MEANS OF THE DPOAE I/O FUNCTION IN NEONATES

Authors

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1. FMUSP, Faculdade de Medicina USP

Abstract: Introduction: Measures of distortion product otoacoustic emissions (DPOAE), specifically DPOAE I/O function, evaluate the emergence and growth of the DPOAE response according to the intensity of the sound stimulus, allowing to estimate a DPOAE growth rate. Objective: To estimate DPOAE emergence threshold by means of DPOAE I/O function at f2 frequencies of 2kHz and 4kHz in neonates. Method: 51 neonates, 25 female and 26 male, were studied, with ages between 24 to 84 hours of life. It was established as a criterion for inclusion term neonates, without risk for hearing loss, appropriate for gestational age and no history of maternal pregnancy complications. DPOAE I/O function was recorded in 2 kHz and 4 kHz. The f1 and f2 stimuli were presented ranging from 35 to 70 dB SPL, and the intensity of stimulus f1 (L1) was presented at the same level of intensity of the stimulus f2 (L2). The neonates were evaluated during hospitalization after birth in a quiet but not sound treat room. DPOAE emergence threshold was estimated using three different criteria (T1, T2 and T3). In the three criteria, there were considered responses in signal/noise ratio above 3dBNPS, and differed in the presence or absence of responses at higher intensities above the threshold indicated. Statistical analysis was performed by Wilcoxon Test and Mann-Whitney Test and the level of significance was set at 0.05. Results: The average intensities for DPOAE emergence threshold ranged from 47.55 to 49.85 dB SPL at 2 kHz and 55.52 to 59.94 dB SPL at 4 kHz for all criteria adopted. Mean amplitude for response on the DPOAE emergence threshold ranged from 6.67 to 8.27 dB for 2 kHz and from 6.99 to 11.35 dB for 4 kHz. There was statistical difference among the three thresholds criteria (p < 0.001) for the two frequencies evaluated. Conclusion: The procedure was feasible for the neonatal population and revealed mean DPOAE thresholds up to 60 dB for both frequencies studied. There was also noted that although the neonates presented high level emergence thresholds of DPOAE, were also observed robust response amplitude obtained in the stimulus intensity threshold.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 102

PURETONE THRESHOLD AUDIOMETRY AND OTOACOUSTIC EMISSION DISTORTION PRODUCT IN WORKERS EXPOSED TO NOISE AND PLAGUECIDES.

Authors

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Institution

1. Unesp, Universidade Estadual Paulista

Abstract: Introduction: Research related to workers exposed to the noise demonstrates the harmful effect of the occupational noise on the cochlea; however there are few studies that describe the concomitant effect of the noise and plagueicides on the cochlea. Objectives: To describe the findings of the puretone threshold audiometry and the otoacoustic emission distortion product in workers exposed to the noise and plagueicides. Method: 26 men, plagueicides applicator of the SUCEN had participated of this research, with age between 28 and 53 years old (average of 43 years) and time in the function varying between 1e 24 years (average of 15 years). It had been applied and later analyzed the data about case history, audiometric thresholds gotten in the puretone threshold audiometry (PTA) and otoacoustic emissions distortion product (OAEDP) response level and the signal/noise ratio in 52 ears. Results: The results had demonstrated that 28% of the workers present tinnitus and that 100% of them use individual protection equipment. The data of the PTA had evidenced the presence of hearing loss in 38,5% of the tested ears, being the most frequent the impairment in only one frequency. The mean average threshold gotten in PTA varied between 8,56dB in 500 Hz and 21,83dB in 6 kHz. The OAEDP response levels results had varied between 3, 13dB in 318Hz and -15,46dB in 3836Hz and the signal/noise ratio between 3,1dB in 5114Hz and 13,79dB in 1278Hz. It was verified, using the correlation of Pearson, a strong negative correlation between the audiometric thresholds and otacoustic emission response level, and a weak negative correlation between the audiometric thresholds and the OAEDP signal/noise ratio. Conclusion: the study evidenced the importance of the combined use of the PTA and the OAEDP in the workers' evaluation and follow up, considering that the OAE can detect functional cochlear disorders before it causes a detectable change on the hearing sensitivity.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 103

ELECTROPHYSIOLOGICAL ASSESSMENT OF TEMPORAL FINE STRUCTURE PROCESSING

Authors

JOHN HOWARD GROSE, SARA MAMO

Institution

1. UNC-CH, University of North Carolina at Chapel Hill

Abstract: The discrimination of inter-aural phase differences (IPDs) declines with age. This ability presumably depends on the fidelity of physiological phase locking and therefore can be used as a gauge of temporal fine structure coding in the auditory system. Deficits of IPD performance with age have been measured both psychophysically and electrophysiologically. One evoked potential (EP) measure of binaural function that has received limited attention is the binaural beat EP which is elicited by the presentation of two frequency-disparate tones separately to each ear. However, consensus is lacking as to the stability of the EP beat response and the extent to which higher-level functions modulate it. The purpose of this study is to measure the binaural beat EP in listeners of different ages in order to determine whether it can be used as an objective metric of the decline in temporal fine structure coding with age. The stability of the binaural beat response is assessed by comparing it with the frequency following response (FFR) elicited monaurally by each tone in isolation. Two pairs of 75-dB SPL tones are used to elicit the FFR and BB: 390 + 430 Hz and 810 + 850 Hz. Each 40-Hz difference pair likely falls at a different point along the synchrony index - frequency function. An onset asynchrony is incorporated into the dichotic presentation such that one ear receives a leading segment of its tone in isolation, both ears then receive overlapping segments of their respective tones, and then the other ear receives the trailing segment of its tone in isolation. This configuration allows measurement of the FFR to each tone in isolation, as well as the BB to the simultaneous tones. To prevent stimulus artifact contamination, the transducers are situated outside the sound booth and coupled to the ear tips by 3 m of tubing. FFR and BB responses are recorded differentially between the nape of neck and Fz, A1, and A2 using a Neuroscan system; stimuli and triggers are generated by a Tucker-Davis Technologies system. Approximately 1000 sweeps are collected for each condition. The normal-hearing adult subjects relax in a recliner and watch a silent captioned video during

the test. Preliminary results indicate large inter-subject variability in the magnitude of both the FFR and BB response. However, two trends are evident in the data. First, the FFR and BB covary such that the most robust BB appears to be associated with the most robust FFR; similarly, failure to elicit a measurable FFR is associated with an absent BB. The second trend is an association with age such that the most robust BB has been measured in the youngest listener (25 yrs) and the poorest response in the oldest listener (68 yrs). This study suggests that, when elicited, the BB is associated with the processing of temporal fine structure in the auditory system. However, the inter-subject variability may undermine its simple use as an electrophysiological indicator of phase locking. Further work is required to solidify this conclusion.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 104

NEONATE HEARING SCREENING : EXPERIENCE OF A PUBLIC SERVICE OF HIGH COMPLEXITY HEARING HEALTH

Authors

MARCELA DE OLIVEIRA NEVES NOGUEIRA, RAFAELLA FIGUERÊDO, TELMA FERRAZ

Institution

1. CEPRED, Centro Estadual de Prevenção e Reabilitação de Deficiências

Abstract: The hearing loss causes relevant disorders to the individual development and it has, between the congenital diseases, high prevalence. According to GATANU, 3 between 1000, neonates approximately, have some kind of hearing loss. The identification and diagnosis of the hearing alterations in Brazil are still detected lately, when the children has already 4 years old (INES, 1990). This age number is becoming smaller in some Brazilian cities, but the government organizations must take providences to allow the children with audition deficiency to have access to the diagnoses and intervention as earlier as possible, once that this are essential to minimize the injury caused by audition alteration. The neonatal screening (TAN) is a very important alternative to provide an earlier detection. **OBJECTIVES:** The main point of this work was evaluate the implementation of the program TAN at the Centro Estadual de Prevenção e Reabilitação das Deficiências (CEPRED), high complexity service of the Bahia State, results identification, and most frequent hearing loss risk indicators as well. The sample size was 2110 neonates between 0 and 11 months, and they have been evaluated between 2007 and 2009 through transients evoked otoacoustic emissions (EOAET). **RESULTS:** From sample of children that were evaluated in the program, 87% did pass and 13% didn't ass in the neonate hearing screening. The children that didn't pass the first screening should return after 15 days to do a new evaluation. There were found significant statistical differences between groups with and without risk indicators in the hearing screening presenting that the refer number was more relevant between children with at least one risk indicator. The pass result was more relevant for the female and for left ear and 10% of the children didn't returned to do the evaluation again. The alteration occurrence in the hearing screening was more relevant than the literature. The refer result was more relevant for the first hearing screening. **Conclusion:** Factors as the environment, evaluator experience, professional diversity that are responsible for the procedure at CEPRED, the work interruption due to equipment maintenance or external matters may have influenced the screening results. The absence regarding the reevaluation of the TAN was the main issue found in the program.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 105

BEHAVIORAL, ELECTROACOUSTIC, AND ELECTROPHYSIOLOGICAL HEARING ASSESSMENT IN PATIENTS WITH RIGHT HEMISPHERE ISCHEMIC LESION.

Authors

FERNANDA CRISTINA LEITE MAGLIARO, ISABELA CRIVELLARO GONÇALVES, RENATA APARECIDA LEITE, ADRIANA BASTOS CONFORTO, CARLA GENTILE MATAS

Institution

1. FMUSP, Faculdade de Medicina da Universidade de São Paulo

Abstract: **INTRODUCTION:** The ischemic cerebral stroke (ICS) is the most frequent event among cerebral strokes. It is characterized by the interruption of blood supply to the brain, which can lead to cell damage and alterations in neurological functions. The clinical manifestations of this disease may include alterations in motor, sensory, cognitive, perceptual and language functions among others. Therefore, the identification of possible alterations in both peripheral and central auditory pathways that may impair the quality of life of these individuals is extremely important. **OBJECTIVE:** To characterize the findings of behavioral, electrophysiological and electroacoustic hearing evaluations in right-handed individuals with right hemisphere ischemic lesion, and to compare such data to those obtained in normal individuals with the same age. **METHODS:** Pure tone audiometry, speech audiometry, acoustic immittance measures, brainstem auditory evoked potential (BAEP), Auditory Middle-Latency Response (AMLR) and cognitive potential (P300) were carried out in 17 subjects with right hemisphere lesions (research group) and 25 normal individuals (control group), aged between 20 and 70 years. **RESULTS:** No alterations were found on the qualitative data analysis of the hearing behavioral assessment of both groups. Both groups showed alterations in the BAEP and AMLR results, with statistically significant differences between groups for both potentials and a higher occurrence of alterations in the research group. The lower brainstem was the most frequent alteration type in the BAEP, and a statistically significant difference between groups was observed, with higher occurrence of such alteration in the research group. With regards the AMLR, the alteration predominantly observed was the Both type one (ear effect and electrode effect occurring concurrently) for the research group, and the electrode effect type one for the control group. In the analysis of quantitative data (performed only for the auditory evoked potentials), a statistically significant difference between groups was observed with respect to the BAEP latencies of waves III, V and interpeaks I-III and I-V. Regarding the AMLR measures, a statistically significant difference between groups was observed only for the Na wave latency in the C3/A1 position. For the P300, a difference between groups was observed, with higher mean latencies for the research group. In addition, there was a trend to statistically significant difference between right and left ears in the research group, which showed increased latency of P300 wave in the right ear. **CONCLUSION:** Right-handed individuals with right hemisphere lesion showed hearing thresholds within normal limits in the behavioral hearing assessment. However, they presented results indicative of central auditory nervous system deficits on the electrophysiological assessment of hearing. Alterations were observed in lower brainstem and in sub-cortical and cortical regions. Hearing difficulties were not perceived by these individuals, suggesting that this signal can probably be related to an auditory hemineglect. Further studies that evaluate the central auditory pathway of individuals with ICS are needed to better characterize the electrophysiological findings.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 106

ASSESSMENT OF THE DEVELOPMENT OF SPEECH PERCEPTION IN INDIVIDUALS WITH MULTICHANNEL COCHLEAR IMPLANT, POST SPEECH LANGUAGE INTERVENTION

Authors

FRANCINE RAQUEL DOS SANTOS, ANA CLÁUDIA MIRÂNDOLA BARBOSA REIS

Institution

1. FMRP, Faculdade de Medicina de Ribeirão Preto

Abstract: **Introduction:** The evaluation of the development of auditory perception in children with cochlear implants is very important for the rehabilitation process and to secure grants for programs to improve the quality of the service provided. **Purpose:** To analyze the development of auditory perception in children with cochlear implants through behavioral and electrophysiological evaluations. **Methods:** The sample consisted of 30 individuals aged 3 to 15 years wearing multichannel cochlear implants provided by the Hearing Health Program of the Division of Otorhinolaryngology of our **Institution** and followed by speech-language professionals. The following procedures were done: analysis of the medical records of the patients, interview of the parents using the Infant-toddler Meaningful Auditory Integration Scale (IT MAIS), auditory behavior evaluation, speech perception tests, and Auditory Brain Response - MMN. **Results:** The average hearing threshold was 39.83 dBHL. In the speech perception test, all children detected the sounds of Ling, 80% discriminated vowels and/or vowel extension, 46.66% recognized words in closed set and 13.33% showed knowledge of sentences without visual support. The average IT MAIS score was 60.66%. In the MMN exam the average latency to reference CzA2 was 170.66 ms and the average latency to CzA1 was 173.82 ms. The average amplitude was -3.472 µV for reference CzA2 and -3.311 µV for CzA1. **Conclusion:** The satisfactory performance of speech perception in children with cochlear implants is related to the duration of auditory deprivation, diagnosis of deafness, hearing thresholds with CI, age at implantation and effective use of the hearing intervention.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 107

AUDIOLOGIC CHARACTERISTICS OF TYPE II DIABETES MELLITUS PATIENTS

Authors

JULIANA MOTA FERREIRA, MARÍLIA FONTENELE E SILVA CÂMARA, CARLOS ANTONIO BRUNO DA SILVA, PAULO CESAR ALMEIDA

Institution

1. UNIFOR, Universidade de Fortaleza

Abstract: **BACKGROUND:** Diabetes mellitus is a metabolic syndrome characterized by chronic hyperglycemia. Its evolution is marked by the appearance of chronic complications responsible for malfunctions and failures in different organs, especially eyes, kidneys, nerves, brain, heart and blood vessels. Vascular and nerve tissues has a predominant role in auditory function and any disease that has the capacity to damage these cells have the potential to negatively affect different organs of hearing, especially in the inner ear. **OBJECTIVES:** To characterize the hearing of the type II diabetic patients, analyzing the auditory threshold and cochlear function, correlating the audiological findings. **METHODS:** A cross-sectional study, analytical, held at the Integrated Center of Hypertension and Diabetes of the State of Ceará. The sample was consisted of patients with diabetes mellitus type II, regardless of sex, aged between 30 and 60 years, from April to July 2009. Was performed pure tone audiometry and transient evoked otoacoustic emissions (TEOAE) and distortion product otoacoustic emissions (DPOAE). **RESULTS:** The sample had a greater number of female participants (62.5%). The mean age was 53.4 ± 6.02 years. The findings related to hearing showed hearing loss in 63.2% of patients, all of which were sensorineural loss with a predominance of bilateral and symmetric, mild and flat configuration. In the analysis of otoacoustic emissions were found 114 (75%) patients with abnormal TEOAEs and 120 (78.9%) DPOAEs. The average hearing thresholds by frequency assumed values above 25dB from the frequency of 4 kHz, with the highest averages in 6KHz, bilaterally. At low frequencies the right ear has the highest average, and high frequencies in the higher averages are in the left ear. The mean of the signal/noise relation by frequency in TEOAEs and DPOAEs showed a higher occurrence in the left ear in all frequencies tested. The correlation between the results showed that the absence of otoacoustic emissions in presence of normal hearing occurred in approximately 30% of patients at the right ear and 45% at the left ear. **CONCLUSION:** Hearing assessment showed a predominance of sensorineural hearing loss bilaterally symmetrical, with more pronounced loss in high frequencies and greater involvement of the left side. The analysis of otoacoustic emissions and distortion product showed a high percentage of changes (no response), which showed the highest frequencies and the left side. The correlation between the results of audiometry and otoacoustic emissions showed that the sample had presented absence of otoacoustic emissions before normal auditory thresholds, suggesting that the outer hair cells of the cochlea are damaged in this population.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 108

HEARING LOSS ASSOCIATED WITH COMPLICATIONS AND CO-MORBIDITY IN TYPE II DIABETES MELLITUS PATIENTS.

Authors

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Institution

1. UNIFOR, Universidade de Fortaleza

Abstract: **BACKGROUND:** Diabetes mellitus is a syndrome of multiple etiologies characterized by hyperglycemia and marked by the appearance of chronic complications classified as microangiopathic, macroangiopathic and neuropathic. Angiopathy and neuropathy caused by diabetes have been considered important factors for hearing impairment. Hypertension, dyslipidemia and obesity are also considered risk factors for the development of hearing loss. **OBJECTIVE:** To investigate the association between audiological findings and chronic complications and comorbidities present in type II diabetic patients. **METHODS:** Cross-sectional study, analytical, held at the Integrated Center of Hypertension and Diabetes of the State of Ceará. The sample consisted of patients with diabetes mellitus type II, regardless of sex, aged between 30 and 60 years, from April to July 2009. The auditory characteristics were determined by achievement of pure tone audiometry, transient evoked (TEOAE) and distortion product (DPOAE) otoacoustic emissions. **RESULTS:** We evaluated 152 patients, predominantly female (62.5%). The mean age was 53.4 ± 6.02 years. The hearing loss was found sensorineural, affecting 96 (63.2%) diabetic patients. The absence of responses of otoacoustic emissions was found in 114 (75%) patients in the TEOAE and 120 (78.9%) in DPOAEs. Had more hearing loss risk among males, age over 50 years, with greater duration of the disease, which made use of ototoxic drugs, overweight/obesity and amputations. For the lack of DPOAE was observed at higher risk in men and in overweight or obesity. For DPOAE, there was also a higher risk in males with a longer evolution of diabetes and overweight/obesity. **CONCLUSION:** Sex, age and overweight/obesity were associated with hearing loss. Regarding otoacoustic emissions, sex and overweight/obesity were associated with the absence of TEOAE; and sex and age with the lack of DPOAE. The other variables showed no statistically significant association for hearing disorders studied.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 109

AUDITORY BRAINSTEM RESPONSES IN FULL-TERM AND PREMATURE INFANTS

Authors

RAQUEL LEME CASALI, MARIA FRANCISCA COLELLA-SANTOS

Institution

1. UNICAMP, UNIVERSIDADE ESTADUAL DE CAMPINAS

Abstract: Introduction: Auditory Brainstem Response (ABR) is a very important objective test in early diagnosis of hearing impairment in newborns and infants due to the difficulty of obtaining reliable subjective auditory responses of this population. Normative data found in adult population responses for this test are well established in the literature. However, data of pediatric population, in particular concerning premature, need to be further studied. The use of normality criteria for adults in the analysis of ABR in children can lead to misinterpretation of results due to the influence of the auditory system's maturation. The recent evolution of newborn hearing screening associated with the proposal of hearing impairment early detection led to an increase in demand of very young children to conclude the audiological diagnosis. Therefore, it is necessary to establish normative data for full-term and premature newborns and infants for ABR. These data can be used as reference when analyzing the results and thus enabling an increase of diagnostic accuracy. Objectives: To compare the ABR responses between full-term and premature children and analyze the influence of the auditory pathways maturation in the electrophysiological responses for this population. Methods: Transversal and prospective cohort study. Evaluated 36 full-term and 30 premature infants, who remained in the nursery, passed the Transient Otoacoustic Emissions test, presented tympanometric curve type A and had no risk factors for hearing loss. Evaluations occurred between the discharge from the hospital and the third month of life and consisted of history, acoustic immittance measures and ABR test. Results: The comparison of absolute and interpeak latencies for waves I, III and V between right and left ears was statistically significant for interpeak latency I-III, which values for right ear were lower than for left ear values. The comparison of absolute and interpeak latencies related to gender was statistically significant for absolute latency for wave V at 80 dB, which values for males were higher than those for females. On the comparison of absolute and interpeak latencies between full-term and premature infants, results were statistically significant for absolute latencies for waves I, III and V at 80 dB and for wave V at 60 and 20 dB; longer latencies in premature were observed at all intensities. Inverse correlation was found when comparing gestational age and absolute latencies. It was observed that with gestational age increase, and hence of central auditory system maturation at the brain stem, there is a continuous decrease of absolute latencies of all waves in terms and premature infants. This decrease is related to the progressive myelination of central nervous system structures. Conclusions: Maturation of the auditory system influences the responses of neonates and infants ABR results. Gestational age must be considered when analyzing ABR for pediatric population to avoid misinterpretation of results.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 110

THE ABSENCE OF COCHLEO-PALPEBRAL REFLEX (CPR) AND THE EVALUATION OF AUDITORY EVOKED POTENTIALS RELATED WITH HYPERBILIRUBINEMIA: CASE REPORT.

Authors

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Institution

1. UNCISAL, UNIVERSIDADE ESTADUAL DE CIÊNCIA DA SAÚDE DE ALAGOAS

Abstract: INTRODUCTION: In the Neonatal Period a lot of factors may compromise hearing, among them the hyperbilirubinemia manifests clinical jaundice. The jaundice is defined as a yellowing of the skin by the impregnation of bilirubin in the extracellular fluid. It is considered physiological when the increase in unconjugated bilirubin occurs during the first two weeks of life. The Hyperbilirubinemia has a toxic effects on an endocochlear hair cells, basal nucleus and central auditory pathways. The hearing loss when detected can be in varying degrees reversible or not, and its diagnosis must be early. In an attempt to reduce the average age of diagnosis in childhood hearing, the Newborn Hearing Screening (NHS) is now recommended. PURPOSE: Describe the audiological findings of a newborn with hyperbilirubinemia by the atresia of the gallbladder and with CPR absent. METHODS: Collecting data from medical records concerning of anamnesis, audiological evaluation (behavioral observation audiometry, acoustic measure, transient otoacoustic emission by stimulus) and electrophysiological (potentially Auditory Brainstem Evoked Response – ABR) before and after an atresia of the gallbladder of a 14 days newborn showing high levels of bilirubin. RESULTS: It has been observed in the case report that the patient, in the first evaluation, showed presence of Octoacoustic Emission (OAE) and absent of CPR. In the second evaluation was confirmed a result from the first evaluation. In an audiological evaluation following the ABR was obtained no response from all the waves with the observation of cochlear microphonics bilaterally. CONCLUSIONS: The results suggest change of central auditory pathway and a preneural activity in a child with hyperbilirubinemia by atresia of the gallbladder. It is important to stand out the NHS including exams which assess peripheral and central hearing, especially in the individuals diagnosed with hyperbilirubinemia in order to contribute to the discussion of careful evaluations in children at risk for hearing loss retrocochlear. KEYWORDS: Hearing, Hyperbilirubinemia, Hearing Loss, Evoked Response Audiometry and Neonates.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 111

HEARING EVALUATION IN NEWBORNS WITH LOW APGAR

Authors

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Institution

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Abstract: Introduction: One of the most important risk factors for perinatal morbidity and mortality is neonatal hypoxia, with low Apgar's score, specially until the 5th minute of life. The test scores to evaluate the state of vitality of the newborn by analysis of their heart rate, reflexes, muscle tone, skin color and respiration. The tests are performed routinely, even in the delivery room, in the first, fifth and tenth minutes of life. In each step, the newborn receives scores from zero to two, reaching a maximum of 10. Low rates of 4 and 6, respectively, in the first and fifth minutes are considered risk factors for higher incidence of deafness. Objective: To report the results of hearing evaluation in newborns with low Apgar's scores. Methodology: Transient evoked otoacoustic emission (TEOAE) and auditory brainstem response (ABR) were made in all infants. Twenty one were born at term and 26 were preterm. Thirty two infants showed low Apgar's scores only in the first minute and 15 infants in both first and fifth minutes. Results: We evaluated 47 infants of both sexes who had low Apgar scores at birth. TEOAE were present in 45 children (90 ears) and only two children showed no response bilaterally. In 92 ears, the ABR, absolute latencies of waves I, III e V and interpeak latencies I – III, III – V and I – V, had the same pattern of response, appropriate for their ages and only one child had bilateral involvement, with increase of absolute latencies and interpeak latencies preserved. Conclusion: Although neonatal hypoxia is considered an important cause of neonatal morbidity and mortality and deafness, especially with scores below four for more than five minutes. However, none of our children, even those with low Apgar's scores, showed significant damages to their auditory system both in the peripheral portion as brainstem.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 112

OTOACOUSTIC EMISSIONS OF UNIVERSITY STUDENTS THAT USE PORTABLE DIGITAL MUSIC PLAYERS

Authors

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Institution

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Abstract: Exposure to high sound intensity, either by work or environmental noise, may damage the auditory system. The most appropriate test to monitor the auditory system and early detection of hearing impairment is the otoacoustic emissions, since this test directly assesses the cochlea and decreases in response level or lack of response of these test may already be an indication of cochlear dysfunction. The aim of this research was to evaluate the transient otoacoustic emissions and distortion product otoacoustic emissions of university students who use portable digital music players and correlate the results of the tests with categorical variables, as volume, time of use. Statistical analysis used the Mann-Whitney test and correlation coefficient of Spearman. This research comprised 44 university students, aged 18-30 years, who used their portable digital music players on average 1.83 hours per day, with an average volume of 67.41% from the total capacity of the equipment. They underwent the attainment of the transient otoacoustic emissions for transitory, assessing the frequencies of 1000, 1400, 2000, 2800 and 4000; and of the distortion product otoacoustic emissions, evaluating the frequencies of 1000, 1400, 2000, 2800, 4000 and 6000 Hz ($f_2/f_1=1,2$). For the transient otoacoustic emissions, it was observed that the largest response level was the frequency of 1.4kHz, decreasing at higher frequencies. There was a statistically significant difference between the genders in the frequencies of 2 kHz ($P=0.039$) and 4 kHz ($P=0.049$) for the right ear and the frequency of 2.8kHz ($P=0.046$) and 4 kHz ($P=0.016$) for the left ear, showing that men have lower amplitude response than women. For distortion product otoacoustic emissions, it was observed that there is a greater response level for high frequencies. There was no statistically significant difference between ears or gender, with only a tendency of men having better response level than women to frequencies of 1 kHz for the right ear ($P=0.090$) and women have better amplitude response than men in the frequency of 6 kHz for the left ear ($P=0.068$). By correlating the emissions with variables such as volume and duration of use, it showed that the time of use has a higher correlation with the tests, showing a significant and inversely proportional correlation to the transient otoacoustic emissions for frequencies of 2, 2. And 4 kHz for the left ear ($P=0.0139$, $P=0.0082$ and $P=0.040$, respectively). As for the distortion product otoacoustic emissions, there is a statistically significant difference in the frequencies of 2.8 and 4 kHz for the left ear ($P=0.0365$ and $P=0.0081$, respectively), indicating that the longer use, the lower the response level of distortion product otoacoustic emissions. By correlating the volume of equipment to the surveys, there was a statistically significant difference and an inverse correlation only for the examination of distortion product otoacoustic emissions in the frequency of 4 kHz for the left ear ($P=0.0101$). Thus, it was observed that the otoacoustic emissions response level of university students who use Portable digital music players have greater correlation with usage time than the volume of equipment.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 113

AUDIOLOGIC PROFILE OF PATIENTS WITH OSTEOGENESIS IMPERFECTA

Authors

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Institution

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Abstract: Introduction: Osteogenesis imperfecta is a disorder of congenital bone fragility caused by mutations in the genes that codify for type I procollagen. Purpose: To investigate the hearing function of patients diagnosed with osteogenesis imperfecta. Method: Cross-sectional study in which 18 patients participated. The age group of patients with osteogenesis imperfecta ranged from 1 year and 5 months to 43 years of age. All the patients had an auditory evaluation and the exams were divided in objective e subjective. The objective exam (tympanometry) was conducted in all patients. The subjective exams (visual reinforcement audiometry and tone pure conditioned audiometry) patients were submitted according to their age. Results: The prevalent gender of patients with osteogenesis imperfecta was females, 12 (66,7%), predominantly aged under 15 years, (88,8%). There was a higher occurrence of osteogenesis imperfecta type I and III with 22,2% each, followed by type IV (11,1%). Hearing loss occurred in 2 (11,1%) cases, one case in osteogenesis imperfecta type IV with bilateral conductive hearing loss and one with undefined classification for osteogenesis imperfecta, had sensorineural hearing loss of mild to moderate bilateral. In tympanometry, the majority, 15 (83,3%) patients, showed a curve of type An with reflexes present. Conclusion: We observed hearing loss in patients with osteogenesis imperfecta, therefore the auditory evaluation of these patients is important for the monitoring of their hearing health.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 114

AUDIOLOGICAL AND GENETIC STUDIES OF HIGH-RISK INFANTS

Authors

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Abstract: Deafness is one of the most common sensory disturbances and can affect any age group. It is characterized by a not visible sensory problem, leading to difficulties in the detection and perception of sounds; due to the complex nature of humans, it may cause serious problems to the individual, especially in their language development, if it is not diagnosed in the beginning of life. Auditory assessment is the main means of early detection of hearing loss. In cases of disapproval, it should be followed by medical audiology procedures, aiming to confirm its presence and establish the appropriate conducts. Concerning the etiology of deafness, we know that in a variable percentage of cases, the etiology is environmental, originated from pre-, peri- or postnatal factors. Among the cases of genetic etiology, we can differentiate those ones in which hearing loss consists an integral part of the syndromic profile and those in which it is presented in an isolate way (nonsyndromic). Therefore, the objective of this study was to perform the audiological and genetic diagnosis of high-risk infants, i.e. with stay of at least 48 hours in neonatal intensive therapy units (ITU). Forty infants born at the maternity of the Center of Attention to Women's Health (Caism), who stayed in ITU and failed in the neonatal auditory assessment, were evaluated. Children with chronological age between one and four months underwent audiological evaluation in a quiet environment at the Center for Studies and Research on Rehabilitation iVProf. Dr. Gabriel Porto, Faculty of Medical Sciences iV University of Campinas (Cepre/FCM/Unicamp). The following procedures were used: anamnesis, immitancimetry (tympanometry and ipsilateral acoustic reflex), brainstem auditory evoked response (BAER), and transient otoacoustic emissions. The genetic study was carried out at the Center for Molecular Biology and Genetic Engineering (CBMEG), by DNA extraction from the buccal mucosa, collected by the examiner after auditory tests, using the adaptive protocol method. It was performed the 35delG mutation screening in the connexin 26 gene (GJB2); afterwards, deletions Δ (GJB6-D13S1830) and Δ (GJB6-D13S1854) were detected in genes of GJB6 and A1555G, C1494T and A827G mutations (present in the 12S rRNA mitochondrial gene), which are related to susceptibility to loss when using ototoxic medicines. Analyzing the results, we could conclude that conductive hearing loss was the most frequent hearing impairment, followed by sensorineural hearing loss. In addition, since genetic mutations were not found, the sensorineural hearing loss causes were of environmental origin.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 115

AUDITORY PROCESSING DISORDER IN SPECIFIC LANGUAGE IMPAIRMENT: EVIDENCE OF HEMISPHERIC ASYMMETRY.

Authors

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Institution

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Abstract: Introduction: Specific language impairment (SLI) describes a condition of markedly delayed language acquisition. However, children with SLI have normal IQ performance and an absence of clear causal factors such as hearing loss or neurological signs. Studies have shown that children with SLI often have processing deficits, such as poor auditory processing, slower information processing and poor phonological working memory. Although the exact nature of how each of these deficits interferes with language learning is not yet clear, behavioral findings indicate that speech-sound perception deficits may contribute to the language deficits of some children with SLI. For these reasons, it is very important to understand how the auditory information is processed in SLI children, in order to improve the knowledge of the language difficulties of this population. Purpose: Investigate the performance of SLI children in central auditory processing evaluation (using a monotic, dichotic and temporal test) and also investigate the possible hemispheric asymmetries. Methods: Thirty one children, between 6 and 12 year, were evaluated using - PSI with noise, DDT - Dichotic Digit Test e FPT - Frequency Patterns Test (carried out binaurally). The children were arranged in two groups: The Control Group was composed by 10 children (mean \pm SD; 8.58 \pm 2.29) and SLI Group composed by 21 children (mean \pm SD; 7.93 \pm 1.61) All children presented normal peripheral hearing sensitivity bilaterally, confirmed by pure tone audiometry (\leq 15 dBHL). Results: The result was analyzed using the analysis of variance (ANOVA) at a significance level of 0.05. Performance of children with SLI was significantly lower than the CG one in all tests ($p < 0.01$). A difference in each ear (left and right) performance was observed when comparing the two groups - with lower performance observed for the SLI group. For GC, no statistically significant differences were observed between ears for the tests PSI with noise (RE=95.00; LE=96.67; $p=0.59$) and DDT (RE=96.25; LE=94.58; $p=0.65$). For the SLI group, no statistically significant difference was observed between ears for the PSI with noise test (RE = 85.71; LE = 80.95; $p=0.24$). However, a statistically significant difference between ears for the DDT was observed (RE = 75.60; LE = 62.41; $p = 0.02$), showing lower performance on left ear. Conclusion: Children with SLI appear to have restricted auditory abilities compared to controls and were observed hemispheric asymmetries, which can be related to a deficit in interhemispheric communication or also to slower information processing in the left ear transmission (longer pathway for left ear). Our results are useful in intervention, by specifying which parameters make it easier or more difficult for children to process language. Financial Support - Sao Paulo State Foundation for Research Support - FAPESP

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 116

CONTRALATERAL SUPPRESSION OF LINEAR CLICK EVOKED OTOACOUSTIC EMISSION IN CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT.

Authors

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Abstract: Introduction: The suppression of transient-evoked otoacoustic emissions (TEOAE) in the presence of contralateral noise indicates the inhibitory effect of the olivocochlear efferent auditory pathway. The integrity of auditory pathways is condition for the development of auditory abilities. Some authors affirm that the nature of Specific Language Impairment (SLI) may be related to consequences of auditory perception disorders. An efficient auditory processing - from the transduction of the signal up to the cortex - is necessary for speech understanding and processing. Studies have shown that children with auditory processing disorder present reduced medial olivocochlear system function. Alterations on the efferent system could cause a rupture in language development for preventing the correct extraction and comprehension of speech sounds in noise during a critical period of language acquisition. The assessment of aspects such as integrity of the olivocochlear bundle is important for the SLI population once studies have suggested that the efferent way plays a role in the processing of sound processing, more precisely in the abilities of selective attention and recognition of sound in the presence of background noise. The understanding of the efferent way contributions together with other hearing assessments in SLI children can improve the knowledge of the auditory processing in this population. Purpose: To evaluate the contralateral suppression of otoacoustic emissions in children with SLI by linear click. Method: Transient-evoked otoacoustic emissions with and without contralateral white noise were tested in 40 children between 6 and 12 years. The subjects were arranged in two groups: control group (n=19), SLI Group (n=21). All children presented normal peripheral hearing sensitivity bilaterally, confirmed by pure tone audiometry (\leq 15 dBHL). Linear click stimulus was adjusted to obtain a peak pressure of 60 \pm 2 dB. The suppressor stimulus was 60 dB SPL White Noise to the contralateral ear. The measurements with and without contralateral noise were duplicated in the same ear. For statistical analysis, ANOVA test (variance analysis) was applied. The adopted statistical power 95%, and significance level was 0,05. Results: A mean suppression of 1.68 dB (SD=1.19) was observed for the GC and of 0.29 dB (SD=1.15) for the SLI group. Statistically significant between groups differences were observed being that the SLI group showed lower suppression effect than GC ($p < 0.001$). Regarding the amplitude values of otoacoustic emissions without contralateral noise, no significant between group differences were observed ($p=0.288$). On the between ears comparison, no statistically significant differences were observed for both groups ($p=0.451$ and $p=0.825$, respectively). Conclusion: SLI group presented reduced otoacoustic emissions suppression. However left/right asymmetry of TEOAE suppression effect were not found. TEOAE suppression showed to be additional tool for assessing the efferent pathways in SLI children. Financial Support - Sao Paulo State Foundation for Research Support - FAPESP

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 117

AUDITORY STEADY STATE RESPONSE IN CHILDREN WITH DYSLLEXIA AND WITH (CENTRAL) AUDITORY PROCESSING DISORDERS

Authors

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Abstract: Simões MB, Schochat E. Auditory steady state response in children with dyslexia and with (central) auditory processing disorders INTRODUCTION: Auditory Steady State Response (ASSR) is an electrophysiological test that evaluates, within other factors, the phase locked. To have a response as close as the auditory function and not to the behavioral threshold of the individual, the study of the ASSR may be done using the 46Hz frequency modulation. Another way to evaluate the central auditory function is through a behavioral evaluation of the (Central) Auditory Processing. Subject who has (Central) Auditory Processing Disorders ((C)APD) presents difficulty to manipulate the information heard, possibly manifesting speech, reading, writing and language damages, and presents difficulty in the learning process as a whole. Difficulties in reading and writing abilities can also be manifested in other disorders as Dyslexia. In this research it was studied the processes of hearing (not only in a behavioral but also in an electrophysiological manner) in two groups of subjects: one with Dyslexia and (C)APD and another with (C)APD, and both were compared to a normal group. AIM: The main purpose of this study was to compare the response obtained by the ASSR in children with (C)APD with and without Dyslexia, comparing them to a control group. METHODS: Participated in this study 20 individuals with typical development (Control Group), 20 individuals with (Central) Auditory Processing Disorders ((C)APD Group) and 20 individuals with Dyslexia (Dyslexic Group) with age ranging from 7 to 12 years. All participants were submitted to the evaluation of the (C)AP and to ASSR. RESULTS: The evaluation of the (C)AP showed worse results in the speech in noise and dichotic digits tests in the (C)APD group compared to the Dyslexic group. For the ASSR, the lower means were observed in the control group and the means of the Dyslexic and (C)APD groups were similar. CONCLUSION: Children with (C)APD and Dyslexia presented higher thresholds obtained by the ASSR compared to the control group. DESCRIPTORS: Evoked potentials, auditory; Auditory perception; Dyslexia; Child

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 118

AUDITORY DEPRIVATION IN MONITORING AUDIOLOGICAL ELDERLY PATIENT WITH SENSORINEURAL HEARING LOSS IN OVER SIX YEARS

Authors

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Institution

1. Clínica Lavinsky, Clínica Lavinsky

Abstract: The deprivation caused by the hearing loss has been studied because of the increasing the number of elderly and life expectancy. Hearing impairment in the elderly range to a decrease in hearing thresholds up to major difficulties in speech understanding, leading the individual to have problems in communication and, consequently, social isolation. This study aimed to compare the hearing results of ten elderly patients at the Lavinsky Clinic in six years and check for possible damage caused by the lack of auditory stimulation. A sample consisted of 10 patients of both sexes, aged 72 to 90 (mean age 81 years), four are female, aged between 74 and 89 (mean age 81 years) and six are males aged between 72 and 90 (mean age 81 years). Inclusion criteria: right-handed with bilateral sensorineural hearing loss. Exclusion criteria: User has a hearing aid, having worked in noisy environments, has a history of disorders in the balance, tinnitus and neurological comorbidities. All subjects were assessed by doctors and sent to the auditory assessment. Pure tone audiometry revealed elderly patients with symmetric sensorineural hearing loss and two with asymmetric. The classification of degree of hearing loss was used according to the proposal of Davis & Silverman (1970). The degree of hearing loss found among the loss symmetrical where two cases were mild, five moderate and severe. The degree of asymmetric was moderate in the right ear and mild in the left ear in one case and severe in the right ear and mild in the left ear in the other case. The mean hearing thresholds at the first audiological evaluation compared to the latter, three cases remained at the same levels, and seven cases, the maximum difference reached 10 dB in one or more frequencies. The speech perception assessment was decisive in finding the effect of auditory deprivation. Among the ten patients studied, six had significant decrease auditory discrimination and four had a not significant differential. In the male population, four patients showed a decrease in the percentage breakdown from 32 to 56%, with greater difference in the left ear. In the female population, two patients showed a decrease in the percentage breakdown from 20 to 36%, without significant difference between the ears. The largest differences in percentage were evident in the last four years for each patient. From the two patients who underwent only two audiological evaluations showed no effects of deprivation hearing. The presence of auditory deprivation could be observed in 60% of patients with significant worsening in intelligibility in the last four years. Currently, all patients accepted the importance of hearing and are motivated to use. All patients followed the medical monitoring.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 119

SELECTIVE OUTPATIENT HEARING SCREENING IN INFANTS WITH RISK INDICATORS FOR HEARING LOSS

Authors

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Abstract: Introduction: Universal Newborn Hearing Screening (UNHS), is recommended to identify hearing loss in newborns. A Brazilian multidisciplinary hearing health care committee (COMUSA, 2009) suggests that UNHS must be performed prior to hospital discharge. If not possible, a selective outpatient hearing screening can be performed, especially in high risk infants. It is of interest the outcomes for this outpatient screening can be described, as an alternative for UNHS. Objective: to describe the outcomes of an outpatient hearing screening program, in a group of infants with risk indicators for hearing loss. Method: a descriptive and retrospective study was designed. The data was available in a database program, in a hearing health care service in São Paulo . The study included patients referred by four public hospitals in order to perform the screening, between January and September 2009. Risk indicators were described by COMUSA, 2009. The method used for hearing screening was AABR at 35 dBnHL. The children who did not pass initial screening were referred for medical evaluation and audiological assessment. Results: 213 infants were included in the study. Infant's age ranged between 11 and 283 days (average 78.11 days). Rate of Infants who passed the hearing screening reached 84.50% (N=180), while 15.50% (N=33) referred. However, 12.2% of the infants referred (N=4) did not complete the diagnostic process. Regarding risk indicators, 52.11% (N=111) were in the NICU for more than 5 days, and 51.17% (N=109) were exposed to ototoxic drugs; 48.82% of the infants (N=104) needed mechanical ventilation, while 46% (N=98) were preterm babies. For the subjects included in the study 16.43% (N=35) were born less than 1500g, and 12.67% (N=27) were diagnosed with congenital infections. Family hearing loss was present in 10.32% of the babies. The infants who were small for gestational age reached 9.85% (N=21). Other risk indicators were: 7.98% (N=17) for Apgar score 0- 4 in the first minute or 0- 6 in the fifth minute; 2.34% of the infants (N=5) showed parents' concern with the hearing development, 2.34 % (N=5) had hyperbilirubinemia, and 2.34% (N=5) had bacterial or viral infections after birth. Genetic syndromes associated with hearing loss and craniofacial anomalies were present in 3 (1.40%) children. Only 1 child (0.46%) had neurodegenerative disorders. Audiological outcomes for 29 children who completed the hearing assessment showed that 14 infants (48.27%) with normal hearing. Seven infants (24.15%) were diagnosed with conductive hearing loss and 3 (10.34%) with sensorineural hearing losses. By the end of the study, 5 children (17.24%) were still in the diagnostic process. These findings agree with the literature that shows a prevalence of 10% hearing loss in children with risk indicators. Infants who stayed in the NICU more than five days were the largest population referred by the hospitals, showing the concern of the neonatologists with these children after discharge. Conclusion: the occurrence of conductive and sensorineural hearing loss (30.49%) in children with risk indicators reinforces the importance of hearing screening in this population, both in the neonatal period, and also in the first year of life.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 120

AUDIOLOGICAL ASPECTS OF DANDY WALKER SYNDROME: A CASE STUDY

Authors

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Abstract: Introduction: The Dandy Walker Syndrome (DWS) consists on a rare malformation of the posterior fossa that may occur associated with other brain or systemic malformations. It is characterized by cystic dilatation of the fourth ventricle and aplasia - or partial or total atrophy - of the cerebellar vermis. There is a high incidence of associated anomalies such as: cortical (agenesis of the corpus callosum and stenosis of the aqueduct of Sylvius) and visceral (complex cardiac malformations) anomalies. This syndrome has a prevalence of 1:25,000 births. There is no gender predilection. Moderate psychomotor retardation, microcephaly and hypotonia may be clinically observed. However, the predominant symptom refers to hydrocephalus, usually in the first two years of life. Some ocular manifestations are also described in the DWS, such as corioretinal coloboma and nystagmus. There may be observed mental retardation (50%), spasticity (instead of hypotonia), seizures and vomiting, all depending on the degree of cerebellar malformation. The DWS has high morbidity and mortality. Its mortality rate is about 22% to 24%, partly due to the associated cerebral and visceral anomalies. In the literature, there are few data on the audiological aspects that may be associated to the DWS. Objective: to describe the audiological findings of a five-year old child diagnosed with DWS. Methods: a five-year old female child was referred to the Auditory Evoked Potentials Investigation Laboratory for audiological assessment. The mother reported that the child had DWS diagnosis, presenting congenital glaucoma, nystagmus, cardiac disorder, psychomotor development delay and delayed speech and language development. The child presented recurrent otitis and tympanic membrane perforation on the right ear. It was reported that the child reacts to loud sounds although many repetitions are necessary. The following procedures were performed: otoscopy, immittance test (left ear), conditioned play audiometry (field), speech tests (with headphones) and Auditory Brainstem Response (ABR). Results: Presence of tympanic membrane perforation in the right ear and normal tympanometric curve with absent acoustic reflexes in the left ear were observed. On the conditioned play audiometry the child presented a minimum response level ranging between 70 to 80 dB HL at 500 to 4000 Hz, consistent with the observed speech recognition thresholds for both ears (80 dB for the right ear and 75 dB the left ear). The obtained electrophysiological threshold was 60 dBHL in both ears, suggesting a moderate hearing loss for clicks. Conclusion: In the case described, the audiological assessment suggested a bilateral moderate to severe hearing loss – conductive component on the right ear and neurosensorial component on the left ear. The objective assessment through the ABR contributed to a more precise diagnosis and an improved therapeutic targeting. The audiological assessment is necessary in cases of DWS as the hearing loss might be secondary to other systemic alterations and one more aggravating factor on the rehabilitation process.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 121

AUDITORY MONITORING IN MENINGOMYELOCELE AND HYDROCEPHALUS: CASE REPORT

Authors

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Institution

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Abstract: Introduction: The meningomyelocele (MM) is a congenital flaw with severe clinic and social consequences. It results from a flaw in the closure of the posterior portion of the neural tube, during the fourth week of the pregnancy and when a cystic protrusion occurs and it can lead to motor sensitive deficiencies in a variety of levels as: skeleton deformities, vesical and intestinal incontinence and sexual dysfunction. Approximately, 20% of the affected children present any other congenital flaw, being the hydrocephalus the more frequent one. In the past, many children died from MM in birth or at the first months. Nowadays, thanks to pre-natal diagnosis and the medicines progress and, specially, the antibiotics and the derivation valvules of the cephalous-spinal liquid, it is possible a better intervention planning, assuring a better quality to the survival. Objective: The objective of this report is to describe the results of 5 years of auditory monitoring of a male child, attended since 3 months old on Santa Casa de Misericórdia de São Paulo . Results: The MM diagnosis was done during the seventh month of pregnancy. The child was born in the 36th week weighing 2600kg, presenting apgar score 4, 6 and 7 at the first, fifth and tenth minutes of life respectively. At the birth, it was diagnosed communicating Hydrocephalus. At the first day, the child was submitted to a MM correction and at the fourteenth day it was done a ventricular peritoneal deviation (VPD). Nowadays, this 5-year-old child is in a wheelchair because the impossibilities toward the MM, he maintains the VPD located and, among other alterations as neurogenic bladder and scoliosis, he presents bilateral strabismus and a delay in the neuro-psycho-motor development. At the first auditory evaluation at 3-months-old had curve type A at tympanometry, cochleo-palpebral reflex (RCP) presents, bilateral otoacoustic emissions (OEA) presents and auditory brainstem response (ABR) reproducible up to the level of 60dBNA bilateral with signs of neural commitment. During the evaluations the mother always reported that the child listens. In a new 6-months-old ABR, the result was maintained. When he was 1 year and 4 months old it was done a of visual reinforcement audiometry (VRA) With a pediatric audiometer with responses to 40dB in 500Hz and 20dB in 1k, 2k and 4kHz. In a new VAR when he was 2 years and 6 months old, the results maintained unaltered. When he was 5 years old it was done a conditioned tonal audiometry and the result found was minor conductive auditory loss at right and thresholds in the normal patterns at left. The child presents a functional speech development being capable of repeating words and comprehending simple orders. Conclusion: The auditory alterations found, suggest a minor conductive auditory loss at right and normal hearing at left. The auditory attendance is done to monitor the child hearing to provide means to maximize its communication potential.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 122

BRAINSTEM AND MIDDLE LATENCY AUDITORY EVOKED POTENTIALS IN INDIVIDUALS WITH TINNITUS

Authors

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Abstract: INTRODUCTION: Auditory evoked potentials may represent an alternative to detect possible central auditory disorders that may be present in individuals with tinnitus complaint and that indicate the probable generator site of such symptom. AIM: to characterize brainstem auditory evoked potentials (BAEP) and middle latency auditory evoked potentials (MLAEP) in individuals with and without tinnitus complaint in association to occupational noise. METHOD: sixty subjects exposed to occupational noise with elevated sound pressure level (greater than 85 dBA), male and female, aged from 29 to 50 years old; 30 of them had tinnitus complaint (study group) and 30 did not have tinnitus complaint (control group). Brainstem auditory evoked potentials (BAEP) and middle latency auditory evoked potentials (MLAEP) were examined. RESULTS: Considering BAEP results it was observed a predominant increase of the latency from waves I and III, as well as alteration in the lower brainstem in 16 individuals of the study group. In regard to MLAEP it was observed higher averages for the latency of wave Na in the modalities C4/A1 and C3/A2 in study group, evidencing eight individuals with abnormal results. Such increase was observed in all analyzed modalities (C3/A1, C4/A1, C3/A2, C4/A2) for the latency of wave Pa and amplitude Na-Pa; the electrode effect was the most frequent type of alteration observed for the amplitude Na-Pa and the latency increase, for waves Na and Pa. Studying the association between the side of the abnormal auditory evoked potentials and the localization of the tinnitus it was verified a higher association between bilateral tinnitus and bilateral alteration in the BAEP. CONCLUSION: Despite the inexistence of statistical significance in some of the performed analysis, measures of BAEP and MLAEP showed that most of the individuals from the study group presented abnormal results when compared to the control group. Therefore it can be supposed that there is an existence of a possible dysfunction in the central auditory nervous system from the auditory nerve until the subcortical region in individuals with tinnitus complaint exposed to sound pressure levels of occupational origin. Descriptors: Tinnitus; Occupational noise, Brainstem auditory evoked potential, Auditory evoked potentials, Electrophysiology.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 123

CORRELATION BETWEEN THE BRAINSTEM AUDITORY EVOKED POTENTIAL AND AUDITORY STEADY-STATE RESPONSE IN CHILDREN

Authors

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Abstract: The detection and precocious intervention of the hearing residuals are very important to prevent child development alterations that occur on children without sonorous stimulation at their first years of life. With the implantation of programs of hearing health by the Health Unique System the hearing loss precocious diagnosis has been more often. This way, we stick out the necessary refinement of child hearing diagnosis techniques. One of the innovator procedures on this area is the auditory steady-state response (ASSR) research, which is mainly outstanding because of a bigger easiness and efficiency to get the answers, objectivity on record analysis, selectivity of the frequencies, moreover a bigger answer detection when compared to others objective methods like the brainstem auditory evoked potential (BAEP) Objective: To check the correlation between the electrophysiology hearing threshold, what is evident by BAEP, and the minimum level obtained answer by ASSR. Method: Eight children have been analyzed, at three months and three years old, proceeding from Universal Newborn Hearing Screening of the São Paulo Hospital of UNIFESP. Every children had hearing loss diagnosis, evident by a set of hearing exams previously realized, which involve: Otoacoustics Emissions, Acoustic impedance tests; BAEP, besides medical analysis. The ASSR minimum level research was realized at 500, 1000, 2000 and 4000 Hz frequencies, by tone pips with modulation ratio 77 to 103 Hz, by Intelligent Hearing System Smart EP equipment. The stimulus were presented through insertion phone, the brain activity (EEG) was registered by surface electrodes and the detection of the answer was realized at frequencies dominion (domain) by statistic tests. All the children were evaluated on natural sleeping and the length of time of this evaluation was, average duration, 65 minutes. The BAEP also was realized with children on natural sleeping, with insertion phones with average duration of 40 minutes to research of the electrophysiological threshold. The surface electrodes were positioned at the mastoid and forehead, in the same manner of ASSR research. The electrophysiological threshold was searched with click stimulus, in the same equipment of ASSR, at 2 to 4 Hz frequencies. Results: There was a significant correlation between the minimum levels at the ASSR high frequencies and the click of BAEP. It was possible to evidence that the ASSR permitted the detection of hearing residuals what would pass unnoticed in case of only BAEP with click has been realized. From 16 tested ears, four showed absent BAEP and present ASSR in at least one frequency, this happened in those cases of severe and deep degree of loss hearing. There weren't cases that BAEP was present and ASSR were absent. Conclusion Based on these findings, the two methods BAEP and ASSR can be used to

estimate the hearing sensibility for high frequencies of pediatric people. And it suggests that children without absent BAEP must be evaluated with additional electrophysiological methods, because ASSR can provide important information for a better adjustment of the hearing aid and help on the choosing of the ear with best hearing residual.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 124

EFFECT OF CONTRALATERAL AND BILATERAL ACOUSTIC STIMULATION ON OTOACOUSTIC EMISSIONS AMPLITUDE IN NORMAL-HEARING INDIVIDUALS

Authors

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Abstract: The research of otoacoustic emissions (OAE) in response of an elicitor stimulus simultaneously delivered at both ears reduces the test time and facilitates the hearing screening, mainly under hard experimental conditions. The simultaneous delivery of this stimulus to both ears may be able to activate the efferent mechanisms of the auditory system, producing a reduction of OAE amplitude response level in comparison to the unilateral OAE test. Although innovative, there is little quantitative data about this subject and there have been no studies comparing the OAE levels obtained through unilateral stimulation against those obtained through bilateral stimulation. The aim of this study was to describe the amplitude differences between unilateral and bilateral collection of transient evoked otoacoustic emissions (TEOAE) and distortion product evoked otoacoustic emissions (DPOAE). Method: Thirty normal-hearing adults (fifteen male and fifteen female) between 18 and 33 years, participated in the study and gave written informed consent. TEOAE (80 dB SPL nonlinear click stimulus) and DPOAE (DP-gram test, L1 = 65 dB SPL, L2 = 55 dB SPL, F2/F1 ratio = 1.22) tests were performed at both ears, initially through unilateral OAE stimulation and later through bilateral OAE stimulation. Then, contralateral noise TEOAE suppression test (80 dB SPL linear click stimulus and 60 dB SPL suppressor white noise) was also assessed. To record the TEOAEs and DPOAEs, it was used an Echoport ILO292 USB-II, version 6 (Otodynamics Ltd, Hatfield, UK) installed in a sound-treated room and coupled to an IBM Pentium 4 PC. Results: The response levels in the bilateral TEOAE and DPOAE tests were significantly lower than those obtained in the unilateral tests. In addition, TEOAE amplitude reduction in response to bilateral stimulation was greater than in response to contralateral noise stimulation. Conclusion: The bilateral OAE stimulation may have activated the mechanisms of efferent auditory system, producing a suppressive effect. Bilateral OAE tests constituted, in this study, a useful tool for evaluating the auditory system functions. Further studies about OAE suppression methods are needed in order to determine the best way to evaluate the function of the medial olivocochlear system.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 125

FREQUENCY OF OCCURRENCE OF COCHLEAR-EYELID REFLEX WITH THE USE OF THE BLACK-BLACK INSTRUMENT.

Authors

ALINE HANAZUMI, ELAINE COLOMBO SOUSA, MARISA FRASSON DE AZEVEDO

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Abstract: Introduction: The cochlear-eyelid reflex (CER), innate reflexive and automatic response at subcortical level, which is characterized by the contraction of the orbicular muscle of the eye, could be provoked by sonorous stimuli higher than 90dB, which were produced, for example, by black-black and agogo instruments. It is used for behavioral and integrity evaluation of the retrocochlear auditory canal. Literature demonstrates that newborns of low and of high risk for auditory deficiency present, consecutively, 82% and 77.5% of this response presence when black-black was used and 100% when agogo was used, and therefore, agogo would be more effective for the evaluation of the CER. However, divergent relation to this finding is observed in the practical clinic. The objective of this study was to verify the effectiveness of black-black use and the frequency of CER occurrence when this instrument was used. Methods: This study was carried through with the data of the program of Universal Neonatal Hearing Screening Programme of the Hospital "Vereador Jose Stoporoli" of the city of Sao Paulo. 2574 newborn babies (NB) had been evaluated, being 1940 of low risk for auditory deficiency (75.38%), 248 (9.63%) with risk for retrocochlear auditory deficiency and 386 (14.99%) with risk for cochlear auditory deficiency, being all with more than 24 hours of life. The Transient Evoked Otoacoustic Emissions (TEOE) had been registered by the Otoport Lite device that analyzes the answers for frequency bands. They had been considered as present answers in, at least, 2, 3 and 4KHz and with signal-noise relation bigger than 6dB. The CER was provoked by means of the black-black instrument (90 dB). If a reflex absence occurred with this instrument, agogo (100 dB) was used then. Results: There was absence of CER with the use of black-black and agogo in 6 newborns (0.23%). 5 of these newborns (0.19%) had presented absence of response in the OEA and 1 of them (0.03%) had presented presence of response, and all of them had risk of having retrocochlear auditory deficiency. The number of absences of CER with black-black, but present with agogo, was of 8 newborns (0.31%). Conclusion: We could verify that black-black was efficient to unchain the CER in 99.45% of the NBs, thus showing to be possible to use it for this aim in the practical clinic routine, besides providing a lower level of frightening of screening NBs and sonorous noises in the maternity, when compared with agogo.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 126

NEONATAL HEARING SCREENING: EFFECT OF AURICULAR MANEUVER FOR THE REDUCTION OF FALSE POSITIVES

Authors

ISABELA RORIZ SILVA MARTINEZ, ELAINE COLOMBO SOUSA, MICHELE VARGAS GARCIA, MARISA FRASSON DE AZEVEDO

Institution

1. UNIFESP, Universidade Federal de São Paulo

Abstract: Introduction: the universal newborn hearing screening has been proposed as a resource of early identification of hearing impairment. The most common form of this screening method is through out transient evoked otoacoustic emissions. The newborn hearing screening is carried out in nurseries and sharing shelter, although at this stage there is greater chance of obstruction of the external auditory canal of the newborn with vernix caseosa increasing false-positives. Vernix caseosa is a serous substance that covers the external auditory canal skin of the newborn, accounting for 15% failure rate in transient evoked otoacoustic emissions according to some studies. A possibility used if the newborn fails the transient evoked otoacoustic emissions is to perform the auricular therapy ("facilitating auricular maneuver") to remove the vernix caseosa. Auricular therapy ("facilitating auricular maneuver") consists of counterclockwise circular movements performed with the index finger on the tragus of the ear and simultaneous movement of the auricle in the postero-inferior direction with the assistance of the thumb. Objective: Determine whether the auricular therapy ("facilitating auricular maneuver") is more effective than repositioning the probe in the reduction of false-positives in newborn hearing screening with transient evoked otoacoustic emissions. Determine whether the repositioning of the probe and auricular therapy decreases the number of false-positives responses in the hearing screening with transient evoked otoacoustic emissions. Methods: transient evoked otoacoustic emissions were assessed in 948 newborns at the José Stoporoli Vila Maria Hospital (Sao Paulo, Brazil). For this study it was selected 100 newborns who failed on the screening. Newborns diagnosed with hearing impairment were excluded. The sample was divided into two groups: GI, control group, made up of 50 newborns (29 females) (21 males), totaling 74 ears which failed on the first test and were immediately retested following the repositioning of the probe; and GII, experimental group, made up of 50 newborns (25 of each gender), totaling 74 ears which failed on the first test and were immediately retested following the auricular therapy. Results: Among the total of 74 ears analyzed in each group, 40 (54.05%) passed on the transient evoked otoacoustic emissions after the auricular therapy and 32 (43.24%) passed following the repositioning of the probe, with no statistically significant difference between the two methods. Conclusions: Both repositioning of the probe and the auricular therapy reduced the number of false-positives on transient evoked otoacoustic emissions, demonstrating that the auricular therapy was not statistically significant more effective at reducing the number of false-positives than repositioning of the probe.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 127

AUDITORY ACUITY IN SUBJECTS WITH HEARING LOSS WITH AND WITHOUT TINNITUS USING DIFFERENT STIMULI

Authors

ROBERTA ROBBA ASOLA FRATTI, ANA CLAUDIA FIORINI

Institution

1. PUC-SP, Pontificia Universidade Católica de São Paulo

Abstract: Introduction: Despite technological advances currently available, the pure tone audiometric test still represents the only test that evaluates the hearing in a range of frequencies. Due to cases of incompatibility of results in clinical practice is essential to conduct research using different stimuli during the tests. Objective: To compare warble tone audiometric thresholds gotten with the narrow band stimuli in subjects with sensorial neural hearing loss, without and with tinnitus. Method: The study sample consisted of 32 patients aged between 25 and 79 years old, 16 female and 16 male. The audiometric thresholds by air conduction with the stimulus warble and narrow band were researched in the frequencies 250 to 8000Hz in both ears in three groups: subjects with normal hearing (n=9), with hearing loss and without tinnitus (n=11) and with hearing loss and tinnitus (n=12). Results: The results demonstrated meaningful statistic differences between warble and narrow band in all of groups. In the comparative analysis, the differences had been higher, with significance statistics, in the groups with hearing loss when compared with the subjects with normal hearing, independently of the tinnitus. Conclusion: the use of different stimulus in the audiometric evaluation can represent an important strategy for attainment of trustworthy thresholds, mainly in subjects with hearing losses.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 128

STUDY OF THE EFFECT OF SUPPRESSION OF OTOACOUSTIC EMISSIONS LATERAL DOMINANCE

Authors

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Institution

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Abstract: Introduction: Suppression of evoked otoacoustic emissions (SOAE) or efferent olivocochlear reflex is characterized by the suppression or reduction of the amplitude response or alterations in latency and phase alteration of SOAE, when the contralateral acoustic stimulus was recorded simultaneously Hood et al (1999). Researchers Khalfa and Collet (1996) and Khalfa et al (1998) described differences in patterns of suppression/reduction of SOAE between the right ear and left ear. Interaural asymmetry found, not only in relation to the size of the amplitude of SOAE (more right), but the action of the efferent auditory system (more effective on the right). Objective: To compare the amplitude and effect of the presence of suppression /reduction of SOAE about lateral dominance in normal adult subjects. Methodology: The sample consisted of 75 individuals of both sexes aged 20 to 73 years divided into age groups. We used the linear then the intensity of 60 dB SPL white noise as contralateral stimulation, the intensity of 60 dB SPL (signal to noise ratio of 0 dB). The results found the value of the response amplitude of SOAE and compared it between the ears. Conclusion: There are differences in standards between the results of right ear compared to the left ear, with the size of the asymmetry amplitude of SOAE and the presence of suppression/reduction of SOAE, so this study proves the dominance side right ear of the values as the amplitude and the effect of suppression/reduction of SOAE by transient stimulation, confirming the literature.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 129

DESCRIPTION OF AUDIOLOGICAL FINDINGS OF AN OTOTOLOGY ASYMPTOMATIC ACOUSTIC NEUROMA

Authors

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Institution

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Abstract: Introduction: The acoustic neuroma or vestibular Schwannoma is a benign tumour originated in Schwann sheath cells, originated from the vestibular nerve. Its incidence is around 1 for every 100,000 inhabitants per year (Karjalainen et al.1984), corresponding to 8% of intracranial tumors. The incidence peak is between 35 to 55 years old, with a slight predominance to women and usually unilateral (Siqueira; Cross; Costa 2000). The most common complaint is the progressive neurosensory and unilateral hearing loss, and it may be associated with tinnitus and mild vertigo. In large tumors can occur cerebellar compression symptoms and intracranial hypertension signs. Objective: Describe the case of a patient (J.G.S., male, 48 years old, without hearing complaint or other associated symptoms), who attended the Otolaryngology ambulatory of Santo Amaro Medical School - UNISA, diagnosed with acoustic neuroma by the Neurology after the magnetic resonance (MR) requested evaluate and treat the patient's epilepsy. Method: Audiometry performed with a Mark Madsen audiometer Itera II model, acoustic immittance measures with Interacoustics equipment MT10 model and Bera (Brainstem Evoked Response Auditory) using Interacoustics equipment Eclipse model. Results: The hearing audiometry showed normal thresholds until the frequency of 4000Hz, falling only on the frequencies of 6000 and 8000, right ear (6KHz/30dB and

8KHz/40dB) and left ear (6KHz/40dB and 8KHz/60dB). Normal Acoustic immittance measures; normal tympanometric curves (type A) with ipsilateral stapedial reflexes present at 500, 1000, 2000, and 4000Hz frequencies at normal levels. The research about potential auditory brainstem presented nerve conduction to the auditory pathways within the normal range (with the presence of the waves I, III and V) to the right afference and abnormal (presence only of the wave I and absence of the generate sites waves III and V) to the left afference. Magnetic resonance showed a large lesion on cerebellopontine angle (2.0 x 2.0 cm), well delineated, with intermediated signal T1 weighted MR image, high signal T2W MR image, high signal T2W MR image and strong enhance, shaped filling defect in internal auditory canal - "ice cream in cone signal". Conclusion: We emphasize that, despite the slight alterations, with a minor discrepancy in interaural hearing thresholds and the absence of otological symptoms, it is important to perform the differential diagnosis of the acoustic neuroma.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 130

NEWBORN HEARING SCREENING PROGRAM IMPLATATION AT VIRVI RAMOS HOSPITAL

Authors

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Institution

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Abstract: Aim: To show the results of the Newborn Hearing Screening Program implantation at Virvi Ramos Hospital in Caxias do Sul, Rio Grande do Sul. Methods: Interviews with parents, analyses of the medical charts of the patients and research of the transient evoked otoacoustic emissions (TEOE) in order to verify the cochlear functioning of the newborns. Results: During the first five months of this Program, 252 (out of 262) neonates born alive were screened, corresponding to 96.1%. Among these, 180 (71.4%) had regular TEOE in both ears. Among the 72 (28.2%) patients who failed in at least one ear, 66 (91.6%) returned to be screened again 15 days after leaving hospital, and among this last group, only three (4.5%) neonates failed again bilaterally. The most prevalent risk factors for hearing loss were: pregnancy problems (22.6%), heredity (9.9%), stay in incubators (9.1%) and stay at intensive care units (7.1%). The newborns' mothers were questioned about the test and the majority (69.4%) did not know about the Newborn Hearing Screening (NHS) yet. Conclusion: The results obtained in the first months of the implantation of the Newborn Hearing Screening Program at Virvi Ramos Hospital can be considered expressive, specially if the number of adherence (91.6%) is considered and the number of mothers who knew about the neonatal hearing screening (30.6%). This Program is a pioneer service in the city that permits an early detection of deafness in newborns with and without risk factors.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 131

AUDITORY MIDDLE LATENCY RESPONSE (AMLR) IN CHILDREN WITH LEARNING DISABILITIES

Authors

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Institution

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Abstract: **Authors** Ana Claudia Figueiredo Frizzo¹, Carolina Araujo Rodrigues Funayama Auditory Middle Latency Response (AMLR) in children with learning disabilities **Abstract:** Research involving auditory middle latency response (AMLR) has stood out as a tool to evaluate the integrity of the central hearing system and seems to be useful in clinical practice. The aim of this study was to examine the components of the AMLR in a sample of children with disabilities in reading and writing, according to their IQ levels. This contemporary cross-sectional study included 25 children with learning disorders, from 8 to 14 years of age (median, 10 years). These children showed no organic or environmental cause for their disabilities and were matched by age and gender to controls with good academic skills. The AMLR of the study group with total IQ (WISC-III) below 80 (N=15) was compared to that of the group with IQ above 80 (N=10), and both were compared to the control group. The data were analyzed by comparing confidence intervals for the latencies of Na, Pa and Nb waves and the Na-Pa amplitude for various combinations of ears and brain hemispheres. The findings did not characterize any unique marker for the group with IQ < 80. The latencies of Nb and Pa (LatNb and LatPa) were slower in the right brain hemisphere of the group with IQ >80 in relation to the right (LatNb and LatPa) and left (LatPa) hemispheres of the control group. These findings regarding AMLR measurement may represent a marker for dyslexic children.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 132

226HZ AND 1000HZ TYMPANOMETRY IN INFANTS: SENSIBILITY AND SPECIFICITY

Authors

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Abstract: Introduction: Tympanometry is a very established tool in the audiological evaluation battery. However for neonates and infants there are controversies, mainly concerning to false-positives and false-negatives outcomes. The literature recommends 1000Hz tympanometry for infants under six months of age because it shows higher sensitivity and accuracy to correctly identify middle ear diseases in this population. Goal: To describe the sensitivity and specificity of tympanometry outcomes with 226Hz and 1000Hz probe tones on infants. Method: 142 infants took part in the study (245 ears), ages between 12 and 180 days, presenting risk indicators for hearing loss. They were evaluated with Transient Otoacoustic Emissions (TOAE), Automatic Auditory Brainstem Response (AABR) in 35dBHL and Tympanometry with 226Hz and 1000Hz probe tones. The curves were classified in types A, Flat, C, Double Peak (DP), Asymmetric (ASS), Inverted (I), and also as normal (type A) and abnormal (types C, Flat, ASS and I). The statistical measures aimed to verify which probe resulted in better concordance with TOAE. In addition, it was calculated the sensitivity and specificity for 226Hz and 1000Hz probe tones. Results: Otoacoustic emissions were present in 211 ears (group 1) and absent in 34 ears (group 2). Results with 226Hz probe tone revealed: in group 1, 90,28% of the tympanometries were considered as normal, and 9,72% as abnormal; in group 2, 76% of all tympanometries were considered normal, and only 24% as abnormal, showing low sensitivity for this probe tone. The 1000Hz probe tone revealed: in group 1, 83,94% tympanometries normal and 16,06% abnormal. In group 2, 74,07% showed abnormal tympanometries and 25,93% were normal. These results demonstrate that 1000Hz probe is more efficient for infants. The 226Hz probe showed sensitivity of 24%, specificity of 90,28%, with false-positive results of 70% and false-negative results of 12,75%. The 1000Hz probe has presented sensitivity of 74,07%, specificity of 83,94%, false-positive results of 60,78% and false-negative results of 4,14%. The concordance between curve classifications as normal or abnormal and TOAE was higher for 1000Hz probe tone than for 226Hz probe. Conclusion: The results of tympanometry using 1000Hz were more concordant with TOAE results. It is possible to observe that the sensitivity is greater concerning the use of 1000Hz probe, although the specificity with 226Hz is slightly higher. Similarly, the false-positive and false-negative results were less frequent by using the 1000Hz tone probe. We conclude that 1000Hz probe tone is more suitable to evaluate infants under six months of age.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133

AUDITORY FUNCTION IN AUDITORY DYSSYNCHRONY: LONGITUDINAL STUDY

Authors

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Institution

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Abstract: The auditory dyssynchrony (AD) is an neural synchrony disorder, probably related to myelinization alterations of these fibers, to the inner hair cells, synapses between the cells and the auditory nerve, in the nerve itself, or still, in several of these structures. Objective: To verify the performance of the auditory abilities and language of individuals diagnosed as auditory dyssynchrony with hearing aids during the rehabilitation process. Methods: This study presents the follow-up results of audiological hearing aid fitting, speech perception and language evaluation in seven male patients (age range 3-8 years). Results: Bilateral hearing loss of moderate degree was found in three patient, severe in three and profound in one, 5 showed absence of Otoacoustic emissions and all absence of BERA with presence of bilateral cochlear microphonic. Amongst the cases, 3 were adapted with hearing aids of digital technology type A, 1 B and 3 C and presented functional gain of in average 30, 60 and 40dB respectively. All patients had rehabilitation sessions. Conclusion: it was evidenced that despite the diagnosis being auditory dyssynchrony and literature to question the use of hearing aids, the majority of the cases they presented development of language beyond the waited one and auditory performance next to normality.

POSTER SESSION I - A DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 A

ANALYZE STUDY OF THE EXAM P300 IN INDIVIDUALS WITH NORMAL HEARING

Authors

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Institution

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Abstract: Objective: This research had like objective carry out a study normative of the results of the exam P300, regarding amplitude and latency of the wave presented, in a population/sample of persons that hear normally, of age between 17 and 50 years, related of it verify itself some there is difference statistically significant between the results obtained. As well as for comparison of news and future studies and a possible standardization of these results. Methods: They were selected 57 volunteers without alteration in the hearing, they submitted to an evaluation by the medical ear, nose and throat specialist, it was carried out a short interview, in the which, each individual answered some questions of a questionnaire, being evident personal facts and questions related to the criteria of enclosure and exclusion of the research, after it was carried out an evaluation auditive with pure tone and speech audiometry, immittance measures and finally the exam P300. Results: They were not found values statistically significant regarding latency and amplitude, compared with age and left and right ears. However, it was found values statistically significant for values of latency of P300 and N2 regarding the female kinds, with smaller latency regarding the male kind, and the male kind with bigger amplitude of P300, regarding the female kind. Conclusions: Like this, it is possible say that this exam electrophysiological is viable and its results matches what the literature shows. However, note itself a significant lack and interest of more professional for better knowledge and applicability of the approach. A bigger sample would be of big value for a possible standardization. KEYWORDS: P300; Cognition; Long latency auditory evoked potential; Audiology; Cognition; Hearing.

POSTER SESSION I - B DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 B

AUDITORY STEADY STATE RESPONSE BY BONE CONDUCTION IN NORMAL ADULTS

Authors

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Abstract: The Auditory Steady State Response (ASSR) which can be defined as electrophysiological responses to continuous tones with specific frequency modulated amplitude and / or frequency, are likely to be included in the next few years in the battery of audiological tests for the detection of hearing loss. However research by bone conduction have received limited attention. The objective of this study was to verify the gap found between the ASSR bone conduction and air, then compared to the air-bone gap found in pure tone audiometry and ASSR. Participated in this study young adults with normal hearing, aged between 18 and 28 years, not otological problems and hearing below 15dB NA. We surveyed the carrier frequencies of 0.5, 1, 2 and 4 kHz modulated in amplitude and frequency from multiple stimulus monaural. The results showed a gap consistent with other studies in the area, ie, a moderately strong correlation between them. Due to the difficulties of artifact from the bone vibrator to estimate the thresholds and the level of sensory acuity of the respondents may be noted the great variability of response. The ASSR is a method that can predict the hearing threshold by bone conduction, but it is understood that to become a clinical tool in diagnosing hearing more research must be made for the standardization of bone conduction PTA before clinical implementation.

POSTER SESSION I - C DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 C

APPLICABILITY OF AUDITORY STEADY STATE RESPONSE IN PATIENTS WITH NO AUDITORY BRAINSTEM RESPONSE.

Authors

CARMEN BARREIRA-NIELSEN, ANDRESSA DIAS, LISS GUERRA, TAISE ARGOLLO

Institution

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Abstract: A new technique introduced in audiological assessment is the Auditory Steady State Response (ASSR), which has been discussed as an effective tool, since it allows the evaluation of both ears and several specific frequencies, simultaneously, with intensity near 125dB, thus diminishing the time spent in hearing assessment, as compared to ABR, with the click stimulus. This study was a comparison between the results achieved through Auditory Brainstem Response (ABR) and those of Auditory Steady State Response (ASSR). Ten ears between 30 and 50 yrs of age, presenting hearing loss with ABR absence, with the click stimulus, at 99dB NA, with no associated comorbidity, were studied. ASSR was researched in the frequencies of 500 and 4000 Hz with intensity between 95 and 125dB NA. All patients who did not present ABR response, showed a significant response in ASSR, in one or more frequencies. The applicability of ASSR was demonstrated in patients presented with moderate to profound hearing loss, even when there was absence of ABR. In the ten ears researched, the presence of ASSR was recorded and the estimated audiogram demonstrated thresholds compatible with that of moderate to profound hearing loss. This allows the conclusion that ASSR is a useful diagnosis tool, for it predicts hearing thresholds and provides hearing information which will lead to new intervention approaches, either for the fitting of hearing aids, or cochlear implants.

POSTER SESSION I - D DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 D

ANALYSIS OF AUDITORY STEADY STATE RESPONSES AND BEHAVIORAL AUDIOMETRY IN PATIENTS PRESENTED WITH NEUROSENSORIAL HEARING IMPAIRMENT

Authors

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Abstract: The reliability of behavioral audiometries is highly dependent on clinical observation, the judgement of the tester, and the cooperation of the patient being tested, which becomes little feasible in some patients. The electro-acoustic and electrophysiological tests, among them the Auditory Steady State Responses (ASSR), are important, since they do not depend on the individual's response upon acoustic stimulation, leaving no doubt as to the patient's hearing loss degree, as it might happen in behavioral assessment. ASSR has been discussed as an effective tool, owing to the possibility of evaluating both ears and various specific frequencies, simultaneously, with intensity levels near 125dB, thus, diminishing the time spent in hearing assessment. Ten ears of individuals in the age range 30- 50 yrs, who presented neurosensorial hearing loss from a moderate to a profound degree, were evaluated. ASSR was researched in the frequencies of 500 and 4000 Hz, with an intensity between 95 and 125dB NA. Although some patients presented no response on the Behavioral Audiometry at 120dB NA, all presented a significant response on ASSR, in one or more frequencies. The Behavioral Audiometry and SSRR presented highly correlated results when used to determine the hearing thresholds, according to frequency. In conclusion, ASSR is a useful an thadls de from a moderate to a profound degree, were evaluated. In some patients. diagnosis tool, for it predicts hearing thresholds and provides important hearing information to guide the fitting of hearing aids and cochlear implants.

POSTER SESSION I - E DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 E

CONTRALATERAL SUPPRESSION OF DISTORTION PRODUCT EVOKED OTOACOUSTIC EMISSION IN CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT

Authors

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Institution

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Abstract: INTRODUCTION: there is controversy in the literature about the occurrence contralateral suppression of otoacoustic emission in child that presents Specific Language Impairment (SLI). OBJECTIVE: evaluate the function of medial olivocochlear system (MOS) in subjects SLI carriers. METHODOLOGY: we performed a prospective study in 14 children subjects. From this sample, seven presented SLI and seven were healthy volunteers. All children were males with range three and six years old. Contralateral suppression of distortion product evoked otoacoustic emission (DPOAE) was registered in 1500Hz, 3000Hz, 4000Hz and 5000Hz frequencies in both ears. The response was registered in a quiet place, first in the absence and after in the presence of white noise in intensity of 60 dBHL, applied to the contralateral ear. To avoid the sounding line manipulations, the phone was coupled in the contralateral ear before the test to be performed. The data were analyzed by statistical parametric test (Student t test) as well as no-parametric test (Mann-Whitney). RESULTS: the number of subjects without SLI with suppression effect of DPOAEs present was higher than SLI subjects carriers to 4000Hz and 5000Hz in right ear and 1500Hz, 3000Hz, 5000Hz to left ear, with statistical significance ($p < 0.05$). In the other frequencies, in both ears, the results were similar in two groups. CONCLUSION: the association between SLI and the absence suppression of otoacoustic emission suggest a dysfunction of MOS in children with this language impairment.

POSTER SESSION I - F DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 133 F

DOUBLE PEAK IN 1000HZ TYMPANOMETRY AND DPOAE INPUT/OUTPUT FUNCTIONS

Authors

UALACE CAMPOS, RENATA CARVALLO

Institution

1. USP - Brazil, University of São Paulo

Abstract: INTRODUCTION: In adults, the 1000Hz probe sound tympanometry shows different responses patterns than 226Hz probe sound. Middle ear pathologies change the physical properties of sound conduction and can increase the audiometric threshold. Unfortunately, many minor middle ear alterations are undetectable using traditional evaluation equipment. Nevertheless, middle ear transmission properties directly influence DPOAE characteristics. Considering that the double peak has been caused by the system growth mobility, the hypothesis of this study is the DPOAEs, in this condition, present low amplitude at high frequencies associated to double peak in the 1000Hz probe tympanometry. OBJECTIVE: The aim of this research was to evaluate the influence of tympanometry (1000Hz sound probe) on distortion product - otoacoustic emissions (DPOAEs) and on DPOAEs i/o functions. METHODS: 40 normal ears with double peak in tympanometry with sound probe of 1000Hz were evaluated, as were 40 normal ears with single peak in tympanometry with sound probe of 1000Hz. Variables were compared utilizing test-T de Student. RESULTS: In audiometric evaluation, only high frequencies (3000 to 8000Hz) presented statistically significant differences but, in all frequencies, except 250Hz, the ears with single peaks had better audiometric thresholds. While the low frequencies presented higher amplitude in DPOAE in the double peak group, after 2000Hz, they presented lower amplitude than single peak group. Despite all amplitude differences between groups, only 6000Hz amplitude were statistically significant different ($p=0,010$). In 1000 and 1500Hz, the double peak group presented amplitude 4,26dB and 1,39dB higher than single peak group. Therefore, the single peak group amplitude were higher in 2000, 3000, 4000 and 6000Hz, with 1,14; 2,95; 2,5; 7,08dB, respectively. To multilevel DPOAE, the double peak group amplitude in 1500Hz and 2000Hz were better to stronger intensities (75-55dB), but the weak intensities (50-30dB) practically didn't present responses differences. In 3000Hz, 4000Hz and 6000Hz single peak group presented stronger amplitude. DISCUSSION: Double peaks were caused by system mobility's growth. This growth decreases the stiffness and increase the mass effect. The high frequencies depends of the stiffness of the system, then, ears with double peak presented lower DPOAE amplitude in high frequencies to all tests. Low frequencies (1000hz and 1500Hz) presented higher DPOAE amplitude in the double peak group, while single peak group presented higher DPOAE amplitude in 2000Hz, 3000z, 4000Hz and 6000Hz. The system mass growth reduced the high frequencies responses of the double peak group and DPOAEs were more accurate to detect it than the pure-tone audiometry. The high intensities of DPOAE i/o functions (from 75dB to 55dB) in 1500Hz and 2000Hz presented better responses in double peak group, therefore, in 50dB and lower (down to 30dB) the responses were very similar. In higher frequencies, 3000Hz, 4000Hz and 6000Hz, the single peak group responses were stronger in almost all intensities. However, discrete changes in sound conduction through the middle ear could be reflected in the DPOAE measurements. The use of high frequencies tympanometry could detect subclinical alterations that are able to compromise DPOAE amplitude.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 134

SPEECH RECOGNITION IN NOISE WITH BILATERAL COCHLEAR IMPLANT AND FM SYSTEM.

Authors

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Institution

1. HRAC - USP Bauru, Audiological Research Center

2. NOB, Bionic Ear Center - Samaritano Hospital - SP

Abstract: Introduction: The ability to recognize sounds with competitive noise is considered a difficulty listen situation for unilateral cochlear implant's recipients. Issues with speech perception in noise conditions are a common complain from unilateral cochlear implant's recipients. To improve speech perception in noise, bilateral cochlear implantation and assistive listening devices as FM System are indicated in some cases. Goal: The objective of the research was to evaluate speech recognition in noise with bilateral cochlear implant. Method: The study was conducted at Bionic Ear Center of Samaritano Hospital - São Paulo - Brazil and evaluated a child with bilateral cochlear implant combined with bilateral FM system's adaptation. The speech perception in noise was evaluated by Hearing in Noise Test in four different auditory conditions: unilateral cochlear implant; unilateral cochlear implant combined with FM System; bilateral cochlear implant and bilateral cochlear implant combined with FM system. Results: Improvement in speech recognition was observed for auditory condition bilateral cochlear implant combined with FM system. Subjective evaluation of the patient related significant changes in speech perception and auditory improvement in daily tasks such as watching TV and listening to music. Conclusion: The combined use of cochlear implant and FM system can improve the ability to recognize speech in difficulty situations such as environment with competitive noise. Further investigation is under way.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 135

PARTIAL DEAFNESS TREATMENT

Authors

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Institution

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2. INZ, Institute of Sense Organs, Warsaw, Kajetany

Abstract: The concept of combined Electric Acoustic Stimulation of one ear, introduced by prof Christoph A. von Ilberg in the group of so called borderline CI adult candidates has evolved during the past 10 years and have embraced several new techniques including modifications of already existing surgical approaches, different cochlear implants devices including several new electrode's designs as well as various groups of patients. There are numerous studies which proved the benefit of EAS in adult population. In 2002 we performed the first implantation of an adult patient with partial deafness (PD), pioneering the particular technique of partial deafness treatment (PDT). In the case of PD, there is often normal hearing in the low frequencies, and often this is not amplified with a hearing aid. PDT involves 3 challenging aspects: a) Careful selection of the right candidates most likely to gain substantial benefit from the procedure; b) Surgical techniques allowing hearing preservation based on round window approach; and c) transferring the maximum amount of sound information to the patient using an optimized configuration of electrical pulses to the electrodes and acoustic information. Encouraged by outstanding results achieved by application of electric and acoustic stimulation in adults we have extended the indication of PDT for children with significant amount of residual hearing in the ear selected for implantation. The first child with partial deafness was implanted in 2004. From September 2004 to June 2009 27 children with partial deafness were implanted with Med-El Combi 40+, Pulsar or Cochlear SRA using the round window technique to increase the chance of hearing preservation. As in the both groups the same approach was applied in terms of the type of surgical procedure aiming on hearing preservation and in consequentially combination of electric and acoustic stimulation we postulate to broaden the terms 'PDT' and include in broader terms children with functional amount of residual hearing. Application of PDT brings back the ability to understand speech, hence allows for the process to rebuild the child's communication skills, making them more effective and efficient.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 136

CLINICAL CORRELATION BETWEEN INTRA-/POSTOPERATIVE ECAP LEVELS AND PROGRAMMING PARAMETERS IN COCHLEAR IMPLANT USERS.

Authors

VIGEN BAKHSHINYAN, GEORGE TAVARTKILADZE

Institution

1. NRCAHR, National Research Centre for Audiology, Moscow, Russia

Abstract: BACKGROUND: The drop down of the age of implantation and increase in the number of difficult to program implant recipients are the most important issues in modern cochlear implantation. Initial fitting of very young children and difficult cochlear implant recipients is usually based on the results of objective measures. That is why it is extremely important to find a correlation between measurements outcomes and programming parameters of the patients MAP's which will facilitate the ECAP-based fitting procedure. With the Introduction: of the Nucleus Freedom implant with the new automatic algorithm techniques of measurements (AutoNRT), it is necessary to establish the relationship between the intra-/postoperative NRT thresholds and their usability for speech processor fitting. The aim of this study was to evaluate the results of post- and intraoperative AutoNRT measurements, examine changes that may occur over the time and to find the correlations between intra-operative NRT measurements and the behavioral MAP parameters (T- and C- levels and profile) in pediatric users. 24 patients implanted with the Nucleus Freedom system who were able to set psychophysically reliable T- and C- levels, were included in the study. AutoNRT was measured intraoperatively and during the postoperative period. Behavioral levels were measured at the first fitting and 3, 6 and 12 months after the switch-on. RESULTS: A decrease of the NRT-thresholds over the time has been observed in most cases. The C-level were always above Auto-NRT thresholds. The mean difference and correlations between the intra-operative NRT data and behavioral measures and the correlation between them will be presented. CONCLUSIONS: The NRT-levels as measured intra-operatively decrease in most cases after initial fitting. The medium to high correlation between AutoNRT and behavioral thresholds were demonstrated. The intra-operative ECAP thresholds, when combined with a limited amount of behavioral data, may therefore be used for the prediction of the behavioral levels and MAP profile with a useful degree of accuracy during the initial fitting.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 137

COCHLEAR IMPLANT PERFORMANCE IN STATE OF CEARA USERS'

Authors

MARILIA CAMARA, KELLY ALVES

Institution

1. UNIFOR, Universidade de Fortaleza

Abstract: Objective: To describe the risk factors related to hearing loss, audiological features and functional gain of the cochlear implant users. Method: This is a cross-sectional study performed in 13 patients cochlear implant users in Fortaleza/Ceará, 7 (54%) males and 6 (46%) females, with ages varying from 1 to 45 years, divided as follows: 1 to 5 years (62%), 6 to 10 years (8%), 11 to 15 years (15%), 16 to 35 years (8%), 36 to 45 years (8%), evaluated from June to August 2009. We used an instrument of data collection related to risk factors for hearing loss, adaptation of cochlear implant and hearing exams. We investigated the functional gain of the cochlear implant by researching the thresholds of the frequencies: 250Hz, 500Hz, 1000Hz, 2000Hz, 3000Hz, 4000Hz and 6000Hz zero azimuth. The classification of the degree of hearing loss was based on the International Bureau d'AudioPhonologie (1996), which considers 0 to 20dB to be normal, 20 to 40dB to be mild, 40 to 70 dB to be moderate, 70 to 90dB to be severe, and above 90 dB to be profound, according to an average of frequencies: 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. Results: The risk factors found were consanguinity (8%), heredity (23%), rubella (8%), hyperbilirubinemia (15%), permanence in the Intensive Care Unit-ICU (38%), oxygentherapy (38%), bacterial meningitis (8%), sepsis (23%) and pneumonia (15%). The type of hearing loss of cochlear implant users was characterized as 100% of sensorineural hearing loss and the degree ranged from severe (31%) and profound (69%). The adaptation monaural right (54%) and left (38%) and binaural (8%). The averages of functional gain of cochlear implants on the frequencies of 500Hz, 1000Hz, 2000Hz, 3000Hz and 4000Hz were 0 - 50dBNA (23%) and 51 - 100dBNA (77%). Conclusion: The risk factors more relevant were ICU permanence (38%) and oxygentherapy (38%), the hearing loss most frequent was sensorineural profound. Patients implanted monaurally (92%) with a prevalence of 54% in the right ear. The functional gain of the implant cochlear (77%) is satisfactory, because it is between the thresholds of 54-100dBNA.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 138

LONG LATENCY AUDITORY POTENTIALS: N1, P2, N2 AND P300, EVOKED THROUGH SPEECH STIMULUS, IN COCHLEAR IMPLANT USERS

Authors

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Institution

1. USP, Universidade de São Paulo

Abstract: Introduction: Cochlear implants supply subjects presented with severe and profound hearing loss, who do not benefit from the hearing aid, with a greater communication ability. The long latency auditory evoked potentials (N1, P2, N2 and P300) are a differential indicator in the assessment of cochlear implant users. These potentials provide objective parameters of neural generators related to the skills of attention, discrimination and memorization of tonal or speech stimuli. In this study, potentials N1, P2, N2 and P300, generated through speech stimuli in cochlear implant users, were characterized and correlated with the variables speech perception, time of deafness and time of cochlear implant use. Methodology: the research was carried out at the Speech Pathology clinic of the Dental School and at the Audiological Research Center with the Craniofacial Anomalies Rehabilitation Hospital, both with University of São Paulo at Bauru, SP. The potentials were recorded by electrodes placed in regions Cz/Fz/M1/M2 of the skull and connected to the Biologic's Evoked Potential System (EP) through cables, according to the standards of international system 10-20. Twenty-five cochlear implant users, presented with pre-lingual deafness, in the age range 6.6 - 12.3 yrs, participated in the study. The subjects were requested to raise their hand as soon as they heard the rare stimulus (/a/ and /da/), presented in the proportion 20/80 in relation to the frequent stimulus (/i/ and /ba/). The speech stimuli /ba-da/ and /i-a/ were presented in oddball paradigm, at an intensity of 60 dB NPS, through a speaker. Results: statistically significant correlations were observed between the latency of potential N1 and the time of deafness and time of cochlear implant use; between amplitude of potential P2 and the time of deafness and time of cochlear implant; between the latency of potential P300 and word recognition. The mean latency of N1 increased 6 ms per year in relation to the time of deafness, with the time of implant use constant and diminished 3 ms according to the increase of 1 year in the time of use. The mean amplitude of P2 diminished 1 uV, as the time of deafness increased in a year, by keeping fixed the time of use, and increased 0.5 uV, with the increase of a year in the time of CI use, by keeping constant the time of deafness. The mean latency of potential P300 increased 2 ms as the word recognition score worsened and diminished 2 ms proportionally to the improvement of the same score. Conclusions: The variables time of deafness and cochlear implant use influenced the latency and amplitude of potentials N1 and P2, suggesting a cortical plasticity. The latency of potential P300 reflected the cognitive processes related to skills of auditory attention and discrimination, and presented a significance relation with the word perception score, in the subjects evaluated.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 139

SOUND LOCALIZATION AND SPEECH PERCEPTION IN BILATERAL USERS OF VIBRANT SOUNDBRIDGE (VSB)

Authors

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Institution

1. HSS, Departement of Hearing, Speech and Voice Disorders

2. HNO, Departement of Ear, Nose and Throat

Abstract: Background and Aims The objective of the study was to investigate binaural hearing abilities of patients supplied with two active middle ear implants - Vibrant Soundbridge (VSB). Materials and Methods Sound localization tests were performed on 9 bilaterally implanted adult VSB users. Sound localization was tested in the frontal horizontal plane by means of sound source identification. 11 equally spaced loudspeakers were mounted from -60° to 60° on a steel ring of 2 m diameter. Speech-shaped noise bursts at randomized levels in the range of 70 dB ±6 dB were used as stimuli. In a second experiment, speech reception thresholds were measured using the Oldenburg sentence test. Speech was always presented from the front. Noise at a level of 65 dB was either presented from the front, from the left side, or from the right side. Each condition was measured for unilateral and bilateral VSB use. Results and Discussion Sound localization is more accurate when both VSB's are used compared to the monaural test condition. Binaural summation and squelch effect were derived from the speech test results by comparing the scores for different directions of the noise and monaural or binaural implant use. The benefit in speech reception threshold in noise for these effects amounts to 1-2 dB. Conclusions Bilateral VSB users have a benefit in sound localization and speech reception in noisy environments compared to a unilateral aided condition.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 140

THE OUTCOMES AND MAPPING CHALLENGE OF COCHLEAR IMPLANT IN TWO CASES WITH HYPOPLASTIC AUDITORY NERVE

Authors

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Institution

1. CER, CENTRO DE ESTUDO E REABILITAÇÃO EM FONOAUDIOLOGIA

2. UNICAMP, UNICAMP

Abstract: Objective: To report the results and mapping challenges of cochlear implantation (CI) in two children with cochleovestibular nerves (CVN) hypoplasia. Type of Study: Retrospective Review Case Setting: CER-centro de estudo e reabilitação em fonoaudiologia Methods: Two children with profound bilateral hearing loss were evaluated .One child presented bilateral hyloplasia of the CVN at imaging and the other presented hypoplasia of the CVN in the right ear and aplasia in the left ear. Intervention: One was submitted to right CI at the age of 25 months with nucleus 24 device and the other to left CI at the age of 7 years and 5 months with nucleus freedom device. Results: Both cases presented good performance after first adaptation but they showed severe facial stimulation later. It was necessary many adjustments sessions to restore the auditory response without facial stimulation .It was only possible by using speak strategy and BP+1 simulation mode. Currently, both individuals can detect pure tone at 250, 500, 1K and 2 KHz in 35 db, but no detection at 3K, 4K and 6KHz was achieved. The sign language is still being used with both of them and they showed better comprehension and speech production. Conclusion:BP+1 as stimulation mode and speak as strategy can be a good option in cases with CVN hypoplasia. Although adequate counseling is required as child's score is lower than usual.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 141

DEVELOPMENT OF HEARING AND LANGUAGE IN PRELINGUAL HEARING DISABILITY CHILDREN WHO WENT THROUGH THE COCHLEAR IMPLANT IN THE OTOCENTRO-RN/HOSPITAL DO CORAÇÃO DE NATAL-RN

Authors

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Institution

1. HCN, HOSPITAL DO CORAÇÃO DE NATAL

2. OTORN, OTOCENTRO-RN

Abstract: The cochlear implant has been an excellent tool in the rehabilitation of children who suffer from severe to profound hearing loss. While the use of individual hearing aids refers to limited results in these cases, the implant has allowed the development of speech and language, considering the age of intervention and duration of hearing deprivation. Several studies have shown that age of implantation of children with prelingual hearing impairment can be a determining factor for the success of their rehabilitation, emphasizing that the ideal for the development of listening skills is at about 3.5 years old. OBJECTIVE: To evaluate the development of speech and language of children in use of cochlear implant with severe and profound bilateral deafness, implanted in the Otocentro-RN/Hospital do Coração de Natal-Rn. METHODS:All children with prelingual deafness in use of cochlear implant were used as inclusion criteria, with up to 3.5. years old at the time of deployment, with at least one year of effective use of cochlear implants, from October 2003 to October 2008 in the Otocentro-RN/Hospital do Coração de Natal-Rn. Data collection was performed through the application of assessment protocols IT-MAIS and MUSS with children and parents in the pré- and post surgery. CONCLUSION: The cochlear implant has shown great relevance for the treatment of children with pre-lingual sensorineural hearing loss- from severe to profound, as for the process of development of listening skills and oral language in children implanted before age 3.5 years. KEY-WORDS: Cochlear implant. Child. Hearing.

POSTER SESSION I - A DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 141 A

THE KNOWLEDGE THAT PHONOAUDIOLOGISTS IN PORTO ALEGRE/RS HAVE ABOUT THE PHONOAUDIOLOGICAL CARE IN THE COCHLEAR IMPLANT

Authors
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Abstract: Purpose: to assess the knowledge that phonoaudiologists in Porto Alegre/RS have about the phonoaudiological care in the cochlear implant and explain through bibliographic review what the literature proposes as the competence of phonoaudiologists in an interdisciplinary team for the cochlear implant. Method: 81 phonoaudiologists working in Porto Alegre, RS, from any field of Phonoaudiology, answered a questionnaire consisting of eighteen objective multiple-choice questions about the area(s) where they had worked or were working at the time, if they had been taught in college about the phonoaudiological care in the cochlear implant, or if they had taken any training program, extension or specialization courses about such device. They were also asked about the definition of cochlear implant, the criteria for prescribing it, the necessary qualification of a phonoaudiologist to work in an interdisciplinary team for the cochlear implant, and what their work would be during the preoperative, perioperative and postoperative periods. Results: the professionals interviewed did not demonstrate adequate knowledge about a phonoaudiologist's work in the cochlear implant team. The questions that accounted for the greatest number of complete or partial mistakes were the ones concerning cochlear implant candidates, side of implant, and phonoaudiological care during preoperative, perioperative and postoperative periods (electrodes activation). Conclusion: this research allowed concluding that the phonoaudiologists interviewed in Porto Alegre did not have an adequate knowledge about the phonoaudiological care in the cochlear implant. Keywords: Cochlear Implantation; Audiology; Hearing Loss; Rehabilitation of Hearing Impaired; Health Knowledge, Attitudes, Practice; Professional Competence; Professional Practice.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 142

QUALITY OF LIFE IN ELDER CHINESE-SPEAKING ADULTS WITH HEARING IMPAIRMENT AND DO NOT USE HEARING AIDS

Authors
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Institution
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Abstract: General and hearing-specific health-related quality of life (HRQoL) was examined in elderly Chinese with hearing-impairment who do not use hearing aids. Ratings on the Chinese versions of the Short-Form 36 health survey (SF-36) and the Hearing Handicap Inventory for the Elderly (Screening Version) (HHIE-S) were obtained on 64 Chinese speakers. Results on the SF-36 were compared to norms obtained in a general elderly Chinese population. The relationships between HRQoL and degree of hearing impairment, and between SF-36 and HHIE-S were also evaluated. Results showed that older Chinese speakers with hearing impairment rated six of the eight scales of the SF-36 poorer, compared to a general elderly Chinese population. SF-36 ratings were poorer in listeners with average hearing greater than 40 dB HL, compared to those with better hearing. When hearing in the better ear was poorer, ratings on the Vitality scale of the SF-36 and the three scales of the HHIE-S were also reduced, after controlling for age, gender and number of coexisting chronic health problems. Ratings on SF-36 and HHIE-S did not correlate. Based on these results, we concluded that elderly Chinese who are hearing-impaired experience poorer general and hearing-specific HRQoL than the general population; and HRQoL is reduced further among those with greater hearing impairment.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 143

STUDY OF AUDIOLOGICAL AND EDUCATIONAL PROFILE OF CHILDREN AND YOUNG HEARING AIDS USERS ATTENDED IN A PUBLIC UNIVERSITY HOSPITAL IN SOUTHEAST BRAZIL

Authors
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Institution
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Abstract: Introduction: According to the Brazilian Committee on Hearing Loss in Childhood, 1 to 3 newborn per 1000 births and 2 to 4% of those from intensive care units have some hearing loss. The same Committee recommends the Universal Newborn Hearing Screening, which advocates that all children should be tested at birth or no later than three months old and, in case of hearing loss confirmed, receive educational intervention to six months, which rarely occurs. In Brazil there are 5,7 million people with hearing loss. Of these, more than 406 thousand are of school age. The Escolar Census/2005 recorded the registration of only 66.261 hearing-impaired children in Basic Education. In Brazil, in 2004, the Ministry of Health established the National Policy on Health Care Hearing. Thus, auditory rehabilitation has been secured as a whole, covering not only the diagnosis and hearing aid fitting, but also the promotion and protection, and speech therapy for both adults and children. Purpose: To analyze the audiological and educational profile of children and young hearing aids users attended in a University Hospital. Method: Were interviewed 31 parents of children and young people using hearing aids bilaterally, from 4 to 13 years, treated at the Department of Speech and Language Disorders of Federal University of São Paulo. Data were collected as age at diagnosis hearing loss, type and degree of hearing loss, probable etiology, information about therapy and scholarship. Results: The children had a mean age of 3 years and 4 months. The mean age at diagnosis of hearing loss was 1 year and 4 months. Considering the degree of hearing loss shown in the better ear, nine (29,0%) patients had mild or moderate hearing loss, ten (32,3%) had severe or moderately severe hearing loss and 12 (38,7 %) had profound hearing loss. About the speech therapy, 26 (83,9%) children attend or have attended therapy and five (16,1%) were never subjected to this process. Only one (3,2%) child don't go to school. 30 (96,8%) were enrolled in the school - six (20,0%) in special schools for hearing impaired and 24 (80,0%) in regular schools. Whereas children who attend special school, five (83,3%) had profound hearing loss and one (16,7%) had severe or moderately severe. Of the 24 children who attend regular school, the distribution of degree of hearing loss was more evenly, with six (25,0%) with profound hearing loss, nine (37,5%) with severe or moderately severe and 9 (37,5%) with mild or moderate. Discussion: The diagnosis occurred over the age recommended by the Brazilian Committee on Hearing Loss in Children. However, the vast majority (96,8%), already attends the school, contrary to what was observed in the Brazilian population. Note that children with greater degrees of hearing loss usually attend special schools. Conclusion: It is necessary that the diagnosis of hearing loss occurs early, ensuring complete and appropriate hearing rehabilitation, followed by the insertion of the hearing impaired in the education system and in the society as a whole.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 144

DEVELOPMENT OF A BROCHURE FOR HEARING AIDS HANDLING BY ELDERLY PEOPLE.

Authors
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Abstract: In Brazil, the elderly population is growing significantly. It is believed that by 2025, it will be the 6th country with the largest number of elderly people. It is common to find elderly patients who resist to the use of hearing aids. They often give up when the first obstacles of fitting come, as putting and removing ear molds and/or hearing aids, to manipulating external controls, changing batteries and hygienizing components. Noting the need to help all elderly with hearing loss and worried about the consequences of a hearing loss in this population, the authors aimed to develop a program for fitting hearing aid for elderly people. Method: A bibliographical review was conducted and a working plan on how to handle a hearing aid, no matter the type: behind the ear, in-the-ear and open fit, was organized. Help from a professional publisher was received in order to take the pictures and to format the brochure. Results: A. Preparation: Observing clinical practice and literature about handling and care of hearing aids, authors wrote instructions about it. They used photographs and minimal written information, in order that this material could be used by all elderly individuals, literates or not. Authors defined what kind of materials would be: information booklet, dominoes game and cards game. These games were selected based on social life of elderly people. In the production of photographs, no trade mark has been considered, so hearing aids were randomly chosen. B. Version I: A behind-the-ear hearing aid pilot material was prepared and presented to: 1. an old person, as a volunteer, 2. a group composed by hearing aid audiologists and audiology students that work in two different hearing aid services where there is a public program for hearing aid selection and fitting in elderly people (NISAI - Penha, neighborhood of São Paulo city and University Hospital from Taubaté city). The pilot phase helped us getting volunteers and professionals' opinions and suggestions. The main suggestions were: 1. the production of the same material for the different types of hearing aids ear (behind-the-ear, in-the-ear and open fit); 2. reduction in the number of pages in the booklet; 3. increase of the size of the letter. The audiologists reported that patients felt secure and satisfied as they were able to see in a broad and clear way all the steps for handling the hearing aid. C. Version II: Following those suggestions, a new photographic production was conducted and the material development continued. As a result of the work, we draw up three handling materials regarding hearing aids models: behind-the-ear, in-the-ear, and open fit. The materials are: an informative booklet, a dominoes game and a card game Conclusion: the developed material was useful and effective for the successful process of hearing aid fitting in elderly people.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 145

AUDITORY REHABILITATION AND LIFE QUALITY OF INDIVIDUAL HEARING AIDS (H.A.) USERS: SYSTEMATIC REVIEW

Authors
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Abstract: Introduction: The life quality of a person is a contemporary worry. The sensory neural hearing loss is one of the chronic diseases which causes impact on life quality. The usage of Hearing Aid (H.A.) may bring benefits and satisfaction to the user, what can be enhanced by including auditory rehabilitation programs. Objective: Investigate life quality improvement in patients that participated on auditory rehabilitation programs after H.A. fitting, throughout systematic review. Methodology: It was realized by active information searching on data bases BIREME, MEDLINE and LILACS, besides virtual libraries SciELO and PUBMED. The work investigation question was "Are there evidences of improvement on self evaluation concerning life quality on adults and elderly individuals who participated of auditory rehabilitation process after H.A. adaptation?" In order to perform the search, the following descriptors were used: Hearing Loss, Sensory Neural Hearing Loss, Auditory Assistants, Language Therapy, Orientation, Deaf People Rehabilitation, Life Quality and Result Evaluation. These descriptors were gathering and the chosen articles were selected under the theme "Auditory Rehabilitation and Life Quality". The included studies were selected according criteria proposed by ASHA at any year and written whether in Portuguese or English, with evidence level 1a, 1b, 2b, 3a, 3b and 4, on which adults and/or elderly participated, with sensory neural hearing loss and H.A. users who had been through any kind of Auditory Rehabilitation. As a result measuring, questionnaires should be included on studies. Results: Electronic search on data base resulted on 238 non duplicated studies identified, from which 216 were excluded because they didn't attend to the initial request. On totality, 22 complete articles were reviewed to verify theme coherence, considering 15 excluded. After all, 7 articles were selected. From those, 2 were classified as 1a (systematic review), 3 as 1b (randomized controlled trials, as comparison group) and 2 as 4 (studies of clinical results- all participants received intervention). All the five studies that had patient groups under intervention had a sample greater than 30 participants, from which 4 included adults and elderly and 3 only elderly. Concerning H.A. usage, in 3 of the studies that involved intervention groups, only new users participated, 1 with experienced users and another with new and experienced users. Regarding sort of intervention, 3 of the studies evaluated the advising effect, 2 evaluated orientation groups. Concerning systematic reviews included, one investigated the improvement of communicative skills after auditory training and another verified if the advising and communication strategies improved benefit/satisfaction with H.A. and decreased participation restriction. Conclusion: Few studies have been concerning auditory rehabilitation gather quality criteria as patient choice through randomizing or the presence of group control. On this study it was observable the usage of various nomenclatures on Rehabilitation area. This study identified that the theme must be better explored by researchers of the area.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 146

EFFECTS OF THE ACCLIMATIZATION ON NEW LINEAR AND NON-LINEAR HEARING AIDS USERS

Authors
TIAGO PETRY, ALEXANDRE HUNDETMARCK LESSA, SINÉIA NEUJAHN DOS SANTOS, MARISTELA JULIO COSTA

Institution
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Abstract: Introduction: The progress from the hearing aids technology aims to provide the reestablishment of the acoustic stimulus with the best quality. Technologically, the hearing aids can be classified into linear and non-linear. To the start of the use, the individual enters into a period called perceptual acclimatization. Purpose: To verify, on new users, the influence of the



period of amplification use on the benefit obtained with the hearing aids; besides, compare the results of users of linear and non-linear amplification with dynamic compression. Methods: 37 individuals having mild to moderate-severe sensorineural hearing loss were examined. They were all new hearing aids users. These people were gathered in two groups: Linear Group – comprising 13 individuals with linear amplification fitting; and WDRC Group – comprising 24 individuals with dynamic compression fitting. Evaluation was carried out 14 and 90 days after the hearing aids fitting. It was obtained, using the Portuguese Sentences Lists test – PSL (COSTA, 1998), in sound field, the sentence recognition threshold in silence and in the noise as well as the percentual indexes of sentences recognition in the silence and in the noise. Results: The values obtained after 14 and 90 days of amplification use, for both groups, did not show statistically significant differences; however, it was possible to verify that to the both groups, a considerable number of subjects presented evidences of neural plasticity and the acclimatization effects. The comparison between values obtained shows a tendency for best performance to the individuals of the WDRC Group, either to quiet situations or in the presence of background noise, but these values did not show statistically significant differences. Conclusions: Influences of wearing time of amplification on the benefit obtained with the hearing aids were not found. There were no differences between the results achieved by new users of linear amplification and the results obtained by new users of dynamic compression.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 147

ADULTS AND ELDERLY SPEECH RECOGNITION ACCORDING TO THE PERIOD OF AMPLIFICATION USE

Authors

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Abstract: Introduction: The hearing loss creates a negative impact on quality of life. One possibility for these patients is the hearing aids fitting. The use of hearing aids can provide plasticity of the hearing system as well as improve speech recognition as time goes by. Aim: To compare the influence of the period of amplification use on the benefit obtained with the hearing aids in adults and the elderly, new hearing aids users. Material and method: 40 individuals with mild to moderate-severe sensorineural hearing loss, new hearing aids users, were gathered in 2 groups: Adults Group – compounded by 13 people, with ages ranging from 28 to 59 years old; and Elderly Group – compounded by 27 people aged between 61 and 78 years old. These people were assessed 14 and 90 days after the hearing aids fitting. Using the Portuguese Sentences Lists test – PSL (COSTA, 1998), were obtained, in sound field, the sentence recognition threshold in silence and in the noise as well as the percentual indexes of sentences recognition in the silence and in the noise. Results: The comparison between values obtained after 14 and 90 days of amplification use, to the adults as well as to the elderly, did not show statistically significant differences; however, making an individual analysis, were observed that approximately 50% of the patients had progressively better outcomes. When comparing values between the adults and elderly, the findings showed a similar performance among both groups, thus, no statistically significant difference was observed either. Conclusion: Influences of the period of amplification use on the benefit obtained with the hearing aids were not found; the results achieved by adults and the elderly were similar.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 148

THE SELF-FITTING HEARING AID: A CONCEPT AND POTENTIAL ADVANTAGES AND DISADVANTAGES

Authors

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Institution

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Abstract: There is a deficit of skilled hearing care professionals in developing countries, with the proportion of audiologists in such countries ranging from 1 per 500,000 people to 1 per 6,000,000 people. Additionally, there is a subset of the hearing-impaired population in the developed world who do not require counselling to adapt to hearing aids, or who cannot afford professionally fitted devices. This presentation introduces the concept of a self-fitting hearing aid, the aim of which is to enable people without access to audiological care to obtain hearing aids that are accurately adjusted to suit their degree and type of hearing loss. Existing pre-set over-the-counter hearing aids often provide amplification characteristics that are inappropriate for the user's hearing loss, particularly if there is a conductive component to the loss. In contrast, the proposed self-fitting hearing aid incorporates an in situ adaptive measurement of the wearer's hearing thresholds, to which an onboard prescriptive algorithm is applied to determine an appropriate gain/frequency response and compression characteristics. The fitted response can further be fine-tuned by the user by incorporating trainability in the self-fitting hearing aid. Data are presented that show that unassisted measurements of thresholds are reliable and valid. Advantages of a self-fitting hearing aid include lower costs, the ability to take control of the fitting and to use real-world listening environments in the fine-tuning process, and greater psychological ownership of the fitting outcome for the user. Disadvantages include the risk of an audiological inappropriate fitting if the procedure for the in situ threshold measurements is not adhered to, the necessity of a high level of cognitive functioning on the part of the user to carry out the procedure, and the lack of professional counselling for individuals who could benefit from it.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 149

THE EFFECTS OF HEARING AIDS AMPLIFICATION IN DEAF CHILDREN'S QUALITY OF LIFE: PARENTAL AND CHILD PERCEPTION

Authors

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Abstract: Objectives: The aims of this study were to investigate the effects of amplification offered by hearing aids upon deaf children's quality of life reported by themselves and by adults who spend time with them, and to verify whether the time spent with the child has an effect on their answers. Methods: This was a clinic, observational and transversal research. Ethical approval for the study was obtained from the University of São Paulo (project 0601/07). The study was performed with 15 families of deaf children. The age of the children ranged from seven to eleven years old. All children were fitted with hearing aids in both ears and their hearing losses were severe or profound. After the cultural and language adaptation from English to Brazilian Portuguese, the Listening Situations Questionnaire – LSQ was applied with the deaf children and three adults who spent their time with them. Participants were divided in four groups: G1- 15 deaf children; G2- 15 adults who spent approximately 40 hours per week with the child; G3- 15 adults who spent approximately 20 hours per week with the child; G4- 15 adults who spent approximately 10 hours per week with the child. The LSQ is composed by ten different listening situations related to major difficulties of deaf children. The questionnaire investigated the child's skills to listen to: teacher's instructions in a noisy room at school, instructions from an adult when outdoors, music, the doorbell or telephone ringing in another room, the sound of vehicles approaching, the television on your own and with other people, what is said on the phone, the sound of an ambulance, and if the child talk with several children in the classroom. For each situation, there were three questions: a) how important is this situation; b) how often does this happen; c) how much difficulty does the child have in this situation (difficulty score). Results: In the majority of cases (93.3%) children had more difficulty than expected, which means their difficulty scores were higher than 22. Children had more difficulty to listen in the following situations: music, the television on your own and what is said on the phone. The difference between the answers of children and adults was not significant. Conclusions: The results suggest that there is a detriment in deaf children's quality of life due to their difficulties in listening to ordinary elements in their daily lives. Another conclusion was that one can rely on parent's information.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 150

SPREAD OF EXCITATION FUNCTION IN THE REHABILITATION AFTER COCHLEAR IMPLANTATION.

Authors

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Abstract: Recently the main goal of future trends in modern cochlear implantation is the development of more effective ways to stimulate the surviving auditory fibers of the CI users. The aim of this study was to examine the Spread of Excitation (SE) with the Neural Response Telemetry (NRT) for Nucleus 24 CI wearers and to investigate the effect of modiolar placement on the stimulation thresholds and profiles, to test whether perimodiolar electrode placement does indeed result in the hypothesized reduced SE and to evaluate its usefulness as a clinical tool. 55 Nucleus CI24 patients were included in this study (15 CI24M, 15 CI24R(CS) Contour and 25 CI24RE(CA) Freedom implant wearers). NRT was performed intraoperatively. A frequency-selective curve was obtained by plotting the NRT amplitude as a function of masker electrode number, which may be interpreted as reflecting the SE through the cochlea. Results and Conclusion: SE was measured at all the electrodes with measurable neural responses. Statistical analysis of our data showed that the perimodiolar electrode placement resulted in a significant reduction in the width of SE curve. The results obtained suggest that the width of the NRT SE curves was significantly reduced in patients with perimodiolar electrode compared with the patients with conventional straight electrode array. It was also shown that modiolar location caused the reduction of NRT thresholds. At the same time it did not affect the slope of the NRT input-output function. SE provides a quick, objective measure of channel interaction. Our results suggest that perimodiolar placement of the electrode array significantly reduces the thresholds and SE widths, which improves the selectivity of neuronal stimulation and can be used as an objective clinical tool for better prediction of the auditory performance after cochlear implantation.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 151

TIME OF USE OF THE VENT IN CIC HEARING AID IN TWO PATIENT WITH HEARING LOSS AND TINNITUS UNILATERAL

Authors

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Abstract: The use of hearing aid with great vents and open fit adaptation has been focus of countless debates in the area. This study approaches the time of using the vent in the adaptation of the CIC hearing aid in two patient with hearing loss associated to tinnitus unilateral. The aim of the study was to analyze the benefits for the audibility and to accompany the period of use of the vent for the effective inhibition of the tinnitus in both patients. The sample was composed by two patient male, one aged 72 years old and other with 53 years old. The study accompanied the adaptation of CIC hearing aids. The first patient possesses hearing loss in the right ear and the second in the left ear. In both cases the hearing loss is moderate sensorineural according to Davis & Silverman (1970) classification. In the beginning of the hearing adaptation, both patients did not presented any inhibition effect. In the first two months they presented a significant improvement in the perception of the tinnitus, however the vent amplification function was still unpaired. In the third month of use the inhibition of the tinnitus was effective, even in the retreat of the hearing aid. At this time the parallel vent of 2,5mm it was blocked. The increase of the amplification did not presented any feedback. For both cases, the use of the vent was necessary in the first four months of the adaptation. Both patients did not refer emergence of tinnitus, and they are with a significant improvement in the hearing quality

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 152

AUDIOLOGIC FINDINGS AND THERAPEUTIC CONDUCT IN A CASE OF CORNELIA DE LANGE SYNDROME

Authors

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Abstract: Introduction: Cornelia de Lange Syndrome (CDLS) is a rare genetic anomaly characterized by congenital malformation, delay in growth and neuropsychomotor development. Its occurrence varies from 1/10.000 to 1/30.000 newborns in different populations. Its diagnosis is clinical and based on a child's signs and clinical symptoms after her birth, with a great variation of the syndrome gravity. The clinical signs include deficiency of intra-uterine growth, low birth weight, microcephaly, particular facial characteristics, micrognathia, small nose, thin lips with the oral commissure turned down, clinodactyly in the 5th finger, syndactyly, deformation of superior limbs, hirsutism, hypertrichosis, gastrointestinal anomalies, congenital cardiopathy, cleft palate, hypertonic muscles, and variable mental retardation, behavior alterations, visual deficiencies and dental alterations. The hearing impairment is frequent in these patients and hearing loss is generally bilateral and of variable degree, and the low position of the ears and the stenosis in the external auditory canal may cause partial or total hearing loss. Objective: To describe the case of a 2-year-old child with CDLS, as well as to analyze the audiologic findings and to discuss the therapeutic procedure adopted in this case. Methods: The evaluated child was submitted to audiologic exams (Transient evoked and distortion product otoacoustic emissions, immittance tests, auditory evoked potentials by air and bone conduc-

tion, behavioral audiometry) and other complementary exams (Computed Tomography and Magnetic Resonance) to evaluate the middle and external ears. The exams were analyzed and the best therapeutic procedure was defined and discussed according to the literature. Results: After the exams, the diagnosis showed hearing loss of low degree (Northern & Downs, 1991) without a malformation of the internal and external ears. The option was to adapt 2 retroauricular auditive prostheses, Oticon brand, Model Tego, with a silicon mold and phonoaudiologic attendance for acquisition and development of the hearing abilities and of oral language. Conclusion: The accomplishment of the whole audiologic battery and the interpretation of the results together were crucial for the diagnosis of the hearing loss as well as to define the clinical procedure to be adopted. The phonoaudiologic therapy and the use of the hearing prostheses seem to be a valid option for children with SCDL.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 153

SOCIOECONOMIC PROFILE OF WEARING OF DEFECTIVE HEARING AID

Authors

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Institution

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Abstract: Introduction: Hearing is one of the most important senses of life, because it's the origin of the development of Human Communication. Hearing loss is the most common way of sensory disorder in people, which the most used treatment is the hearing aid fitting which gathers sound and amplifies it. Department of health through Single Health System legalized responsible units to diagnose with hearing loss, selection, nomination e donation of hearing aid in all the country. It is public money, then it is so much important a conscious management of the resources and activities which provide the keeping of the hearing aids by their wears. It is part of this process. PURPOSE Defining this socioeconomic profile of wearing of defective hearing aids from January, in 2005, to October, in 2009, in a high complex unit of hearing health in Alagoas. MATERIALS AND METHODS All the medical records of the patients whose hearing aids showed some defect because of misuse or bad keeping among 2005/ 2009 are in this work, from these were analyzed these following variable situations: schooling, occupation, hometown, make, model, technology, receiving time, use time, time with the defective hearing aid, person's sex and age. All the information was compared with the information about socioeconomic profile of the population who had been in units where were already planned by social service with the purpose to build a profile of the service. RESULTS Being used to wearing the hearing aid is a complex process, especially for the people with low schooling, who usually need more time to understand all the steps of the process of adaptation until amplifying. The patients, who do the adaptation of the hearing AID without a person to help them, return many times with difficulties and frustration, causing not using of the hearing AID. The patients, whose family helps with some difficulties, learn how to use the hearing AID and how to improve the communication. CONCLUSION One important thing to consider is the adaptation would be the development of a biggest rehabilitation program, which could respect population's necessities and it could include the family's participation. In accordance with the strategy of this new politics, the process of hearing rehabilitation needs to engage a biggest work which foresees the adaptation of the hearing aid, with medical and phonoaudiologic help, to adapt with regular check-ups about the technical conditions and benefits with the use of this equipment.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 154

BENEFIT AND SATISFACTION IN SHORT-TERM IN ADULTS NEW USERS OF HEARING AIDS

Authors

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Abstract: Introduction: hearing aid (HA) is a system that increases the intensity of the environment sounds so that these can be perceived by those with hearing loss. There is a phenomenon that refers to the period after the fitting of hearing aids, when there is a progressive improvement of listening skills and speech recognition due to the new cues that are available to the user. This phenomenon is called acclimatization. According to literature the use of hearing aids can improve speech recognition over time after a period of six to 12 weeks of amplification. Objective: To evaluate the benefit and satisfaction in a Short-Term in adults new users of hearing aids attended by Programa Reouvir-HCFMUSP. Methods: 28 subjects new hearing aids users were evaluated after 15 days of use of the hearing devices. They were submitted to the Percentage Index of Speech Recognition (PISR) with phonetically balanced words to measure user's hearing performance, and two self-evaluation questionnaires, APHAB and IOI-HA. The APHAB (Abbreviated Profile of Hearing Aid Benefit-Cox) is a self-assessment questionnaire designed to determine whether the selection of HA has provided benefits in the patient's perspective. Te IOI-HA is used to assess the satisfaction that the amplified sounds provide to the hearing-aid user. Results: Although there is a higher percentage of female gender, 57.1%, there is no difference in the percentage of male gender with 42.9%. The majority of the statistical sample has bilateral adaptation of hearing aids (85.7%), the type of hearing loss that was the most prevalent was sensorineural with 82.1%, and in both ears the degree of hearing loss more prevalent was moderate with 57.1% in the right ear and 60.7% in left ear. There is a statistically significant difference between the situations with and without hearing aid to the PISR with an improvement from 50,71 to 80,71. Also, there is a statistically significant difference in all subscales of APHAB, with a decrease from 62,59 to 27,75 on FC subscale, a decrease from 67,02 to 28,67 on RA subscale, a decrease from 65,77 to 32,52 on RV subscale, and an increase from 16,62 to 67,02 on AS subscale. The user satisfaction measured from the IOI-HA was 32,25. Conclusion: After 15 days of use of the hearing aids, we can observe statistically significant improvement of listening skills, speech recognition, and decrease of handicap associated with hearing loss. Although the user satisfaction from the IOI-HA was high, the APHAB proved to be a more specific instrument to evaluate the benefit in a short term and assist in counseling and fitting of hearing aid.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 155

BABIES' PORTAL: DEVELOPMENT OF A WEBSITE FOR HEARING AID ORIENTATION

Authors

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Abstract: Introduction: Parents of hearing impaired children need that information regarding their child's treatment, including hearing aid care and maintenance, be provided in a systematic manner, in a clear, unbiased and accessible language and accompanied by educational materials to consult at home. Internet use to seek for healthcare information is large and growing. In Brazil, about 85% of patients search the web for information after a medical consultation – 50% of these patients are users of the Brazilian National Health System (SUS). Although many websites are useful, some may present inaccurate or misleading information. Aim: To analyze websites in Portuguese providing information regarding characteristics, function, care and maintenance of hearing aids in children. To present the development of the "Babies' Portal" website as a tool for hearing aid orientation. Methods: Combinations of the terms "hearing aid", "fitting", "baby", "child" were used in the Google search engine – about 95.000 results were retrieved. The 50 first URLs were analyzed according to the HONCode principles, as follows: authoritative (qualifications of the authors is provided); complementarity (information supports and not replace the professional-client relationship); privacy (confidentiality of data submitted by the visitor is respected); attribution (sources of information are cited); justifiability (benefits and performance of treatment/products are supported by evidence); transparency (information is easily accessible); financial disclosure and advertising policy (distinction between advertisement from editorial content). Results: The majority of the websites analyzed were target to consumer in general and not specifically for parents of hearing impaired children. The author's identity and qualification were not easily identified. Most websites did not cite the source of data provided and belonged to commercial organizations. Advertising policy was not clearly stated. Such results reinforced the need for the creation of a website for orientation of parents of hearing impaired children. The creation of the "Babies' Portal – Hearing Aid Section" followed the phases: conceptual modeling, development, implementation and evaluation. In the conceptual modeling phase a survey was applied to parents of hearing impaired children in order to identify what they considered as important information to be available in the website. Scientific articles and textbooks were also used as information sources. In the development phase the HONCode as well as the principles of usability, legibility and readability of information were followed. An important feature of this website is its interactivity, allowing users to actively engage the information by asking questions, following links and interacting with other users or the webmaster. The website was implemented and is currently being evaluated by audiologists and parents. Conclusion: There is a lack of websites in Portuguese that provide hearing aid related information targeted for parents of hearing impaired children. The creation of a website with non commercial purposes, that follows internationally recognized quality of information and usability principles, might improve parents' compliance with treatment what in turns could result in better outcomes and service efficiency.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 156

LATE AUDITORY DEPRIVATION: BEHAVIORAL TESTS EVALUATION

Authors

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Abstract: Introduction: : The effect of late auditory deprivation is manifested by a statistically significant decrease in speech recognition performance over time for the unaided ear of subjects with bilateral sensorineural hearing loss (SNHL) fitted monaurally. Although much controversy persists in the literature regarding the characteristics of the incidence, extent, predictability or reversal of the deprivation effects, its expression is irrefutable. Leaving aside the contraindications and exceptions, binaural hearing aids fitting should be the primary prescription in cases of bilateral symmetrical SNHL. Should there be a possibility to generate any risk to the integrity of the communication of an individual, it must be avoided. If this is not possible, risk must be detected and monitored not only experimentally, but mainly, in the clinical audiological routine. Audiological evaluation of auditory deprivation effect is traditionally performed through words recognition score tests in silence with lists of, at least, 50 monosyllables words. There is a consensus in the literature, however, about the fragility of the sensitivity of this instrument in its detection and control. Objective: To evaluate and document audiological performance of subjects with bilateral sensorineural hearing loss fitted monaurally through a battery of behavioral tests. Method: Subjects consisted of 35 adults with bilateral symmetrical SNHL, divided into three experimental groups: 1) "Unilateral Study Group" with fifteen subjects aided monaurally; 2) "Unaided Control Group" with ten unaided subjects; 3) "Binaural Control Group" with ten binaurally aided subjects. All subjects underwent the same assessment protocol consisting of interview, pure tone audiometry, speech recognition threshold, word recognition score test, pattern duration test, pediatric speech intelligibility test (PSI) and speech in noise test. All tests were performed without hearing aids. Test results of all subjects were compared, initially, intra-subject (right vs. left ear) and inter-subject, within their respective groups. Finally, results of the three groups were compared. Descriptive analyses and statistics were calculated. Significance level was of 5%. Results: Analyses of variance reveal significant differences in free field speech in noise test between the "Unilateral Study Group" and the "Unaided Control Group" ($p = 0.001^*$). There were no significant differences in word recognition score tests or in the remaining tests. Conclusions: Free field speech in noise test showed to be the only behavioral test in this study sensitive in detecting the auditory deprivation effect. Furthermore, the speech recognition test, as it is routinely used in our clinical set routine (lists with 25 monosyllables words), is not sensitive to detect or monitor this effect as shown in the international literature.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 157

UNILATERAL HEARING LOSS: BENEFIT AND SATISFACTION WITH THE USE OF HEARING AIDS

Authors

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Institution

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Abstract: INTRODUCTION: Unilateral hearing loss is characterized by decreased hearing in one ear and in the presence of environmental noise, individuals with unilateral loss have greater difficulties to understand speech than those with normal hearing, moreover, space location of sound sources is compromised. The problems caused by sensational deprivation can be minimized with the use of hearing aids (HA), which allows the recovery of speech sound perception, and of environmental sounds, promoting improvements on communication skills. There are several instruments to evaluate the level of satisfaction and benefit of hearing aid user. Self-evaluation is a simple, fast and efficient procedure, which allows the evaluation of the individual in the process of hearing aid fitting that is performed by using questionnaires that enable measurement and analysis of hearing impairment / handicap, where it is possible to optimize the period of adjustment to amplification. The benefit can be measured by objective data, that is, the nature and severity of hearing loss are defined based on measurements of thresholds obtained using calibrated equipment in controlled environments. AIM: The purpose of this study was to measure objectively and subjectively the benefit and satisfaction of individuals using hearing aids for unilateral hearing loss. METHOD: The study was conducted in the Speech and Audiology Clinic of the Speech and Audiology Department, FOB / USP Bauru, with a sample composed of individuals diagnosed with unilateral hearing loss, aged between 15 to 60 years of age, effectively users of more than six (6) months. The study used the International Questionnaire Results for Sound Amplification Equipment (International Outcome Inventory for Hearing Aids - IOI-HA) developed as a product of an international workshop on measures of self-assessment in rehabilitation. Insertion gain was measured for objective evaluation of the benefit, which is a measure determined by the acoustic record of sound pressure level in the external ear canal



with and without hearing aids. RESULTS: The measure of the insertion gain performed by Unity PC Probe Mic (Siemens) equipment allowed verifying whether the acoustic gain achieved with hearing aid reached the prescribed goal. The gain was recorded if it reached fully, partially (in low and/or medium frequencies) or did not reach the prescribed gain at any frequency. The value of 10 dB was considered acceptable in the difference between the prescribed gain and the obtained in each frequency to determine whether they had reached pre-set values, which were found in the objective evaluation responses compatible to the target. The same happened with the IOI-HA questionnaire, where the scores of individuals were so far above 30 points, with the maximum score being 35 points in this instrument. CONCLUSION: It was concluded so far that there is a significant benefit and satisfaction with the use of adaptation in unilateral loss. FAPESP - Fundação de Amparo à Pesquisa do Estado de São Paulo

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 158

AUDITORY PROCESSING AND SUBJECTIVE BENEFIT WITH HEARING AID IN OLD-AGED USERS

Authors

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Abstract: Auditory processing and subjective benefit of hearing aid in elderly users **Authors:** Bruna Brainer Teles, Sandra Regina de Siqueira Braga Daruix, Mariana Cardoso Guedes, Ana Maria Maaz Acosta Alvarez, Elena Zaidan and Raimar Weber **Institutions:** Centro Universitário São Camilo and Centro Auditivo Audibel (Sao Paulo, Brazil) **Introduction:** The effect of aging on auditory processing has been discussed in the literature in recent years. Screening procedures should be studied and standardized, for such procedures can be useful in the identification of individuals with peripheral hearing loss who also have central auditory impairment and require fine tuning and differentiated rehabilitation. **Objective:** The aim of the present study was to determine the correlation between the results of central auditory tests and hearing aid use among elderly individuals. **Materials and Methods:** A prospective cross-sectional study was carried out involving 11 male and female individuals between 60 and 89 years of age (mean = 70.3 years) with mild to moderate symmetric hearing loss who wear a digital hearing aid of the same brand and intermediate technology. The assessment of central auditory processing involved the administration of the SCAN screening test (Filtered Speech, Speech in Noise Test and Dichotic Words Test), Duration Pattern Sequence Test and Dichotic Digits Test. Assessment of the subjective benefit of the hearing aid was carried out using a self-evaluation questionnaire – Abbreviated Profile of Hearing Aid Benefit (APHAB). The data were collected at a hearing center in Sao Paulo (Brazil), with prior approval from the ethics committee of the Centro Universitário São Camilo (97/09). Statistical analysis was performed using the SPSS for Mac v16.2, with specific tests for qualitative, quantitative, agreement and variability analyses. Pearson's coefficient was used for the determination of correlations between variables. **Results:** The procedures with the best reproducibility and ease of administration to individuals with hearing loss were the dichotic tests and the Duration Pattern Sequence test. A negative correlation was found between the APHAB score and results of the Dichotic Digits test in the modalities of divided attention and attention directed toward the left ear ($r = -0.65$). **Conclusion:** The results of the present study suggest that dichotic procedures are useful in the investigation of alterations in central auditory processing in individuals with peripheral hearing loss. A moderate correlation was found, suggesting that individuals with poor results on the dichotic tests employed tend to receive less benefit from hearing aids and should therefore be evaluated more discerningly in order to determine the need for complementary hearing training. **Keywords:** hearing tests, auditory perception, hearing aids, elderly

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 159

OPEN FITTING: EVALUATION OF USER SATISFACTION OF A CENTER OF HIGH COMPLEXITY

Authors

KARIS DE CAMPOS, MIRELA MACHADO PICOLINI, WANDERLÉIA QUINHONEIRO BLASCA, MARIA FERNANDA CAPOANI GARCIA MONDELLI

Institution

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Abstract: Hearing loss was considered a severely disabling disease for many centuries, and currently hearing loss at high frequency has gone mainly of presbycusis, noise exposure, ototoxicity, or a combination of these three factors. In this case, the adaptation of hearing aids (HA - BTE) provides individuals who have this type of configuration of hearing difficulties in relation to the intelligibility of speech in noise, and autophonia occlusion effect. In order to attend and meet the needs of these individuals, manufacturers of hearing aids developed - OTE (open fit) also known as open fitting. But even that technological advances will lead to greater success in hearing aid fitting and follow-up monitoring of these users should be performed throughout the rehabilitation process, thus ensuring substantial improvement in quality of life of these individuals. The aim of this study was to evaluate the subjective satisfaction of the wearers - OTE (open fit) through the application of a self-assessment. The study included 10 subjects with sensorineural hearing loss of moderate degree, the wearers OTE enrolled in the Speech Therapy Clinic of Bauru School of Dentistry, University of São Paulo (FOB / USP), which is accredited by the Ministry of Health to provide services audiology high complexity, free of charge to the public. For the evaluation we used the questionnaire for self-assessment International Outcome Inventory for Hearing Aids (IOI - HA) translated into Portuguese and International Survey - Sound Amplification Individual (QI - HA). The IOI-HA is composed of 7 questions that are proposed to assess areas for the use, benefit, residual activity limitations, satisfaction, residual participation restrictions, impact on others and quality of life. Each question has five options graded 1 to 5, is that, the minimum score is 1 point and the maximum 5 points for each aspect assessed and the maximum score (sum of all items) is 35 points. The results showed that the average obtained by the total questionnaire score was 31.4. For the areas assessed, the mean score for the use was 4.4, the benefit was 4.1, on the limitation of residual activity was 4.4, 4.7 for satisfaction, with respect to restriction of the residual was 4.8, about the impact on other 4.9 and the quality of life was 4.1. The subjective evaluation by means of the IOI-HA showed that the wearers-OTE had high satisfaction in the use of open fitting.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 160

CULTURAL ADAPTATION OF THE QUESTIONNAIRE SADL (SATISFACTION WITH AMPLIFICATION IN DAILY LIFE) FOR THE PORTUGUESE - BRAZILIAN.

Authors

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Institution

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Abstract: Introduction: Hearing is one of the essential meaning the human being, one of the most important tools for building oral language. Thus, without this sense, the individual loses some of the real world, going to have emotional and social problems. During the individual counseling of hearing impaired have to worry about the three cases of motivation related to the use of hearing aids (HA): acceptance, benefit and satisfaction. **Aim:** To adapt culturally SADL (Satisfaction with Amplification in Daily Life) for application in the Brazilian population, to evaluate its reproducibility and to describe the results of the application in patients fitted with hearing aids. **Methods:** We studied 30 patients aged over 18 years, of both genders, fitted with hearing aids and assisted in the Speech Therapy Clinic of FOB / USP Bauru. We performed translation and cultural adaptation of the SADL questionnaire developed by Cox and Alexander (1999) following the steps proposed by Guillemin et al (1993), including the translation from English into Portuguese and linguistic adaptation, revision of the grammatical and idiomatic equivalence, cultural adaptation and evaluated the inter-rater and intraexaminer. The questionnaire was distributed to three teachers translators of English, fluent in that language, who did not know and did not previously know the questions, to devise individually and secretly the first version to the Portuguese. This procedure was performed in order to generate three independent translations of SADL. The reviewing body is constituted by three speech therapists (Brazilian knowledgeable with fluently English Language), which reviewed the three documents and, by consensus, reduced the differences in the translations, choosing the best expressions and words in all matters, adapted to the Brazilian cultural knowledge. Was chosen the best translation for the issues and the change in approach more appropriate terms, chosen to allow understanding by the Brazilian population. Thus was obtained a new single called SADL questionnaire language. A copy of the SADL Brazilian was sent to three different translators of the same linguistic and cultural conditions of the first. These translators did not know the original text, made new version for the English language. Was not allowed the new translators had contact with the original text, written in English, to avoid influencing the translation of words. The same group reviser evaluation of the three versions shown, comparing them with the original English. To test the reproducibility, the questionnaire was applied to the same thirty patients interviewed at the stage of cultural adaptation by a second interviewer. On the same day of the interview questionnaire was administered again by the first interviewer to evaluate reproducibility intraexaminer. The statistic was used Analysis of Variance (ANOVA).

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 161

RELATIONS AMONG PERFORMANCE, BENEFIT AND SATISFACTION OF AMPLIFICATION IN ADULTS IN A HEARING HEALTH PROGRAM BY SUS.

Authors

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Institution

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Abstract: Purpose: to establish relations among performance, benefit and satisfaction of amplification in new hearing aid users. **Methods:** Nineteen individuals with bilateral sensorineural loss participated of the study. All participants responded to Hearing Handicap Inventory for Adults (HHIA), Abbreviated Profile of Hearing Aid Benefit (APHAB) and The International Outcome Inventory for Hearing Aids (IOI-HA) and in order to verify the performance of amplification they were submitted to functional gain and in situ measurements. **Results:** The data showed that there was not statistical significant correlation between satisfaction and benefit of hearing aid use as well as between auditory handicap and benefit, however, there was significant correlation between global benefit and subscales of APHAB. The comparison between functional gain and insertion gain showed statistical differences at 3KHz and 4KHz frequencies, but on the other hand it was found equivalence at 1KHz and 2KHz frequencies. Significant correlations were also seen between degree of hearing loss and time of deprivation **Conclusions:** These findings suggest that individuals who succeed to overcome the difficulties imposed by hearing loss and perform well in communication situations with the use of the amplification, show greater benefit with hearing aids. The self assessment questionnaires consist in important, easy application resources that add valuable information to professionals before, during and after the acclimatization process, with regard to the exploitation of benefit and satisfaction of hearing aid use.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 162

OPEN FITTING BENEFIT AND SATISFACTION IN HEARING IMPAIRED INDIVIDUALS

Authors

EDILENE BOÉCHAT, BEATRIZ MARQUES, PRISCILA HIRATA, DANIELLE LIGI

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Abstract: Open fitting devices are considered as a consistent solution for occlusion effect complaints among hearing aid users. **Objective:** the purpose of this study was to evaluate the open fitting hearing aid benefit and satisfaction in hearing impaired adults. **Method:** 30 brazilian patients, open canal hearing aid users, with sensorineural hearing loss and age between 22 and 92 years old participated in the study. The verification procedures to evaluate hearing aid performance included functional gain and in situ measurements. To assess the degree of hearing handicap, benefit and satisfaction of open fitting hearing aids, self-assessment questionnaires (HHIA, APHAB e QSSA) were used. **Results:** through the outcomes obtained with the self-assessment questionnaires, it was possible to identify the high benefit and satisfaction of open canal instruments, especially related to occlusion effects. The results of this study showed significant differences between the use of open eartip and closed eartip, and for the first condition, the response is better at 3000 Hz and 4000 Hz frequencies, for the closed eartip the answer is better at 1000 Hz. For 500 Hz and 2000 Hz, the difference between the eartips was not statistically significant. The Questionnaire QSSA was effective to assess the specific aspects of open canal in complementation of APHAB.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 163

STUDY OF BENEFIT AND ACCLIMATIZATION ON USERS OF HEARING AIDS ATTENDED BY THE PROGRAMA REOUIR - HCFMUSP

Authors

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Institution

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Abstract: Introduction: even though the audibility of a speech signal could be restored immediatly after adapting the hearing aids, the users need a certain time to learn to interpret the



recently introduced acoustic information. For new users of hearing aids, there is hearing recovery when the lack of hearing is interrupted, with an important improvement in the speech abilities after some time using amplification. That happens because of the acclimatization after 6 to 12 weeks. Objective: evaluating the benefit of using a hearing aid immediately after the first fitting of the device and after a month; furthermore, verifying the occurrence of acclimatization. Material and Method: the benefit of hearing aids and the occurrence of acclimatization were verified by the use of IPRF and HHIE(S) immediately after fitting and after a month of amplification use on 8 subjects attended by the Programa Reouvir from HCFMUSP. Results: at the IPRF without hearing aids, the average percentage of listening was of 67.5%. Wearing the hearing aids, the average percentage was 74.5% at the beginning and 82.5% after a month. The hearing handicap analysis, at the first fitting and after a month showed a reduction from 35.50 to 13.50. Those differences were statistically important. Conclusion: the benefit was observed with the amplification use and the occurrence of acclimatization after 1 month of use of hearing aids.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 164

PROTOCOL TO ASSESS THE HEARING SERVICE

Authors

LUIZA AUGUSTA ROSA ROSSI-BARBOSA², SANDRA MARIA FREITAS VILLELA VIEIRA³, CLÁUDIA REGINA TACCOLINI MANZONI², MAGNA LUCIELE NASCIMENTO PEREIRA³

Institution

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2. UNIMONTES, Universidade Estadual de Montes Claros

Abstract: Patients with hearing problem seeking the services of hearing health in order to improve his hearing and therefore communicative performance. The effectiveness of the treatment needs to be evaluated. Purpose: Assess the adequacy of an instrument, which is in phase of implantation, elaborated by the Secretaria Municipal de Saúde de São Paulo regarding the hearing health service and the use of hearing aids. Methods: The instrument consists of 17 questions that assess the service and the user's satisfaction. The assessment of the service comprises the medical attention in general, waiting time for the hearing aid, and the return(s) after receiving it. The user's satisfaction assesses the period of time the hearing aid is used during the day and at what times in the patient's life its use has brought improvement. It was applied for 17 subjects, ages 21 to 91 years, mean 61.8 years. Eleven were male. Results: The indicator for service assessment suggests pondering over testing with more than one device. The indicator for satisfaction suggests the need to modify the score regarding the period of time the device is used and, regarding the improvement in certain places, it is necessary to add the place of use of the device. Conclusion: It is necessary to reformulate and reevaluate the instrument presented. Despite its limitation due to the small number of individuals studied, it was found that the respondents are relatively satisfied, although there are complaints as to the adaptability to the hearing aid.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 165

STUDY OF THE LIMITATIONS OF ACTIVITIES, OF PARTICIPATION RESTRICTIONS, AND THE BENEFIT BROUGHT BY THE USE OF HEARING AIDS IN ADULTS

Authors

VÍVIAN BAPTISTA DA LUZ, CRISTINA TIEME NISHIMURA, RENATA COELHO SCHARLACH, MARIA CECÍLIA MARTINELLI IÓRIO

Institution

1. UNIFESP, Universidade Federal de São Paulo

Abstract: Introduction: Sensorineural hearing loss causes several damages which can greatly jeopardize the quality of life of the affected patients. Since hearing tests do not reflect the perception which the hearing impaired have in relation to their difficulties in handling daily activities, the use of instruments which evaluate subjectively such difficulties and which can evaluate the benefit of the use of hearing aids, such as self-assessment questionnaires, are recommended. Objectives: To study the individual perception of participation restrictions and hearing limitations due to sensorineural hearing loss in adults and the benefit obtained by the use of hearing aids through the use of the Hearing Handicap Inventory for Adults (HHIA) and Abbreviated Profile of Hearing Aid Benefit (APHAB) questionnaires. Methods: 17 individuals of ages from 18 to 59, with sensorineural hearing loss, varying in degree from mild to moderately severe, and who were treated at the Federal University of São Paulo were evaluated. These individuals answered the HHIA and APHAB questionnaires in two moments: when the hearing aids were first donated and after three months using the hearing aids. For the HHIA, these individuals were requested to select, in each of the 25 questions, one of three possible answers: YES, SOMETIMES, and NO. Scores above 42% indicate severe or significant perception of the handicap, from 18% to 42%, mild to moderate perception of the handicap, and below 16%, no perception of hearing handicap. Subsequently, for the APHAB, participants were instructed to choose, for each of the 24 items, one of the seven possible answers: "ALWAYS", "ALMOST ALWAYS", "USUALLY", "HALF OF THE TIME", "OCASIONALLY", "RARELY", and "NEVER". These options should be selected according with the frequency of occurrence of the exposed situations of the referred items: 99%, 87%, 75%, 50%, 25%, 12%, and 1%, respectively. For statistical analysis of the data, the Wilcoxon test and Spearman's correlation were used. Results: For the first self-assessment, 100% of the individuals showed some degree of participation restriction, decreasing to 58.8% in the second self-assessment – such difference was significant. There was also a significant difference between the scores of the first and second evaluation of the HHIA and among the "Ease of Communication" (EC), "Reverberation" (RV), and "Background Noise" (BN) scales of the APHAB. The average of the decrease of participation restriction was 32.58%; and for the EC, RV, and BN scales, it was 37.88%, 29.6%, and 25.53%, respectively. There was a positive correlation between the score decrease of the HHIA and the benefit of the BN scale, and between the benefit in BN and the EC and RV scales. Conclusion: The effective use of hearing aids reduced the perception of participation restrictions in daily activities. The use of hearing aids also promoted the reduction of the perception of hearing difficulties caused by hearing loss in noisy, reverberating, and favorable environments for communication. Furthermore, it was found that the higher the benefit in noisy environments, the higher the reduction of participation restriction, and the higher the benefit in reverberating and favorable acoustic environments.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 166

AUDIOLOGICAL PROFILE OF INDIVIDUALS HEARING AID USERS GRANTED IN THE STATE OF ALAGOAS - BRAZIL

Authors

RAQUEL COUTINHO PANIZZI, KATIUSCIA DE MELO ALVES, CARLA CAROLINE ALMEIDA SILVA, HELOISA HELENA MOTTA BANDINI

Institution

1. UNCISAL, UNIVERSIDADE ESTADUAL DE CIÊNCIAS DA SAÚDE DE ALAGOAS

Abstract: INTRODUCTION: The hearing impairment has been considered as a disease considered severely disabling and it has affected thousands of Brazilians. The problems caused by the hearing loss could be minimized with the use of a Hearing Aids Personal Sound Amplification (HA), which one allows the recovery of the perception of a speech sound in addition to surround sound, contributing to the improvement in communication skills. Recognizing the importance of intervention in this area, the Ministry of Health has policies about the hearing health, which include a hearing test, a concession and an adaptation of HA and including many aspects to be analyzed. PURPOSE: Describing the epidemiological and audiological profile from the users of HA granted by the Service High Complexity of the States of Alagoas. METHODS: It has surveyed 710 medical records from patients, getting data of audiological anamnesis, audiological assessment and selection/adaptation of HA. RESULTS: It has checked that most of HA users who were attended by this service, were patients aged 65 or over, with digital and binaural HA adaptation. The type of hearing loss more common is a sensorineural from mild to moderate degree with severe preservation of frequencies. CONCLUSIONS: It has observed that there was a higher prevalence and incidence of a sensorineural hearing loss with downward-sloping. KEYWORDS: Hearing, Hearing Loss, Hearing Aid and Technology.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 167

RESPONSE VARIANCES' STUDY OF PROBE-MICROPHONE MEASURES AFTER PROBE TUBE REPOSITIONING

Authors

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Institution

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Abstract: The Open Canal hearing aids (OC) have been used very successfully nowadays. In our therapist's office, most of our patients (about 85%) have adapted to them. The amount of particularities requested in order to have the patients adapted to these OC hearing aids are several and, due to this, further studies are important. As other adaptations, probe-microphone verification is a critical part of the fitting process. In the probe-microphone verification, there are standard positions of the equipment, patient, hearing aid, earpieces and probe tube that have to be adequate in order to guarantee a good quality examination outcome. Considering OC hearing aid, their connectors (slim tube and the tip) and the probe tubes all are lightweight pieces, we sometimes wonder about the probe tube and/or tip position during the examination. Fitting and/or evaluate problems might arise in case of any variance on the examination results. This research studied possible variances on the probe-microphone verification in relation to the probe tube position. We would like to check the need of a test-retest in our routine and try to experiment a new position of the probe tube by fixing it to the slim tube into the vent tip. Objective: 1) Study variances on the responses by repeating the test at the original probe tube position. Is it always necessary to test-retest in order to confirm the exam? 2) In case of fixing the probe tube to the the slim tube by passing through the vent on the tip, would it make any difference in relation to the routine examination position? Method: 10 patients wearing OC Hearing Aids with open tips were tested. Three types of measures were made utilizing Fonix FP35 equipment: first the habitual/normal (Test), putting the probe tube at 2,5mm in the ear canal from the tragus; then only replacing the probe tube, a Test-retest (T-R) in the same and habitual position and finally the probe tube was fixed on the slim tube (FPT), passing through the vent tip at 0,5mm from the tip. Results: The results show variations ranging from 1 to 8 dB from Test to T-R. PFT results were in 45% of the cases higher when selecting the higher gain results from either the Test or T-R results at each frequency. PFT results were higher in 100% of the cases when selecting from the lower gain results from either the Test or T-R results at each frequency. It's relevant to notice that although the average result at this later lower frequency comparison was of 2dB, some results peaked at 9 dB.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 168

CLINICAL ASSESSMENT OF MUSIC PERCEPTION: A PILOT STUDY WITH NORMAL-HEARING BRAZILIAN SUBJECTS

Authors

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Abstract: Introduction: music perception tests have been used worldwide in cochlear implant (CI) studies. The University of Washington has developed the Clinical Assessment of Music Perception (CAMP), a standardized test to quantify music perception in adult CI users. Objective: check the performance of normal-hearing Brazilian subjects submitted to the CAMP test. Method: this study has been developed in the Center of Auditory Researches of Hospital for Rehabilitation of Craniofacial Anomalies of University of São Paulo. Nineteen normal-hearing adults with average age of 34 years and without musical knowledge participated in the study. In order to apply the test to the Brazilian population, the cultural adaptation of the instructions was conducted first which included translation from English to Portuguese, linguistic adaptation and review of grammar and idiomatic equivalence. The CAMP test comprises three subtests: pitch direction discrimination, melody recognition and timbre recognition. In this study, pitch direction discrimination and timbre recognition subtests were applied. Melody recognition was not applied since the songs doesn't belong to Brazilian culture. Pitch direction discrimination evaluated the ability to perceive the intervallic direction of pitch pairs. Participants were required to identify the highest note, between two notes heard, having the pitch direction discrimination threshold been calculated. Each correct response yielded a smaller subsequent pitch interval, and each incorrect response yielded a larger interval. The initial interval tested was 12 semitones, or 1 octave, and the smallest interval tested was 1 semitone. Timbre recognition subtest evaluated the discrimination of eight musical instruments from closed set. A standardized melodic sequence was randomly played three times by each instrument and participants were required to identify the instrument. The CAMP test was applied in open-field and executed on HP Pavilion notebook at 0° azimuth and 65dBNA. Data were saved in the test databank. Results: the mean duration of the CAMP was 7.13 minutes. There are no reports of difficulty in understanding test instructions. The mean pitch direction discrimination threshold was 1.2 ± 0.6 semitones. Such results are similar to results obtained from normal-hearing American and Korean population, 1.0 and 1.6 semitones, respectively. As regards timbre recognition subtest, mean performance was 73.3% ± 15.2, with a range of performance between 50% and 100%. Among the instruments evaluated in this subtest, the guitar was more often correctly identified (96.2%) and the saxophone was the least identified instrument (51.8%). The mean performance for such subtest was 94.2% for the American population and 66.7% for the Korean population. Conclusions: results based on this evidenced conclude that it is possible to apply the CAMP test to Brazilian normal-hearing adult population. This is a standardized and clinically practical procedure that can be used in adult CI users leveraging information exchange among CI Programs, and proposes rehabilitation tasks. FAPESP

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 169

VERIFICATION OF HEARING AID ELECTROACOUSTIC CHARACTERISTICS: COMPARATIVE STUDY OF SOFTWARES OF DIFFERENT MANUFACTURES

Authors

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Abstract: Introduction: The national hearing health policy in Brazil has made hearing aids available to hearing impaired children and adults and, therefore, the audiologist responsible for dispensing them has to deal with a number of different manufactures for different types and degrees of hearing losses. Goal: To compare the prescribed electroacoustic characteristics and modifications suggested for acclimatization among software of different hearing aids manufactures. Method: Six simulated cases of sensorineural hearing losses – three adults and three children, including three degrees of loss for each age, were analyzed (HL45, HL65 e HL80). For all cases, a flat configuration was assumed. Three softwares of hearing aids brands were chosen, based on the following criteria: software NOAH 3.0 with the choice for NAL-NL1 and DSL [i/o]v4.1; availability of measurements for output at the 2cc coupler for different intensities of input signal. Procedures: - Verification of output values with the 2cc coupler when compared with the values presented for each brand software, for each hearing loss, using NAL-NL1 for adults and DSL [i/o] v.4.1 for children. - Verification of output values prescribed by the original DSL[i/o] v.4.1, as compared with those prescribed by the manufacturer software considering level of acclimatization. Results: A large variation of the amplification provided by the hearing aids for children and adults was found, considering different levels of hearing loss, in most frequencies, for different input levels. This variation was between -3 and -28 dBNPS in high frequencies, comparing the DSL[i/o]v4.1 manufacturer method and the original one. When comparing differences with prescribed output for new and expert hearing aid users, results were statistically larger for new users for hearing loss of 45dBHL (1000Hz, 2000Hz, 3000Hz and 4000Hz) for input of 50 dB SPL. The frequency of 500Hz the values were also larger for inputs of 60 and 65 dB SPL and in the frequency of 2000Hz for 80dB input. When a hearing loss of 80dB was considered, the differences for new users was statistically larger than for old expert users in the frequencies 3000Hz and 4000Hz only for the input of 50dB SPL. Conclusion: The results of this study have revealed the verification of the electroacoustic characteristics of the hearing aids during the fitting process, ensuring the patient, especially children, a more appropriate amplification.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 170

ELDER PEOPLE LIFE QUALITY BEFORE AND AFTER THE HEARING AIDS ADAPTION

Authors

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Institution

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Abstract: INTRODUCTION: The hearing is one of the most devastating sensory losses, because it compromises communication and can lead to emotional, social and occupational problems. The presbycusis is one of the most common disorders in the elderly people, and causes, in most of them, a decreasing bilateral neural-sensory hearing loss. The hearing loss in the old age is a serious factor of individual limitation and can lead to psychiatric disorders, favoring the loneliness due to a communication difficulty with their environment. The relatives, in some cases, have no tolerance to deal with the hearing loss, and, normally, don't maintain dialogs with the elder, only telling them key issues. This way the elder acquires an embarrassment feeling before his hearing difficulty and it may cause a depressive state. OBJECTIVE: With the rising number of elder people with hearing loss and their possible loneliness feeling, this work's objective was to check through a WHOQOL (World Health Organization of Life Questionnaire), the life quality of the person with hearing loss before and after the adaptation of the hearing aids. METHOD: The research was composed by 30 individuals, with age above 60, treated at the hearing aids selection and adaption sector of the Audiologist Clinic of the USP's Audiologist Class of Bauru with hearing loss diagnosis. At a first moment the patient answered to the questions of the WHOQOL instrument, to evaluate the life quality before the use of sound amplification. After the selection and adaptation of the hearing aids, the individuals used the amplification during a period of three to six months, and then answered to the WHOQOL question again, to know if the use of the amplification allows an improvement in the life quality. The WHOQOL – Bref has 26 questions, 2 general, associated to life quality and 24 that discriminate four aspects: Physical, psychological, environment and social relations. RESULTS: From the results with no sound amplification use, 66% of the patients classified their life quality as good, 26% as average and 7.4% as very good, none classified as bad or very bad. 66% declared been satisfied about the health. Regarding the leisure, 33.3% responded average, 26% very little, 22% much, 14.8% nothing and only one answered fully. Half of the participants are very satisfied with their personnel relations and a third of them are satisfied, none declared been very unsatisfied. Responding to bad feelings, 40% never developed and 33.3% sometimes, only two affirmed higher frequency, always declaring very frequent. The application of the questionnaire after the hearing aids adaptation has been concluded, for the purpose of establish comparison before and after and verify how much the sound device can influence in an individual life quality.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 171

APPLICATION OF THE IOI-HA QUESTIONNAIRE ON ELDERLY PEOPLE WHO ARE RECENT USERS OF HEARING AIDS IN OPEN FIT.

Authors

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Institution

1. UNIFESP, UNIVERSIDADE FEDERAL DE SÃO PAULO

Abstract: Introduction: Hearing loss is a sensorial alteration that comes along with the aging process and has a significant impact on the communication of the individual, and can, many times, cause emotional alterations and isolation from society. In cases in which the user presents normal hearing abilities or little loss at low frequencies and a drop in medium and high frequencies, a rejection to the device is common, due to the discomfort caused by the excessive amplification of the low frequencies; this is where we can find what is known as the occlusion effect. The patient can refer autophony and discomfort towards the sounds produced by it. The better preserved the low frequencies, the bigger this patient's complaints. Presently, hearing aids are being used in open fit, that is, the use of a mold for the ear is not necessary, and the sound is transmitted to the outside acoustic canal via a micro-tube attached to a small olive. The performance of a hearing aids can be followed and registered by specific self-evaluation testing and questionnaires filled during the adaptation period. This self-evaluation is a simple, quick and efficient procedure, which allows the evaluation of the individual during his/her adaptation process to hearing aids. Objective: The goal of this study was to evaluate the effects caused by the use of amplification in elderly people, with the application of the self-evaluation questionnaire called IOI-HA (International Outcome Inventory for Hearing Aids). Methods: The study was conducted by the Integrated Nucleus for Hearing Assistance, Research and Learning (NIAPEA), from (Universidade Federal de São Paulo) UNIFESP. The project was approved by the Ethics Committee for Research (# 1144/2007). 43 elderly citizens were evaluated (9 women and 34 men) ranging from 60 to 85 years of age. The individuals should have a symmetrical bilateral neurosensorial hearing loss, descending audiometric configuration, tone ranges up to 30dB in the frequencies of 250Hz, 500 Hz, 1KHz and up to 75dB in other frequencies. The data collected from the IOI-HA was analyzed after two and six months of use of the hearing aids, in the 7 items and final evaluation. In order to compare the score distribution for each of the IOI-HA items in both moments, the variance analysis technique was used with repeated measures for ordinal data and the IOI-HA averages for the totals obtained at two and six months after the beginning of the use of the hearing aids and were compared via a paired t test. Results: The analysis revealed that there was a statistically significant difference in all items evaluated and at the total points for the IOI-HA after six months of use. Conclusion: The study revealed that was better performance after six months of use and in total points.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 172

EAR MOLD AND EXTERNAL EAR MALFORMATION: YOU CAN ADJUST SATISFACTORY?

Authors

JERUSA R MASSOLA OLIVEIRA, ALINE MALAVASI DELAMURA, SUELLEN A LIMA, ELIANA AGUIAR S SERRANO

Institution

1. HRAC, Rehabilitation Hospital of Craniofacial Anomalies

Abstract: Introduction: The Treacher-Collins syndrome is a congenital autosomal-dominant disease, with high penetration and variable expressivity. The incidence is 1 per 10,000 live births (Hunt, 2002). The clinical abnormalities are antimongoloid slant of palpebral fissures (89%), malar hypoplasia, with or without cleft of the zygomatic bone (81%), mandible hypoplasia (78%), lower eyelid coloboma(69%), partial or complete absence of cilia in the lower eyelids (53%), ears' malformation (36%), external auditory canal atresia(40%), conductive hearing loss (28%) and cleft palate (32%) others (Smith, 1985; Bezerra, 2005). Clinical Report: TPTS, 21 years presents Treacher-Collins syndrome, showing auricle malformation with external auditory canal atresia and moderate conductive hearing loss bilaterally. TPTS started using hearing aids at 2 years and 6 months old, with a bone adaptation (bone vibrator). She had pain in the mastoid bone because of the pressure exerted by the arch / vibrator. Also, there was evidence that his self-esteem was damaged causing relationship problems, as a result of the use of adaptation by bone. At 7, we tried to adapt him by air with the left hearing aid, but the result was not satisfactory, because there was a constant feedback generated by the amplification device, since there was not an adequate fixation to the same ear. In an attempt to provide better fixation of the ear mold to the ear, it was proposed to perform otoplasty rod support in the lobe region. The material chosen for the ear mold was silicon, due to its higher adhesion, facilitating the attachment to the ear justified by the absence of the indentations due to malformation. Objective: The objective of this study is to present an ear mold that was made with a support rod to be adapted to a hearing individual in a person with external ear malformation (OE). Conclusion: The rod support ear mold involving the region of the external ear lobe is a clinical alternative to accommodate the hearing aid by air, helping to solve the problem of fixation and therefore feedback, but is not adaptable to all types of malformations, leaving to the clinician to the correct indication

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 173

PREFERENCE FOR MONOAUURAL FITTING IN ELDERLY USERS OF HEARING AIDS UNDER BINAURAL INTERFERENCE

Authors

ANDREA CRISTINA DE OLIVEIRA EICHNER¹, MARIANA CARDOSO GUEDES¹, ANA MARIA MAAZ ALVAREZ²

Institution

1. CER Fono, Centro de Estudos e Reabilitação em Fonoaudiologia

2. Ana Alvarez, Ana Alvarz Comunicação e Cognição

Abstract: Introduction: When speech recognition testing is performed under diotic conditions, some elderly individuals with asymmetric hearing loss exhibit a phenomenon in which the performance of the poorer ear interferes with that of the better ear. This binaural interference phenomenon has been estimated to occur in 8 to 10 percent of elderly hearing aid users. Comparisons of the subjects' right, left, and binaural performance for word recognition test scores and dichotic procedures has shown efficient to evaluate the auditory processing in individuals with sensorial neural auditory deficiency. Objective: Describe audiological characteristics suggestive of binaural interference present in users of Hearing Aid (HA) with Bilateral Symmetric hearing loss. Type of Study: Case Series. Methods: Five individuals with bilateral symmetric hearing loss using hearing aids were conducted to therapy with emphasis in the auditory training due to daily difficulties with speech intelligibility. Tonal and vocal audiometry, PISR (Percentage Index of Speech Recognition) in mono and binaural conditions and dichotic digit test in the divided attention mode and directed attention mode were performed. Subjects' benefits with hearing aids were also evaluated using APHAB questionnaire in binaural and monaural condition. Results: All individuals related better performance with HA monaural adaptation and it was confirmed by the results of APHAB. PISR scores were, in average, 7% worse in binaural than in the monaural situation. Dichotic Digit Test showed relevant asymmetry between the ears (31, 6%) in the divided and the directed attention form to the non dominant ear. There was also an evident deficiency in the directed attention mode to the non dominant ear. The results are consonant to the presence of binaural interference. In 100% of the cases, the monaural adaptation proved to be more beneficial to the bilateral adaptation. Discussion: Despite of symmetric auditory levels and PISR monaural values close to normality, patients did not present adequate central auditory processing with deficits on binaural integration. PISR data in binaural situation and during dichotic hearing tests indicate poor binaural integration, which is essential to speech discrimination and recognition. Conclusion: The data suggests that binaural interference always should be investigated in hearing aid users with speech comprehension complaints. In these cases, it seems necessary to elaborate strategies of rehabilitation as long as the indication of hearing aid and monaural fitting should be considered at the first moment.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 174

ADAPTATION OF HEARING AID BY THE UNIFIED HEALTH SYSTEM: LEVEL OF SATISFACTION OF USERS

Authors

CAROLINE REIS, DÉBORA CRISTINA MENDES MONTEIRO, RITA MOR

Institution

1. CEFAC, Centro de Especialização em Fonoaudiologia Clínica

Abstract: Currently in Brazil, the Unified Health System (UHS) hold a donation of hearing aids through registered institutions, based on the Decree of the National Care Health Auditory



Program. The measures of self-evaluation allow checking the patient satisfaction regarding the use of amplification. An important questionnaire was translated into Portuguese and named Questionário Internacional – Aparelho de Amplificação Sonora Individual (QI-AASI). This study aimed to verify the satisfaction of users of hearing aids donated by the UHS, outside the clinical environment through data collection of the QI-AASI. We analyzed 200 medical records of the wearers adapted an institution registered by the UHS in Jundiá / SP, ATEAL. The results indicated that individuals mostly made use of hearing aids for more than eight hours a day; they think that it helped quite a lot; now, have slightly difficulty hearing; said that quite a lot worth it; that it affected a slightly the things they can do; and that your present hearing aid(s) bothered slightly other people; and now your enjoyment of life is quite a lot better. The prevalence of satisfactory responses is directly related to improving the quality of life of individuals after the use of hearing aids, considering the damage that leads to hearing loss in the communication and social interaction. Thus, we concluded that the vast majority of the wearers adapted by UHS showed a high degree of satisfaction with their hearing aid, outside the clinical environment. Keywords: Hearing loss; Hearing aid; Questionnaire; Selfevaluation

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 175

COMPARISON OF REAL EAR AND SIMULATED INSERTION GAIN

Authors

PATRÍCIA DANIELI CAMPOS¹, DEBORAH VIVIANE FERRARI¹, MARIA FERNANDA CAPOANI MONDELLI¹

Institution

1. USP, Universidade de São Paulo

Abstract: COMPARISON OF REAL EAR AND SIMULATED INSERTION GAIN Background: Professionals have been using hearing aid (HA) programming software simulations in substitution to verification of performance by means of probe microphone measures. Aim: to compare the programming software simulated insertion gain with real ear measures of insertion gain. Methods: Retrospective study. Sixty two individuals (30 men and 32 women) with age ranging from 29 to 93 years (mean 71 yrs) were enrolled in this study. All patients presented sensorineural unilateral (n = 14) or bilateral (n = 48) hearing loss with degrees varying from mild to profound, totaling 110 ears assessed. Simulated as well as real ear insertion gain results were collected from participant's records. Real ear measures were obtained with the loudspeaker positioned at 0° azimuth and approximately 1 meter away from the participant. The geometrical method was used for probe tube insertion in the ear canal. Speech noise presented at 65 dB SPL was used as stimulus. The simulated insertion gain was collected from the programming software's database of two hearing aid manufacturers that presented the simulation data generated with speech noise at 65 dB SPL. The real ear and simulated insertion gain at inter-octaves from 250 to 4000 Hz were compared by means of paired t test. The Pearson correlation between the simulated and real ear gain difference and participant age was also obtained. An alpha of 0.05 was considered for all analysis. Results: Simulated insertion gain was significantly higher than real ear gain for the frequencies of 2k, 3k and 4k Hz. Mean differences up to 15 dB were found. Real ear gain was higher than simulated gain at the frequencies of 250 and 1k Hz. Mean differences up to 4 dB were found. Correlations between age and the difference between the simulated and real ear measurements were weak and non significant. Conclusion: Regardless of the sophistication of hearing aid programming software the simulation data cannot be used in substitution to verification with probe microphone measures.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 176

SPEECH UNDERSTANDING IN NOISE IN ELDERLY WITH AND WITHOUT SEVERAL HEARING AIDS.

Authors

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Institution

1. HRAC-USP, Hospital de Reabilitação de Anomalias Craniofaciais- USP

2. UNESP, Universidade Estadual Paulista

Abstract: Objective: Present work aimed to compare speech understanding in the presence of a competitive noise obtained (1) without hearing aid (HA); (2) with a linear HA; (3) with a non linear HA, without an algorithm for noise suppression, and; (4) with a non linear HA with noise suppression, in elderly individuals with a neurosensory hearing loss attending at Hearing Health Division of Craniofacial Anomaly Hospital, University of São Paulo, Bauru. Participants and method: 26 elderly individuals were examined, bearing a neurosensory hearing loss of mild to severe degree. Individuals were submitted to the understanding speech test, in order to get a signal/noise relationship (S/N), through the understanding threshold of sentences in noise, for 1, 2, 3 and 4 conditions. Results: Results showed that the individuals presented a better performance for speech understanding in noise with HA compared to the absence of HA. Performance with HA for conditions 2 and 3 was similar, as statistically significant results were not found. However, compared to HA condition, best results were obtained for condition 4. Conclusion: Elderly individuals with a hearing loss showed a better performance with hearing aid compared to a non HA condition and to non linear HA with an algorithm for noise suppression. This fact is probably related to benefits from technological improvements and to HA with noise suppression algorithms.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 177

CASE REPORT – USE OF BINAURAL AMPLIFICATION IN A CASE WITH BINAURAL INTERFERENCE AND TINNITUS

Authors

ADRIANA LAYBAUER SILVEIRA, MAUREN ROCHA DE FARIA

Institution

1. Clínica Lavinsky, Clínica Lavinsky

Abstract: A female patient aged 85 was in the medical Lavinsky Clinic for an audiological control due to a significant increase in the perception of tinnitus after ischemic stroke. The patient was referred for audiological evaluation and review of hearing aids in use. In pure tone audiometry showed an asymmetrical hearing loss. In the right ear the sensorineural impairment is moderate as ranked by Davis & Silverman (1970). In the left ear for impairment of mixed hearing loss, profound. In speech perception the assessment showed a significant decrease in speech discrimination of the right ear (40% monosyllables and 56% two syllable) and speech perception only in the left ear. As for hearing aids, the patient uses it for several years, in both ears, but for the last three years with great difficulty to understand. She is currently using hearing aids with an digital technology for next-generation model CIC in the right ear and BTE in the left ear. After in-situ assessment it was revealed that the target gain was achieved in both ears. The intelligibility of words in the unilateral right situation was 32% better than in the bilateral situation. Based on the findings of the test speech, at first the patient was instructed to use the device only in the right ear, as was the presence of binaural interference. Also suggested to start the onset of auditory training. After four days the patient returned to use the hearing aids in both ears with the same complaint of difficulty in understanding, but without referring to the perception of tinnitus. At this time the adjustment of the device in use in the left ear was reassessed. The gain of the device was kept to a minimum to provide inhibition of tinnitus, but not harm intelligibility. Currently, the patient no longer perceives the tinnitus because the left ear hearing aid acts to inhibit tinnitus while intelligibility is given by the hearing of the right ear. The patient did not accept the proposal of the auditory training and find medical care.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 177A

AUDITORY AND LINGUISTIC BEHAVIOR EVALUATION OF BONE VIBRATOR USERS: AGENESIS OF THE EXTERNAL EAR CANAL

Authors

CILMARA CRISTINA ALVES DA COSTA LEVY, THAIS RODRIGUES TALARICO, LYVIA RODRIGUES

Institution

1. ISCMSP, Irmandade da santa casa de misericórdia de são paulo

Abstract: Introduction: The malformation of the external auditory canal is not so uncommon and usually in these cases the degree of hearing loss is considered mild to moderate. We are aware that hearing loss of moderate degree can cause a psychosocial impact on the child. Treatment in these cases may include surgical procedures, hearing aid fitting, bone conduction or implantable hearing device adaptation. However, there are few case studies of the use of implantable hearing aids with children; we are left with the only option of recording bone conduction hearing apparatus adaptive strips. On the other hand, given that device is easily removable and these children have a conductive hearing loss that allow partial hearing and language development. They usually end up not using the hearing aid device on a regular basis. Objective: To evaluate the child's auditory and linguistic performance that have ear external malformation. Methods: The study involved six children using the protocol drawn up according to age, utilizing 20 pictures and 10 questions of the child's daily routine. As well as, assessing the time of use of the bone conduction vibrator. Results: Very young children have more difficulties using the apparatus because it is not possible for them to have them custom fit and the boys had less time of use of the bone conduction vibrators than the girls. Children usually have a delay in language acquisition compared to studies of normal children. Conclusion: It was found that there were benefits with the use of these apparatus however, still there is the difficulty in usage and there is still a lack of more appropriate methodology to evaluate the benefit. Therefore, we observed that children who use the bone vibrator had more richer linguistic responses than those who did not use them effectively.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 177B

A FIRST AID CLINIC IN PUBLIC HEARING HEALTH SERVICE: AN EXPERIENCE OF SUCCESS

Authors

CLÁUDIA APARECIDA RAGUSA-MOURADIAN^{1,2}, CIBELLE DE LONGHI ESPASSATEMPO GALDINO¹, PATRÍCIA SIMONETTI^{1,2}

Institution

1. NISAI PIRITUBA PMSP, NISA II PIRITUBA - PREFEITURA DO MUNICIPIO DE SÃO PAULO

2. AUDIO.COM, AUDIO.COM

Abstract: Resumo / Abstract: The Hearing Health Integrated Centre Pirituba (NISA II) is a Public Hearing Health Service of medium complexity in the Universal Health System (SUS), located in São Paulo City. It was started on September 2006, and more than 1000 patients had their hearing aids fitted. Despite all the efforts being made to provide hearing aid fitting and guarantee continuous follow-up, we could not avoid the overloaded agenda and a emergent list of patients waiting for an appointment. For all those reasons we created a first aid clinic to hearing aids as an alternative service to attend those patients needs. Objectives: Describe an alternative service proposal to Public Health Service, in order to have patients demands supplied in a short time and to avoid agenda overloading. This proposal aims to have the numbers of appointments scheduled reduced due to problems of the functioning of instrument, handling and cleaning of the hearing aid. Methods: The study was constituted by 69 patients attended in the clinic, in a three months period time, 34 of males and 5 of females. The first aid clinic agenda was held once a week, and its major purpose was to welcome patients, have their problems characterized and conduct a solution. By listening the patient, the hearing aid, have the hearing aid tested, and also the ear canal checked by otoscopy. To further analysis, the problems were classified as: 1. ear shell or ear moulds replacement; 2. fine tuning adjustments; 3. Hearing aid repairing; 4. handling and cleaning problems; 5. ENT appointment requirement; 6. new audiometric evaluation; Results: There were no statistically differences between genders, though the following was pointed: 30% of patients needed further fine tuning adjustments, 30% needed repair of the hearing aid; 27% could not handle and clean their hearing aids properly; 9% had their shells or moulds replaced; 3% had a new audiometric evaluation and 1% required a ENT appointment. This first aid clinic experience let us control the emergent demand of appointments and recall our orientations in the hearing aid fitting follow-up process. Conclusions: This first aid clinic proposal is an alternative service in the continuous follow up process of demanding public hearing health services. The experience was very successful, solving patient's problems in a short time, and avoiding the agenda to be overloaded.

POSTER SESSION I - DATE: 29/3/2010 TIME: 8H00 - 18H00 - PANEL 177C

THE USE AND EFFECTIVENESS OF OPEN FITTINGS TO OLDER PATIENTS.

Authors

PATRÍCIA SIMONETTI^{1,2}, CLÁUDIA APARECIDA RAGUSA-MOURADIAN^{1,2}

Institution

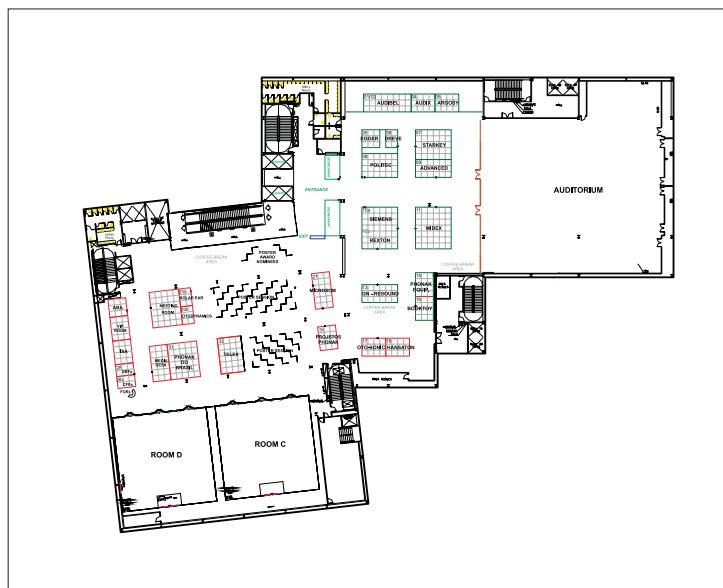
1. NISAI PIRITUBA PMSP, NISA II PIRITUBA - PREFEITURA DO MUNICIPIO DE SÃO PAULO

2. AUDIO.COM, AUDIO.COM

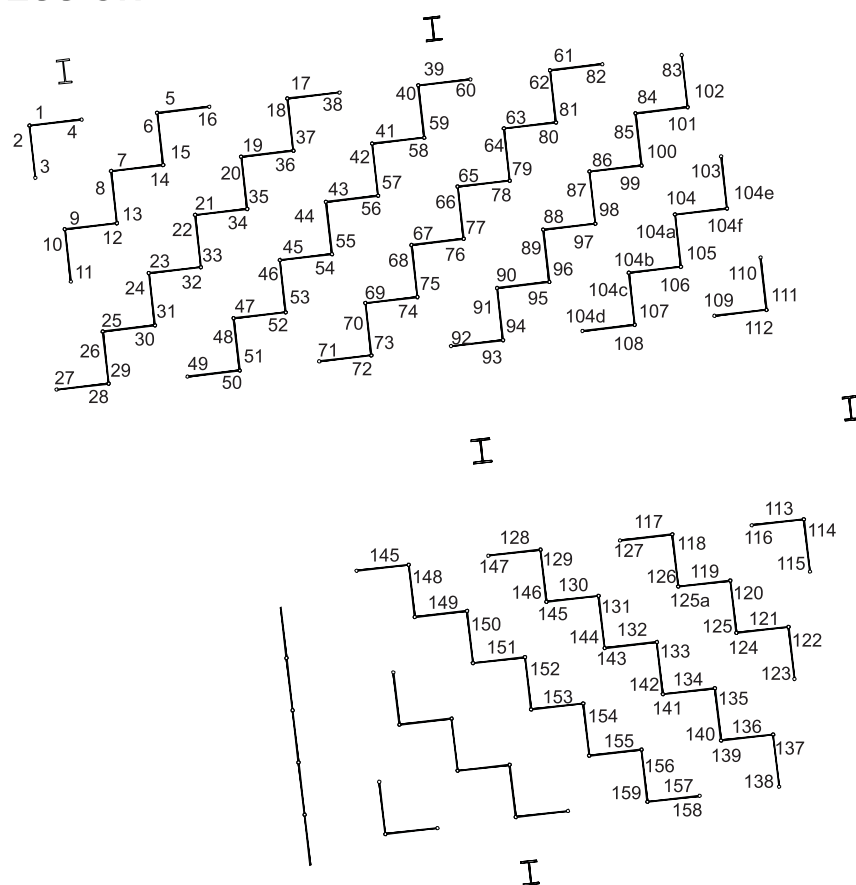
Abstract: In the last few years, open fittings RITA (mini BTE with slim tubes and opens tips or open moulds, and receiver in the aid), have grown significantly. Those open fittings are only possible due to technology advances that reduced the acoustical feedback, allowing more amplified stabled acoustic gain in the open ear canal. One of the major advantages of those fittings is the absence of the occlusion effect (Mueller, 2006). Goals: The present study evaluates the use and effectiveness of open fittings in 30 patients (65 to 86 years of age), with mild and moderate neurosensory hearing loss, in 2008 e 2009, attended on Integrated Hearing Health Center (NISA II) Pirituba. Methods: Verification of electroacoustic performance, amplified gain and ventilation effects through real ear measurements (REAG, REUG X REOG), with Interacoustics Affinity. During 6 months follow-up, patients were seen 1,3, and 6 months after initial hearing aid fit session, and issues related to use and satisfaction of the hearing aid were investigated: handling and cleaning, physical and acoustic comfort, constant fine tuning adjustments needed, occlusion effect, and amplification benefits. The follow-up appointments revealed that 90% of the patients were well fitted and show no difficulties to handle or clean the hearing aid.



POSTER SESSION II LOCATION MAP



POSTER SESSION II



POSTER SESSION II - 2 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 1

EVALUATION OF THE AUDITORY HEALTH IN MILITARY POLICE OFFICERS OF THE REGION OF MARÍLIA – SP

Autores

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Instituição

1. UNESP, FFC - DEPARTAMENTO DE FONOAUDIOLOGIA - MARÍLIA - SP
2. UNIMAR, FACULDADE DE MEDICINA - UNIVERSIDADE DE MARÍLIA

Abstract: Exposure to noise over a long period of time may cause some important disorders for humans, such as noise induced hearing loss (NIHL) characterized by changes in hearing threshold and sensorineural that may be irreversible and progressive. The literature describes the relationship of cause and effect between occupational noise and hearing loss in military population, however, these professionals do not usually have a hearing loss prevention program (HLPP). Objective: To describe the audiological profile of police officers in the region of Marília - SP, in order to reach an accurate diagnosis of hearing health in this population, and to evaluate the need to implement a HLPP. Methods: In this study, 200 police officers were assessed, 169 (84.5%) male and 31 (15.5%) female, aged between 25 and 45 (38.8 ± 5.1) and mean service time of 16.8 ± 6.3 years, which were submitted to the following procedures: anamnesis, pure tone audiometry, imitancymetry and distortion product otoacoustic emissions (DPOAE). Results: The main complaints were tinnitus (26%), dysacusis (18%), aural fullness (12%) and autophony (12%). The tympanograms were typically normal in all cases. The pure tone audiometry classification, according to Merluzzi (1979) classification, by ear (right ear / RE and left ear / LE): grade 0 (RE = 167; LE = 152), grade 1 (RE = 3; LE = 5), grade 2 (RE = 10; LE = 19), grade 3 (RE = 2; LE = 3), grade 4 (RE = 0; LE = 1), grade 5 (RE = 0; LE = 0), grade 6 (RE = 1; LE = 3), grade 7 (RE = 17; LE = 17). The results of DPOAE averages, in dB SPL (sound pressure level) were: 1000 Hz (RE = 4.92; LE = 4.71), 2000 Hz (RE = 6.20; LE = 6.20), 3000 Hz (RE = -0.09; LE = -1.47), 4000 Hz (RE = -0.58; LE = -0.95) and 6000 Hz (RE = -10.66; LE = -11.00). Conclusion: Through these data it is possible to conclude that, despite the fact that there is no prevalence of NIHL in this population, the DPOAE low-amplitude in high frequencies indicated cochlear lesion, prior to the commencement of such hearing loss, indicating that this population need a HLPP, because it is a group at risk for NIHL. Support: Fundação de Amparo à Pesquisa do Estado de São Paulo / FAPESP (Processo 2008/50720-1) e Fundação para o Desenvolvimento da UNESP / FUNDUNESP.

POSTER SESSION II - 2 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 2

HEARING ALTERATIONS IN DIABETES MELLITUS CARRIERS

Authors

VANESSA FONSECA DE CAMPOS^{2,3}, NEYLA ARROYO LARA MOURÃO¹, JOÃO FELICIO SOARES^{2,3}, GISELE VIEIRA HENNEMANN KOURY¹, FÁBIA FREIRE GRUPPI DA SILVA^{2,3}

Institution

1. UNAMA, UNIVERSIDADE DA AMAZÔNIA
2. UFPA, UNIVERSIDADE FEDERAL DO PARÁ
3. HUIBB, HOSP UNIV JOÃO BARROS BARRETO

Abstract: Diabetes mellitus (DM) causes some pathological effects, though its influence in hearing loss is not elucidated. The aim of this study was to link hearing loss to metabolic and clinic characteristics and to the use of ototoxicity medicines to treat DM carriers. Forty patients (20 to 59 years old) with DM type two participated. It was applied a form to verify clinic signs. Patients biochemistry data was analyzed. All patients were submitted to inspection on external acoustic meatus to exclude conductive problems, to tonal audiometry and to Distortion Product Otoacoustic Emissions (DPOAE). It was noticed that: DM duration is related to DPOAE absence on 8000Hz; the level of HbA1C is related to audiometric alterations on frequencies 4000, 6000 e 8000Hz, as well as to DPOAE absence on 500, 4000 e 8000Hz; dyslipidemia is connected to audiometric alterations on 250 Hz e DPOAE absence on 500Hz e 1000Hz; the metformin use is associated to audiometric alterations on 250Hz and DPOAE absence on 500 e 1000 Hz; metformin dose is related to audiometric alterations on 2000 Hz and DPOAE absence on 8000 Hz. It was concluded that there is a connection to HbA1C levels with a hearing function descent and so it implies the DM control importance to prevent coclear damages. This study also shows a possible ototoxicity relating to metformin.

POSTER SESSION II - 3 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 3

NOISE IN NEONATAL INTENSIVE CARE UNIT AND ITS POSSIBLE DAMAGES TO BABY HEARING

Authors

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Institution

1. UNAMA, UNIVERSIDADE DA AMAZÔNIA

Abstract: Studies show that some Neonatal Intensive Care Unit (NICU) baby cares produce intense noise, including impact and other situations, such as the noise of equipments and conversation. This research aimed to verify the influence of the NICU noise in children hearing development. It was applied a questionnaire to parents of children (2 to 5 years old) who were admitted to the NICU, to investigate if they observe signs of hearing impairment that may be associated with the permanence in NICU. The results show that 55% of the children were hospitalized in NICU because of prematurity, 25% jaundice, 25% anoxia, 10% difficulty breathing, 10 % meconium ingestion, 10% hospital infection, 5% pregnancy risk, 5% need of heating, 5% myelomeningocele, 5% risk of meningitis, 5% twin pregnancy and 5% congenital malformation. 55% of the interviewed parents reported many people inside NICU, 50% observed the existence of noisy equipment, 25% noticed lots of conversation, 20% considered NICU noisy and 5% mentioned stereo system, radio or television inside NICU. 90% of children involved in this study began to speak late, 65% are distracted, 65% use to listen to loud sound, 40% do not understand what people said sometimes, 25% respond when called. In conclusion, it appears that despite being found signs of hearing impairment in children who were hospitalized in the NICU involved in this study, these could not be linked exclusively to noise exposure found in this place, for presenting other risk factors for hearing impairment. It is suggested the implementation of new research that may bring further clarifications on this study issues.

POSTER SESSION II - 4 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 4

WORLD WIDE HEARING: AFFORDABLE HEARING HEALTH CARE NEEDS AND INITIATIVES IN DEVELOPING COUNTRIES

Authors

NICK LAPERLE, SUSAN MARCHESE, ANDREW SMITH, BRADLEY MCPHERSON

Institution

1. WWHearing, World Wide Hearing

Abstract: For over fifty years audiology has advanced as a clinical specialty in the developed world. Over recent years there has been a rapid growth in the numbers of audiologists and in the sophistication of audiology assessment techniques and rehabilitation procedures. In developed economies most individuals with hearing impairment now have access to appropriate screening programs, audiological diagnostic assessment, hearing aid fitting and support for their rehabilitation needs. In developing countries however this is not the case. Many children still have undetected hearing loss; many adults with hearing disorders struggle to fulfill their social and economic roles without the benefits that appropriate amplification could bring. At least two-thirds of the 278 million adults and children with significant hearing loss live in nations with less developed economies. Living in such countries, professional help may be scarce and often distant, and assessment equipment and hearing aids or other amplification devices, unaffordable for most of the community. For example, it is estimated that only one million hearing aids are fitted in developing countries each year, when the actual need is for thirty million. There are many concerned individuals and organizations in both developed and developing countries who are now working to change this situation. Increasing attention is being paid to hearing loss in developing countries by international agencies, and professional organizations in the developed world now regularly acknowledge the humanitarian work of their members with awards and grants. Governments, private agencies and individuals in developing nations have commenced programs to detect hearing loss and initiatives to promote affordable hearing devices are now ongoing. At the same time, more audiology professionals and technicians are working in developing countries. An international charitable agency, World Wide Hearing Care for Developing Countries (WWHearing), has emerged as a leading contributor to these initiatives. WWHearing is an initiative founded in 2003 by members of concerned organizations and individuals. In 2006 WWHearing became a charitable association in Switzerland and signed a project collaboration agreement with the World Health Organization. Its mission is to promote and enable better hearing worldwide through the provision of affordable hearing aids and services, especially in under-served areas. In particular, WWHearing aims to (1) build partnerships and networks among those providing hearing health care in developing countries, (2) provide support for hearing health advocacy and national capacity building, (3) coordinate research projects appropriate to a developing country context and disseminate the findings of such research and (4) establish a permanent organizational and administrative structure. To further these aims WWHearing has developed the AUDIO 20/20 initiative—which aims to make prevention, research, education, equipment, training, and advocacy related to hearing loss priorities throughout the developing world. This presentation will give a broad overview of WWHearing's present and planned contributions hearing health care in developing nations. The aim of the presentation is to give professionals a greater awareness of the issues involved in hearing health care as it relates to developing nations and the key role played by WWHearing.

POSTER SESSION II - 5 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 5

AUDIOLOGICAL PROFILE OF CHILDREN TREATED IN THE REFERENCE CENTER OF HEARING HEALTH OF JOINVILLE - SC

Authors

JULIANA FRACALOSSE GARBINO ACHÔA, CARMEN LUCIA MARTINEZ FERREIRA, TATIANE CRISTINA DUARTE SELBACH

Institution

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Abstract: INTRODUCTION: The hearing impairment is considered one of the most devastating human communications disturbs, based on the interference on the language development and learning. The ASHA considers that the hearing loss represents 60% of the communication disturbs. All the world over there is about 62 million people, under 15 years of age, with permanent hearing loss. Therefore, the characterization of the population with hearing impairment is of extreme importance to the public health right steps. The purpose of this research was to estimate the prevalence of the hearing loss of children as well as describe this population audiological profile, pointing the principal adopted procedures. METHOD: 2393 files were analyzed, all of individuals treated at the Center of Hearing Health in Joinville - SC, and from it were selected cases of patients between 0 and 3 years and 11 months of age, the interest of this study. Therefore, 315 files from April/2006 to September/2009 were found, establishing the following variables: sex, age, city of living, audiological diagnosis, predisposing risk agents to hearing loss and the procedure adopted. RESULTS: From 315 children, 116 were female and 199 were male; the age, at the time of inclusion in the service, varied from 4 days to 3 years and 11 months; 174 were from the city of Joinville and the others from cities of the north of Santa Catarina. Regarding the audiological diagnosis: 39% of this children had normal hearing, 26,1% wait for a diagnosis, specially through BERA, being 5 children, from this last group, unilaterally normal with confirmed diagnosis (1,6%). 7,6% presented conductive alterations and 1,2% mixed conductive-sensorineural hearing loss, with 0,6% unilateral and 0,6% bilateral. Regarding the sensorineural hearing loss, 14,3% had bilateral profound degree, 3,5% bilateral moderate degree, 1,9% bilateral severe degree and 1,3% bilateral mild degree, being 2,5% of the cases unilateral loss. Considering the risk factors predisposing to hearing loss, it was noticed a large variety of perinatal agents of which include prematurity, hyperbilirubinemia, mechanical ventilation, neonatal intensive care unit and others. Therefore, it was considered that 48,9% of the children presented perinatal agents; 10,8% presented family history of deafness; 40% did not have or recognize the risk factor; 3,5% presented TORCH (toxoplasmosis, rubella, cytomegalovirus, herpes) infections; 1,6% meningitis; and 10,8% genetic syndromes being 0,9% with unilateral or bilateral microtia. Regarding the procedures adopted by the service, it was observed that 70 children are using hearing aids, 52 are using bilaterally and 18 unilaterally, corresponding to 89,7% of the children treated during this period, of which the diagnosis was indicative of sonorous amplifying devices using. CONCLUSION: It is evident that the prevalence of hearing loss is high among children received by our service, especially with sensorineural losses. More than this, what deserves attention is the occurrence of the agents predisposing hearing loss; however, the adaptation of the hearing prosthesis before school age, what is far from the ideal age, is one effort of our team.

POSTER SESSION II - 6 DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 6

ATTITUDES AND HEARING HABITS OF ADOLESCENTS

Authors

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Institution

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Abstract: The hearing integrity and the health risk factors can be related to the youths' lifestyle and their preferences in leisure activities. Aim: to identify the attitudes and the hearing habits of adolescents in relation with environmental noise and in leisure activities. Methodology: SENAI National Department promoted in the period from 13 to 16 August 2008, in the



city of Curitiba, PR, the State of Paraná 2008 Knowledge Olympics. One of the many goals of this event was to make young people aware of health preventive practices. One of them, created by SESI was the "Citizenship Square", where participants received information on the many different areas of health such as Speak Pathology. The adolescents were invited to answer the Brazilian version of the Youth Attitude to Noise Scale (YANS) questionnaire in order to study their attitude towards noise. Complementing the questionnaire other subjects were considered related to hearing, family history of hearing alterations, experience with buzzing, ear infections and/or pain and possible temporary buzzing after different activities. Teenagers' habits and the use of ear protective devices were also appraised together with demographic data. Descriptive statistics was used to characterize demographic data while Fisher's and Square Chi were used for the other analyses. Results: From a total of 316 questionnaires only 125 were used for having been fully answered without erasures. The 125 teenagers included in the study were of both genres (68% male and 30.4% female), with an average age of 16.6 years. They were from fundamental and medium level schools of several municipalities of Paraná. Regarding the youths' hearing history it was noticed that 34% of the adolescents present buzzing and they considered themselves sensitive to the noise. It is worth to stand out that 107 (85.6%) of the teens said that they don't worry before going to shows or even discos and that they had had precedent experiences of buzzing after resonant events. 75.2% said they never use any hearing protective equipment. At 0.05% (5%) significance level there were no significant differences between boys and girls. On resonant habits, 46.4% of the sample said that they hear music daily using ear phones; 34.4% hear music with house sound equipment in high volumes. Significant results ($p < 0.05\%$) between genders were found in sporting and nautical activities as well as in shooting practices and musical groups. Related to attitudes, 40.2% agree that noises and high sounds are natural aspects of our society, 32% are prepared to make the school atmosphere less noisy and 41.6% of the adolescents consider important to make the atmosphere sound more comfortable. Conclusions: The findings of this paper reinforce previous studies from all over the Country in the sense that, once knowing the hearing habits and attitudes related to noise in the environment and in leisure activities, one can work more directly on the awareness, advice and prevention of damages resulting from this exposure.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 7

PARENTS' AND PEDIATRICIANS' KNOWLEDGE REGARDING NEONATAL HEARING SCREENING: A STUDY IN SAPIRANGA, RS

Authors

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Institution

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2. ULBRA, Universidade Luterana do Brasil

Abstract: Neonatal Hearing Screening (NHS) is recommended for early detection of hearing impairment. This study's goal was to verify the knowledge of a group of parents and pediatricians of the city of Sapiiranga, Brazil, about this procedure. The city has a population of approximately 86.000 people. The study design developed two questionnaires for parents and pediatricians. Parents answered the questionnaires through interviews at the city's health centers. Due to their time availability, pediatricians received the questionnaires at the health centers and answered them at their spare time. The research group collected the questionnaires at a later date. Fifty parents, 39 (78%) females and 11 (22%) males, participated in the interview. Most parents, 38 (76%), did not have any knowledge about the NHS; 7 (14%) declared that they had "heard about it", but did not know exactly what it was; 4 (8%) knew that it was a test that should be performed after birth and only 1 (2%) affirmed that it was a procedure for the evaluation of hearing of new born children. In 49 births (98%) did not receive any request from the pediatrician for NHS. In the only exam requested, the exam was not made. After these answers, the parents who did not have any knowledge on NHS received a short explanation about the exam and answered about their recognition about the importance of the procedure. All those interviewed after the explanation affirmed that NHS is important for the newborn babies: to determine if the child is able to hear (74%), to initiate early treatment (24%), and as an important newborn screening test. Regarding the group of pediatricians, there was a low adherence to the study. Of the 12 questionnaires distributed only 4 (33.3%) returned. All professionals affirmed having knowledge of NHS through scientific literature and correspondence from the Brazilian Pediatrics Society. In spite of that, only 1 individual (25%) mentioned referring all his/her patients for NHS. The remaining pediatricians informed that they only referred their patients when there was a family history of hearing impairment, or when there were intercurrents during pregnancy and only when the patient did not have private medical insurance. Regarding the age of referred patients, two (50%) were referred during the neonatal period; one (25%) starting at age three and one (25%) did not answer the question. All pediatricians (4) considered the examination important: for prevention (50%) and to avoid developmental delay (25%) while one (25%) did not answer why he/she considered NHS important. This study verified the lack of information of interviewed parents. The pediatricians also need to be advised, for even though they expressed knowledge of the procedure, they did not request it in an effective form, and this certainly caused delays in diagnosis and treatment of children's hearing impairment.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 8

NEONATAL SCREENING IN A PUBLIC MATERNITY AND PHONOAUDIOLOGIST PERFORMANCE IN THE PRIMARY HEALTH

Authors

MARTA MARIA DA SILVA LIRA BATISTA¹, NELMA CAMILLA REGO FORTES CASTRO¹, ANELLISE LIMA E SILVA DE CARVALHO¹, MARLLA DA SILVA GUEDES¹, RIZEANE ALVES DE SOUSA¹, SÁRVIA KAROLINE GOMES GOMES¹, AUXILIADORA MARIA DA ROCHA NASCIMENTO¹, DIANA MARIA DE ALBUQUERQUE FERREIRA^{1,2}

Institution

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Abstract: The integrity of the auditory pathways is mandatory for the development of one of the most noble and distinctive functions of the human being, which is language, the basic element for the effectiveness of communication. From the world population below the age of 15, it is estimated that 62 million people have irreversible hearing loss. The specific indicators of risks associated to hearing loss in newborn babies and children, according to the Joint Committee on Infant Hearing (2004), have been used as a parameter in delineating the high and low-risk groups, and according to the neonate rating measures are taken and different procedures are made, aiming always at the best outcome, and, in the detected cases of hearing loss, an early prosthetics is carried out. This is a quantitative retrospective study, characterized by a data collecting research related to the neonate hearing trial, weight and pregnancy age at delivery, and possible risk factors for the hearing loss. The analysis was made up of the organization of the existing data in the reports, such as pregnancy age (in weeks), weight, APGAR score from the first to the fifth minute, vital status, and if the risk factors for hearing loss were present. From the risk factors for hearing loss, the most frequent were: Ototoxicity (34.6%), Low birth weight (12.1%), Congenital Infections (9.4%); Neonate ICU (8.7%); Prematurity (7.7%); Respiratory anomalies (5.2%); Heredity (4.5%); Anoxia/Hypoxia (4.0%); Small baby for the pregnancy age (3.5%); Convulsion attacks (2.8%); Post-term deliveries (1.6%); Heart anomalies (1.1%); Preeclampsia (1.0%); Craniofacial anomaly (0.8%); Maternal anemia, Incompatible Rh factor and Low APGAR score (0.5%), each one; Advanced mother age, Abortion threat, and Meconial aspiration (0.3%). The issue about the lack of awareness, lack of information on the real and specific effects that hearing loss exerts upon the individual and his/her family is raised. This usually justifies the great number of absences in previously scheduled trials and interventions which are carried out cyclically – in the case of risk newborn babies who are followed for two years, every six months a reevaluation is made.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 9

MIDDLE EAR PRESSURE VARIATION AND DISCOMFORT IN AIRCRAFT

Authors

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Institution

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Abstract: Introduction: With the progress associated with the aeronautic industry, and the fact that more and more people have been using the aircraft as a means of transport, a growing preoccupation with aspects related to comfort in aircraft is observed. During the processes of take-off, cruising and approach of a flight, the aircraft is submitted to atmospheric pressure variation, which leads to a need for pressure equalization in the aircraft cabin to minimize the discomfort of the passengers and crew who have difficulty equalizing the middle ear pressure with atmospheric pressure. Ear pain and a sensation of auricular plenitude are the most common manifestations related to this pressure variation. Aim: The purpose of this study is to investigate the middle ear pressure variation and discomfort in aircraft. Methodology: An electronic questionnaire was made available on the internet and was completed by 178 persons. Only the questionnaires of those who had traveled at least once by airplane were analyzed and used in this research, which corresponds to 146 persons (52% female and 48% male), 45% having traveled more than 20 times. The negative aspects most emphasized were the space between seats (85%), followed by chair inclination and size (77%). The pressure in the middle ear lay in third place, and was emphasized by 54% of respondents, followed by delays (52%), vibration (45%), noise (42%) and others. It is important to observe that 126 persons (86%) mentioned feeling discomfort related to the middle ear pressure during the flight. In addition to those who reported feeling discomfort, 61 (48%) felt it most during take-off and 44 (35%) during approach. The ear pressure variation symptoms disappear after landing for 52 (41%) persons. The practice of chewing gum or simulating the movement of chewing was reported by 71 volunteers (56%) as a strategy to minimize the discomfort during the flight, followed by yawning 66 (52%), and swallowing 59 (47%), Valsalva's maneuver 52 (41%) and others. Conclusion: One can conclude that passengers feel discomfort in aircraft when there is middle ear pressure variation. It is evident from the responses that middle ear pressure manifestations are known and shared by a large number of people who often look for alternatives to minimize this discomfort. The results of this study highlight the need for detailed research on this subject and reveal the importance of this theme.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 10

THE IMPORTANCE OF ALERTS ABOUT THE HIGH INTENSITY AND THE RISKS FOR THE HEARING IN MANUALS OF MP3 PLAYERS

Authors

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Institution

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Abstract: Introduction: The normal human ear can distinguish around 400.000 different sounds and the music makes us remember important times in our lives, but if we hear it at high sound pressure levels SPL it can cause irreversible damage to our hearing. After studies testifying the damage caused to the ear through excessive exposition to elevated SPL, IBAMA/INMETRO has ruled by means of a Regulation the use a noise seal to be applied to household electric devices. Apart from this seal regulation there are other legal ordinances that must be observed by the makers of toys that are in the Brazilian market. Such as nº108, where levels of continual noise and of impact noise (85dB e 100dB in that order) are mentioned. With the technological advance, devices to play music such as MP3 players have been getting smaller, more powerful and more practical and possibly a risk to the hearing of those who use them in an inappropriate way. Aim: to check whether MP3 players come with the information, in their manual with instructions for use, regarding the maximum amplification, in dB, the duration of its battery, the alert about high intensity and time of exposure, the risks of offsetting a hearing loss chain and ultimately if this information is easily seen in the manual. Methodology: The instruction manuals of ten referred national and international brands of MP3 players which were found in five Brazilian websites for on-line sale. The instruction manuals for these selected brand MP3 players have been read and the following have been looked for: Maximum amplifying; Time that the battery lasts; The existence of an alert or warning with regards to the potential risks of hearing loss, versus the time of exposure and high intensity; Easy visualization of all this information. The data have been analysed in a descriptive way. Results: It has been observed that 30% of the MP3 brands mentions in their instruction manuals the maximum sound amplifying which is 90dB to 120 dB. With regards to the time that the battery lasts we noticed that 90% of the MP3 brands analysed indicate the maximum time of use of the battery, which varied between 8 hours and 24 hours. Only one brand analysed have a warning in its instruction manual alerting for the potential risk of hearing loss and this was easily visualized. Conclusion: The information in the instruction manuals of the brands analysed refer mostly to the characteristics of the device performance and only 10% of the brands analysed make a warning available to the buyer alerting for the risks of hearing loss caused by high SPL, with easy visualization of this information. Thus, it becomes essential the need for the hearing health to be promoted through the health information campaigns developed by the government, or by the phonoaudiologists, aiming at guiding the population in general. It is deemed necessary the fulfilment of the existing rules of law by the companies as well as a major inspection by the organizations responsible for such tasks.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 11

COMPLIANCE WITH REGULATORY STANDARDS OF BRAZILIAN MINISTRY OF LABOR RELATED TO THE HEARING BY THE COMPANIES OF PLASTIC OF JABOATÃO DOS GUARARAPES AND RECIFE/PE

Authors

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Institution

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Abstract: Occupational noise induced hearing loss is a chronic and irreversible disease resultant of the aggression to internal and outer hair cells of the auditory organ of Corti, which stems from systematic and prolonged exposure to noise, whose sound pressure level (SPL) are high. Seen this, the Brazilian Ministry of Labor endorsed the Regulatory Standards (NR) as a way to ensure the physical integrity of the worker in auditory, visual, motor and mental aspects, aiming to improving his/her quality of work and welfare. This study aimed to identify compliance with regulatory standards related to the hearing by the companies of plastic of Jaboatão dos Guararapes and Recife. There was an observational, descriptive and cross study in ten factories of plastic artifacts, located in the cities of Jaboatão dos Guararapes and Recife (both located in state of Pernambuco/Brazil), which have equipment that produce high levels of sound pressure. The data were collected from an interview containing 16 questions with the principals of the factories of plastic. It was observed that the worker of these companies don't use individual protection equipment hearing and act more than 8 hours a day, exposed to noise higher than 85dB. Therefore, these companies don't promote audiometric tests, don't have health professionals and don't realize Auditory Conservation Program and Medical Occupational Health Control Program. It was conclude that no company fulfill integrally the Brazilian Ministry of Labor's Regulatory Standards. It shows a very worrying situation because of the risk to hearing loss, auditory and non-auditory symptoms that endanger the worker's quality of life.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 12

PREVALENCE OF HEARING IMPAIRMENT IN CHILDREN WHO STUDY IN PUBLIC SCHOOLS IN THE CITY OF RECIFE/PE

Authors

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Institution

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2. UFPB, Universidade Federal da Paraíba

Abstract: The hearing plays a dominant and decisive role in acquisition and development of oral language. Even the less severe degrees of deafness bring many consequences for the child's development, such as perceptual difficulties, difficulty in learning the national language, difficulty in assimilating social rules, social isolation, frustration, confusion, anger, fear, aggressiveness, among others. It is therefore important that the auditory system is intact so that children can acquire knowledge in an appropriate manner offered by the school. That way, this study aimed to investigate the prevalence of hearing impairment in children who study in public schools in the city of Recife, classifying them as the type and laterality. Children who participated in the survey were between 5 and 12 years, a scholar period extremely important in relation to the process of learning. The research project was approved by the Ethical Committee in Researches with Human of Centro de Ciências da Saúde of Universidade Federal de Pernambuco (CCS/UFPE). The hearing impairment was diagnosed in 105 children (23.03%), of which 76,19% were bilateral. Among the children with unilateral hearing impairment, 80% were conductive and, among children with bilateral hearing impairment predominated the sensorineural type (38,75%). As conclusion, the most prevalent type of hearing loss was the sensorineural followed for the conductive one and prevailed the bilateral hearing impairment. Among children with unilateral hearing impairment, predominated the conductive type of hearing loss and, among children with bilateral hearing impairment, predominated the sensorineural type of hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 13

AUDITORY AND EXTRA-AUDITORY EFFECTS OF NOISE ON DENTISTS' HEALTH

Authors

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Institution

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Abstract: The noise has been primarily responsible for occupational hearing loss and can produce damage in various orders, also affecting other bodily functions. Because the practice of dentistry involves the use of devices that produce intense noise, the exercise can lead to hearing damage and non-hearing that may affect the quality of life of the professional. This study aimed to investigate the auditory and extra-auditory effects from exposure to noise on the health of the dentist. The study was conducted with 50 dentists in the city of Recife/PE, in both genders with age limit of 55 years. An audiometry was performed by air and, when necessary, by bone. The hearing and extra-auditory complaints were collected through a questionnaire with objective questions. The data were distributed into absolute and relative frequency with graphs using Excel software version 2007 for storing data and Epi Info for Windows version 3.3.2 software for data analysis. It was found that 56% of the dentists had some type of hearing impairment at audiometry, and of these, 82% have sensorineural hearing loss. The main hearing and non-hearing complaint was reported, respectively, the hearing loss (60%) and dizziness (32%). It was concluded that dentists have auditory and extra-auditory complaints that probably affect their quality of life. It reinforces the need for preventive measures in relation to occupational noise exposure, and for the assessment hearing and regular use of personal protective equipment

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 14

AUDITORY AND EXTRA-AUDITORY COMPLAINTS IN DISC-JOCKEYS IN THE CITY OF RECIFE/PE

Authors

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Institution

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Abstract: In last years, a moment of bubbling of electronic music is lived and the disc-jockey (DJ) has a prominence paper because he/she select and mix the music. Due to the fact that this professional is exposed to high intensity of sound in many hours, he/she can develop auditory and extra-auditory complaints. This study aimed to investigate the occurrence of auditory and extra-auditory complaints in DJs in the city of Recife/PE. It was realized an interview with 30 DJs about occupational informations, knowledge about noise, auditory and extra-auditory complaints. The data analysis was done using the statistical test of t-student. Among the most important data, it was distinguished: 46,7% of DJs have auditory complaints, in special, the diminish of hearing sensation. All of them affirmed to know the risks of exposure to noise and referred the hearing loss as main risk. About extra-auditory complaints related to exposure to noise, 30% of DJs referred irritation and 53,3% mentioned stress. After the data collected, it was perceived the need of Phonoaudiology acting with the DJs, because this activity can be developed with less risks the profesional's health. Through the promotion of hearing health and phonoaudiological orientation, possibly this professionals will be less vulnerable to noise caused by the music amplified electronically.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 15

THE PREVALENCE OF DIFFICULTY TO TALK IN NOISY ENVIRONMENTS COMPLAINT

Authors

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Abstract: Objective: to investigate the prevalence of difficulty to talk in noisy environments complaint in randomly selected adults. Method: it is an exploratory study that used the following closed questionnaire: do you think you listen well? Do you have difficulty to talk in noisy environments? The sample was composed of men and women randomly selected at several places (restaurants and supermarkets, among others). Results: 198 individuals answered the questionnaire, 115 (57.6%) women and 83 (43.4%) men, with average age of 33.7 years and standard deviation of 15.9 years, median of 28 years, mode 21 years, minimum of 18 and maximum of 75. From the sample group, 143 (72%) subjects said they listened well, 33 (16.6%) felt they did not, 6 (3%) did not know and 16 (8%) felt that sometimes they listened well. Out of the 198 individuals, 66 (33%) related difficulty to talk in noisy places, 95 (47.9%) did not present this complaint and 37 (18.7%) felt that it sometimes occurred. Out of the 143 subjects who said that listened well, 33 (23%) reported difficulty to talk in noisy environment and 33 reported not listening well, 21 (66%) complained of this difficulty. Conclusion: after the analysis of the collected data, one can conclude that the difficulty to listen/talk in noisy environments also occurs between people who have no listening complaints. It is important to stress that the mode value points to a young population sample.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 16

THE IMPORTANCE OF AURAL REHABILITATION IN SATISFACTION OF ELDERLY HEARING AIDS USERS.

Authors

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Institution

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Abstract: INTRODUCTION: The implementation of specific policy for Hearing Health in 2004 led to the accreditation of various services in Brazilian Public Healthcare System – SUS. One of the procedures recommended by the government is aural rehabilitation therapy sessions for patients to whom hearing aids are dispensed. We believe that satisfaction level among elderly people has a relationship to their enrollment and active participation in these sessions. Several researchers have developed and validated different tools to examine the level of satisfaction in hearing aid users. The best known method is the IOI-HA (International Outcome Inventory for Hearing Aids) questionnaire - translated into Brazilian Portuguese by Bevilacqua (2002). GOAL: To establish the relationship between satisfaction and enrollment in aural rehabilitation sessions of a group of elderly hearing aids users. METHODS: There were randomly selected 50 elderly patients (aged between 60 and 80 years) with moderate and severe sensorineural hearing loss treated at a high complexity hearing health service unit. The IOI-HA questionnaire was applied two months after the hearing aids were fitted. Patients were invited to come to 4 consecutive sessions for auditory rehabilitation and fine tuning of hearing aids. Number of sessions, frequency, participation and expectations were registered. RESULTS: Most of the patients studied had severe sensorineural hearing loss (75%). The results showed that 90% of users wore hearing aids more than 8 hours a day. All users reported that the hearing aids helped a lot in daily activities. From the total, 75% of the patients have said that the use of hearing aids is worth the effort. Familiarities, fitting of ear molds and independence in changing batteries were some of the benefits of therapy sessions. CONCLUSION: Patients showed to have benefitted from the use of hearing aids in situations where they would like to hear better, based on the analysis of the research tool used. Considering that satisfaction depends on the level of acceptance that each patient have of their own condition, this sample showed that the use of the hearing aids for the elderly age population provides benefit to the user. Aural rehabilitation therapy seems to enhance satisfaction and independence in the use of hearing aids. Failure to return for therapy does not seem to be related to the degree of hearing loss or age, but to difficulties in transportation.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 17

OCCUPATIONAL EXPOSITION TO NOISE IN DENTISTS OF STATE PARANÁ: PERCEPTION AND EFFECTS ON HEARING.

Authors

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Institution

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Abstract: Occupational exposition to noise in dentists of State Paraná: perception and effects on hearing Introduction: Some occupational risks like biological, chemical and physical factors are presented in the dentist work and are related on literature. High noise is present in the work environment of dentists and the literature has identified a link between the use of dental equipment and noise induced hearing loss. Aim: to analyze the effects of occupational noise exposure on dentists' hearing, their beliefs and knowledge about effects of noise and prevention. Method: a transversal (or cross-sectional) study of 163 dentists (56.44 % female and 43.55% males), that were investigated by questionnaire data, and audiometry test. Result: the prevalence of hearing loss was of 32.51%. Hearing loss were associated with age and the duration of noise exposure (in years). 49.07 % of the participants perceived the noise in the workplace as moderate; 96.9% of knew the effects of noise and 3.06% use hearing protector devices. We concluded that the dentists in this study have hearing loss suggested by noise-induced (prevalence ratio = 1.79 95% CI 0.09-4.44). The highest prevalence of hearing loss was associated to work a longer than 8 hours. Keywords: Effects of noise; occupational diseases; noise induced hearing loss (NIHL).



POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 18

THE ANALYSIS OF EFFICIENCY OF THE PROGRAM OF NEWBORN HEARING SCREENING IN A MATERNITY WARD IN THE CITY OF TERESINA-PIAUÍ

Authors

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Institution

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Abstract: Introduction: The newborn hearing screening is a simple and rapid procedure that is applied to a large number of individuals, trying to identify those who are most likely to produce hearing loss and need a complete audiology diagnostic. According to GATANU, its conduct of routine is the only strategy capable of detecting early hearing impairment that could interfere in the quality of life of the individual, since hearing loss may easily go unnoticed in the neonatal period and early life. The benefits conferred by the holding of the newborn hearing screening is proven, but they lose their value if the evaluation is not completely performed, that is, until the completion of diagnosis and early intervention, preferably before 6 months of life. Objective: The objectives of this study were to identify the rate of newborns referred for additional tests in Faculty Novafapi, follow up if these patients have performed these tests and also evaluate the results of the tests. Method: A retrospective study in which we reviewed the charts of all newborns who were referred for audiology diagnostic Maternity Dona Evangelina Rosa of Faculty Novafapi in the period August 2007 to July 2008. The data were statistically organized and processed in SPSS 16.0. Results: Of 2788 newborns who have passed through newborn hearing screening in the Maternity Dona Evangelina Rosa, 2,58% (72) were referred for additional tests in Faculty Novafapi. Of these, only 40% (28) attended. The evaluation of babies who attended showed 71,4% (20) of patients with normal exams and 28,6% (8) with abnormal tests, in which 21,4% were referred (6) to otorhinolaryngology evaluation for implementation of auditory brainstem response and 7,2% (2) for the treatment of change in middle ear. Conclusion: There was low attendance of newborns who failed the initial screening in the necessary additional tests. Thus, the objective of identifying early cochlear changes has not been reached, so the program is not working effectively

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 19

THE BREASTFEEDING TYPE INFLUENCE IN THE INFANTS MIDDLE EAR CONDITIONS

Authors

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Abstract: Introduction: breast milk has the capability to inhibit the growth of several types of bacteria, having an important role against the nasopharyngeal bacterial colonization and consequently against the installation of the infectious process in the middle ear. The breastfeeding type can influence in the hearing health. The objective of this study was to check if the breastfeeding type in infants ranging from zero to four months of age has influence in the middle ear conditions by otorhinolaryngology evaluation and immittance measures comparing the newborns who passed the newborn hearing screening with the ones who failed. Method: Was performed the research of the evoked transient otoacoustic emissions in sixty infants ranging from zero to four months of age. The infants were divided in two groups: Group I infants with evoked transient otoacoustic emissions present and group II infants with evoked transient otoacoustic emissions absent. They also underwent a tympanometry with probe tones of 1000 Hz and otorhinolaryngology evaluation. Results: the infants who were only bottle-fed or both breastfed and bottle-fed showed more alterations in the tympanometry and in the otorhinolaryngology evaluation, with significant statistics difference. The infants with breastfeeding showed more incidence of normal tympanometry and normal otorhinolaryngology evaluation, with significant statistic difference. Conclusion: It was possible to conclude that the infants that received breastfeeding showed fewer alterations in the otorhinolaryngology evaluation and in the immittance measures, allowing, this way, the evoked transient otoacoustic emissions to be present. The exclusive breastfeeding could be considered as a protection factor against alterations in the middle ear.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 20

SOUND LEVELS AT PUBLIC SCREENING

Authors

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Abstract: Introduction: Public screening, i.e. the broadcast of sports games on huge TV screens in public areas, attracts an audience of hundreds or even thousands of people. It is associated with frenetic cheering, shouting, drumming, whistling, etc., thus, sound levels in front of the screen can reach considerable heights. We investigated whether attending a public screening event could be a risk factor for noise-induced hearing loss. Method: During the European Football Championship 2008, sound levels were measured at two public screening events. A hand-held sound level meter (PCE-999) was used; the device settings were: frequency-weighting: "A"; time-weighting: "fast" (125ms). Measurements of average and peak levels were taken at a five-minute interval, from ½ hour before the game to ½ hour after it (total time: 3 hours). Results: During Game A (Russia : Sweden) average levels ranged from 85 dBA to 95 dBA (mean: 88 dBA), and peak levels ranged from 85 dBA to 112 dBA. During game B (Germany : Austria) average levels ranged from 80 dBA to 90 dBA (mean: 86 dBA), and peak levels ranged from 85 dBA to 112 dBA. Conclusion: Sporadically attending public screening events will not harm the hearing. Hearing protection against peak sound levels is nevertheless advisable. True.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 21

HOW ACCURATE IS SELF-REPORTED PERCEPTION OF NOISE EXPOSURE?

Authors

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Institution

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Abstract: Introduction. Noise is the main modifiable risk factor for hearing loss among adults, thus data about noise exposure is analyzed in most studies on hearing health. Noise measurement can be directly assessed by means of dosimeter or sound level meter, and indirectly by means of self-reported perception. Direct measurement is practically unfeasible in population-based studies and/or when supplementary data on exposure in recreational activities are of interest. Consequently, the alternative of self-reported noise exposure has been the choice of several studies (Agrawal et al., 2009; Bainbridge et al., 2008; Fransen et al., 2008; Burr et al., 2005; Dement et al., 2005; Palmer et al., 2002; Cruickshanks et al., 1998). In this context, the knowledge of the accuracy performance of this approach is essential. Objective. To identify the questions used in validity studies on self-reported noise exposure and its accuracy performance in comparison to a gold-standard. Methods. Search was performed on PubMed/MEDLINE, ISI, LILACS and SciELO databases, using combinations of the descriptors "noise", "hearing loss", "occupational noise", "occupational exposure" with the terms "exposure assessment", "self-reported", "self-perception", "validity", "accuracy", "sensitivity" and "specificity", as well as in bibliographic references. Results. Only three published studies were located, all conducted with workers. Differences on questions, gold-standard, codification, cut-points and data analysis were identified. For answers to the question "Have you been exposed to loud noise at work?", sensitivity and specificity were 85% and 72%, respectively, as compared to the data from an job-exposure-matrix, assuming 80dB(A) as cut-point (Schlaefer et al., 2009). For two studies the gold-standard was based on dosimeter data, with a cut-point of 85 dB(A). In one, the questions were: "How often were you exposed to high noise at work?" (sensitivity, 18%; specificity, 100%) and "How often did you have to raise your voice to make yourself heard by someone an arm's length away from you because of noise at work?" (sensitivity, 94%; specificity, 20%) (Neitzel et al., 2008). In another study, the questions used were "Do you consider the noise level where you are working now high?", estimating sensitivity of 93% and specificity of 40%; and "Do you have to shout to make yourself heard at work because of noise?", with correspondent sensitivity and specificity of 68% and 75%, respectively (Ahmed et al., 2004). These studies concluded that the validity degree of single questions to assess noise exposure was acceptable to be used when direct measurement was not possible. Conclusion. Studies analyzing the validity of self-reported noise exposure as compared to direct measures are rare. Furthermore, some studies using self-reported data did not apply questions which accuracy had been previously estimated. Despite favorable conclusions to its use in epidemiological studies, we need to be aware that differences in the questions used may lead to an over or underestimation of exposed group, and also to classification errors. Thus, considering the importance of this approach, especially to make feasible investigations with large sample sizes, additional studies are needed in order to make this error clear and to contribute to a consensus on the matter.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 22

DATA CORRELATION REGARDING THE PROFILE OF PATIENT WHO USES INDIVIDUAL HEARING AIDS AND THE CAUSE OF RETURN TO THE INSTITUTION

Authors

TIAGO DE MELO ARAUJO, BEATRIZ DE CASTRO ANDRADE MENDES, BEATRIZ CAIUBY NOVAES, ELISA DE BIASE HOPMAN, JACKELINE DETULLIO SAMPAIO, ANA LUIZA R.L. MARQUES

Institution

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Abstract: INTRODUCTION: The Public Politics of Auditory Health Attention (SAS/MS 2073 of September 28, 2004) regulates the procedures with people with hearing loss, guarantying diagnosis assessment, selection and fitting of the individual hearing aid, speech pathology therapy and frequent audiological care. OBJECTIVE: The goal of this study was to elicit the reasons of returning to the auditory health service looking for audiological care, considering population's profile. METHODS: 139 people diagnosed with hearing loss, who had received the individual hearing aid at the institution and attended to caring concerning amplification were subjects to this research. Its sketching involved dossiers analysis and form filling on the returning day. RESULTS: The results reveal that 58,3% were female. Ages of patients varied from 6 to 94 years old. Most of the subjects (52.5%) had a scholar degree as incomplete fundamental. From all subjects, 89% presented sensory neural hearing loss and 43% a moderate degree of hearing loss. Regarding hearing aids physical features, behind the ear prevailed (81,9%), with binaural fitting (87%). The great amount of research participants were new hearing aids users and the amplification time usage varied from 1 to 78 months (an average of 22 months), with 73,3% of participators using hearing aids more than 8 hours a day. Concerning analysis of reasons to return to the institution, 28,9% referred problems related to sound quality and 25,1% has returned due to ear mold problems. The remain 17,7% had no complaints and returned spontaneously to periodic accompaniment following orientations given by the moment of hearing aids concession, while 15,7% returned because the hearing aids were not working. The other reasons to return were identified as: doubts on cleaning and handling (2,5%), difficulties on battery acquiring (1,9%), otological complaints (1,9%), other (6,3%). Data correlation demonstrates that new users and with less time from hearing aids receiving returned more to the institution (39% within less than 10 months of usage), regarding that the most common complaint is referred to the non adaptation with the hearing aids. As the usage time increases since the receiving date (from 30 months on), the complaints concerning equipment break significantly increase too. CONCLUSIONS: The results show that a few patients return spontaneously to regular audiological accompaniment. The great amount returns to the institution due to complaints (80%), that in most of the times are solved in a simple and fast way. From data analysis it's suggested that the hearing health service includes on its routine the faster care in order to solve simple problems so that the user do not interrupt amplification usage.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 23

PROSTHETIC AND THE RISK OF DEVELOPING HEARING LOSS

Authors

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Institution

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Abstract: Introduction: Previous studies have investigated the level of noise in dental offices and observed noise level above 80 dB SPL. It is clear the need of hearing protection for these workers, whether it is individual or corporate protection. Thus, it is necessary to obtain reliable information about auditory threshold and environmental risks that threaten the health of the worker in order to plan measures to prevent and treat this population. Given the concomitant exposure to noise and vibration, the hearing of prosthetics were investigated. Aim: To investigate the prosthetic dentistry hearing. Material and Methods: Ethics in Research case number 043/2007, the sample consisted of 28 prosthetic, which 17 were male and

11 were female, being the mean age of 35. The subjects were submitted to specific interview, clinical otoscopy, acoustic impedance measures, audiometry evaluation of normal and high frequency, transient and distortion product evoked otoacoustic emissions. Results: The audiometry revealed notch in the frequency of 6kHz, comparing the average tritonis entity (500, 1000 and 2000 and 3000, 4000 and 6000 Hz) showed a worsening of hearing thresholds at high frequencies, as well as the thresholds for high frequencies, that is, above 8000 Hz it is more affected than the conventional ones. Regarding the presence or absence of transient evoked otoacoustic emissions (EOE-t), for both ears it was obtained presence of EOE-t above 70%, ranging between 70 and 88%, and in 4kHz frequency, this percentage was reduced to 60%, ranging between 50 and 69% however there was no statistically significant difference in the prevalence of presence and absence of EOE-t. In the right ear the presence of EOE-DP varied from 81% to 97% for all frequencies analyzed. However, on the left it can be observed a decline in the percentage of presence of EOE-DP for all frequencies, and in the frequency of 1 to 3 kHz, the percentage of attendance ranged from 72 to 86%, and the frequency of 4kHz this decline has increased even more, ranging from 54% to 69%. Conclusion: Additional tests used in this study (OAE-t, EOE-DP, AT-AF), proved to be more sensitive to identify minimum alterations. It should be emphasized hearing loss prevention programs in this population.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 24

THE INFANT HEARING PROGRAM (IHP) OF ONTARIO, CANADA

Authors

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Institution

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Abstract: Introduction: The Infant Hearing Program (IHP) of Ontario, Canada has a distinctive structure in terms of diagnosis, use of prostheses, adaptation and accompaniment of children with hearing loss. The Canadian government works with the concept that by investing in the development of children, they are investing in the future, and its actions are dedicated to equality. This cultural thinking is the structural base of the IHP. Objectives: To learn about the structure of the Infant Hearing Program and compare it with the Hearing Health Program of the Brazilian Ministry of Health. To understand the follow-up process after children receive their hearing aid or cochlear implant. Methods: An interview was conducted with the doctor who is the coordinator of the Infant Hearing Program of Ontario, Canada and the analysis was based on notes taken during the interview as well as on access to the program website for the five months that the audiologist was in Canada, from June to December 2009. Results: We perceived that Ontario, Canada's Infant Hearing Program is more integrated than the Brazilian Program. The function of the audiologist is well defined, as well as that of the other members of the interdisciplinary team. The children have speech and language development very close to that of people with normal hearing. The basic healthcare networks provide therapy for children with hearing loss through the Infant Hearing Program Speech & Language Program. Within the Infant Hearing Program, there is a training program for Speech Language Pathologists and teachers. Public schools in Ontario have a FM System for children with hearing loss. Conclusion: Children with hearing loss in Ontario, Canada have more egalitarian access than Brazilian children with the same problem, and for this reason they can suitably develop language and communication skills. Key words: Hearing loss, hearing, health administration

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 25

IT TECHNOLOGIES IN QUALITY MANAGEMENT OF HEARING SCREENING AT SCHOOLS

Authors

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Institution

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Abstract: The prevalence of hearing impairment among school age children is between 4% and 18% depending on the criteria and age group. Despite the wide acceptance of the idea of hearing screening at schools these programs are not common in the world. Organization of large scale hearing screening in this group is complex a challenging from medical and also from logistical point of view. Based on our experience from tested more than 300.000 children we developed an effective model of hearing screening using pure tone audiometry as a screening test. The key issue in our hearing screening program is management of the various types of information. We present data showing how IT technologies can improve the coverage, lower the false alarm rate and increase the cost effectiveness ratio. Important feature of our program is almost on-line monitoring of many parameters of the screening critical to its effectiveness, like hardware stability, ambient noise level, detailed verification of the testing protocol, test duration etc. The results of the screening tests are sent daily to the central database. Together with the results of the test many parameters are automatically evaluated and if exceed normal level generate the reports. Consequently those who administer the screening can detect and define various problems early and may react fast to any inconsistencies at the level of individual district, school or tester.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 26

AUDIOLOGIC FINDINGS IN PATIENTS WITH TINNITUS OF A CLINICAL SCHOOL OF SPEECH REFERENCE IN BAHIA-UNEB.

Authors

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Abstract: Introduction: Tinnitus is a conscious perception of a sound, that can be originated in the ear or head of the individual, without presence of an external origin that generating this sound. The same is considered one of the three major otoneurological events. There are several etiologies, it can be highlighted diseases of vascular origin, acoustic neuroma, and also diseases that affect the internal ear, specifically the cochlea. It is essential an audiological assessment for a topographic diagnosis (topodiagnosis) of these possible pathologies. Objective: Check the prevalence of tinnitus in patients with sensorineural hearing loss and without it, from an epidemiological analysis of promptuaries in a Clinical School of Speech reference in Bahia-UNEB. Methodology: The retrospective study was realized analyzing 460 promptuaries of patients with complaints about tinnitus that were tooked for audiometry - treated between the years 2005 and 2008, in a Clinic School of Speech at Universidade do Estado da Bahia (UNEB). Results: Among 450 promptuaries analyzed, 279 showed sensorineural hearing loss and presence of tinnitus, while 181 patients had hearing thresholds within the normal standard and tinnitus. There was predominance of female patients with the age between 50 and 79 years old and complains about tinnitus and earache, bilateral and on the left ear. The most frequent symptoms associated with tinnitus were dizziness and vertigo. Between 279 promptuaries analyzed, 188 of patients had the acute pitch's tinnitus during one to five years. About the level of hearing was predominante threshold tones within the normal standatards, with the ages between 23 to 55 years, except the frequency 4khz and 6 khz, which had a little degradation. The 181 patients with normal hearing threhold showed characteristics of tinnitus and balance disorders similar the those with hearing loss, but these characteristics were associated with hypertension, noise exposure and diabetes. Conclusion: This study propose the reflection about necessities of more governamental compaigns to care about hearing health and alert about tinnitus, once that is the first symptom of diseases diagnosed after appearing of the hearing loss. We sugest support groups for these people, as one more option to control the tinnitus and promotion of quality of life.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 27

ACCURACY OF SELF-REPORTED HEARING LOSS IN ADULTS

Authors

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Abstract: The gold standard for measuring hearing loss is frequently infeasible in large-scale epidemiological studies. Self-reported hearing loss has good performance when applied to the elderly, but little is known about its accuracy in younger adult populations. The aim of this study was to assess the validity of self-reported hearing loss as compared to pure-tone audiometry in an adult population, and to clarify the effect of misclassification on prevalence estimates. A validity analysis was performed with a random sub-sample from 2279 subjects aged 30 to 65 years, participants in a population-based cohort study in Salvador, Brazil. Overall and gender-specific accuracy measures were estimated to evaluate the performance of three self-report questions as compared to audiometry. For each question, the degree of misclassification and its effect on estimated hearing loss prevalence was calculated. Self-report questions attained sensitivity and specificity close to 80% and 77%, respectively, with no significant differences by gender. However, prevalence estimates based on self-report were higher than those corrected for measurement error particularly among females. Our findings suggest that self-report questions provide responses sufficiently accurate to be used in epidemiological studies with adult populations, when audiometry is not feasible. Nevertheless, hearing loss prevalence based on self-report may be overestimated, particularly for females, and hence adjustment for misclassification is recommended.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 28

ACTIONS DEVELOPED BY JOINVILLE'S WORKER HEALTH REFERENCE CENTER DURING THE INTERNATIONAL DAY OF NOISE AWARENESS

Authors

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Institution

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Abstract: Having as a goal the people's information and awareness about the noise effects in the health, which are included in the daily activities, in the work performance as well as Academic, sporting, recreational, leisure and rest functions – the Worker Health Reference Center - CEREST, of Joinville City Health Office, participated in 2009 of the International Day of Noise Awareness. The CEREST's proposal was to spread the campaign's theme at several places which were considered relevant to it's completion. Spread actions were performed in universities, schools, companies, at Health Office's events and in the cities that integrate the CEREST's macro region of Joinville with the intention to promote the people's involvement and awareness regarding the theme in an effective way, in order to take an important step in the multipliers generation. During April, several activities were developed about the campaign's theme, such as lectures with distribution of folders, posters and postcards which were prepared and put at disposal by the campaign's organizer team. Folder distribution made by CEREST's professionals, distribution of plug-type hearing protectors and noise level measurement at the places where the events happened. There was the media's support (Internet, newspapers and radio stations) that contributed a lot in the spread of the campaign. The mobility's actions developed by CEREST/Joinville were a part of the celebration of the 14th International Day of Noise Awareness. This campaign reached the society in general, however, the main focus were the students once that each day the number of children, teenagers and young adults with hearing lost grows as a result of the exposure to high noise pressure levels. Considering that they are the future workers and will be inserted in environments with high levels of hearing pressure, it's fundamental that this population uses this health promotion tool, which is the awareness.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 29

OCUPATIONAL NOISE EXPOSURE EVALUATION IN A FOUNDRY: IDENTIFICATION OF THE SOURCES AND IMPLEMENTATION OF COLLECTIVE CORRECTION AND PROTECTION MEASURES

Authors

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Abstract: Introduction: The northern region of Santa Catarina is one of the most important industrial center of the country, with highlights to the metal-mechanic, polymers, metallurgical and chemical sectors. The activities developed in these industries expose the risks, which get worse, to the workers with the demand for a higher productivity and lower costs in a globalized environment. In this context, noise is the main agent in most of the industrial segments and has a bigger importance when it's considered that its hearing damage is irreversible and interferes in the workers' life quality. Even though it's an employer's obligation to establish measures of physical, chemical and biological control in the work environment and



many times is the causer of diseases, this is not a common practice in the Brazilian companies. This way, the government is responsible for promoting specific tests and for identifying un conformity in the work environment, as well as offering technical support to small sized companies to establish adjustment plans. Goal: to make an evaluation of continuously or intermittent noise exposure to which the workers of a foundry of Joinville are exposed to and to suggest collective protection measures and changes on the equipment and/or processes trying to reduce the noise levels that were found. Methodology: this work was made in partnership with the Santa Catarina State University and the City's Health Office/CEREST. The noise level measurements were made at the Modeling, Sand Preparation, Core Making, Mold Release and Fusion sectors using sound pressure level measurers (noise dosimeter). Results: The result analysis showed that some sectors of this foundry, as the Fusion and Mold Release for example, represent critical points to the problem, since the detected noise levels were from 103 dB(A) until 101 dB(A), respectively. The other sectors evaluated presented values around 85 dB, which are according to the standard regulator NR-15. By the results obtained in the first evaluation, collective protection measures were suggested as well as changes on the fusion equipment and on the process of mold release trying to reduce the noise level found. After the implementation of these measures, new noise level evaluations were made and it was noticed a significant reduction. The levels were detected from 92dB(A) in the Fusion sector and 96,83dB(A) in the Mold Release sector. Conclusion: The adoption of collective protection and modification measures in equipment and processes suggests significant and encouraging results to reach new improvements and, as a result, the decrease of noise levels in the companies of this segment.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 30

PATIENT WITH TINNITUS ´ COMPLAINT PROFILE

Authors

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Abstract: According to analysis of the National Institute of Health in 1996, the tinnitus is a very frequent symptom, affecting about 15% of the Americans. Tinnitus can be a symptom that can have a devastating impact on a person life style; it can incapacitate the person to carry through its normal activities. Many patients with tinnitus complaint present hearing loss associated, and the knowledge of this symptom is basic for the medical diagnosis of the case. Then all scientific contribution in this area can be important. The objective of this work was to trace the profile of patients who had presented tinnitus complaint. We evaluate 42 patients of both the genders, with age varying of 19 the 87 years (average age of 53 years). They went to audiological evaluation on CEES - Unesp and had presented tinnitus complaint. In order to better understand the complaint of our patients, we apply specific history questioner that includes questions about the symptom such as: the time of installation, the description, the localization, and the perceived cause, period of the day that generated greater bothering, factors that aggravated the symptoms and its ´ effects on sleep and personal and social relations. To evaluate the hearing, we used the pure tone threshold audiometry, in acoustics room, using an audiometer. We test the frequencies between 0,25 and 8 kHz, as well the intermediate frequencies (3 and 6 kHz). To classify the audiological threshold, we consider the average of puretone air-conductin thresholds between 0,5, 1 and 2 kHz. Analyzing our results we observe that 27 (64.3%) patients were males and 28 (66.6%) were between 41 and 70 years of age. Considering the history, 28 (66.6%) patients had told that they presented the symptom in a period of time that varied of 1 the 10 years; regarding the tinnitus sound 11 (26.2%) had described it as a whistle, 9 (21.4%) as cricket and 4 (9.5%) as a pressure pan; 33 (78.6%) had told that the tinnitus was located in the ear, with the predominance of the left ear (17 (51.5%)); 22 (52.4%) didn't know the cause, but for 9 (21.4%) the reason was the noise exposition; 16 (38.1%) had told that bothering was worse at night; for 11 (26.2%) the aggravated factor was stress situation. Regarding to the quality of life, 25 patients had told that the tinnitus affected: sleep (56%), the concentration (44%), the emotional balance (40%) and the social activity (12%).Analyzing the audiometry we observed that 20 (47.6%) patients had normal hearing; 17 (40.4%) had presented bilateral sensory-neural hearing loss, three of them were mild and symmetrical, 6 were moderate and symmetrical and 8 were not symmetrical; 5 (12%) had presented unilateral sensory-neural hearing loss. Our findings allow us to conclude that patient with tinnitus complaint presents associated hearing loss and that this symptom interferes with their life's quality.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 31

VERIFICATION OF THE EFFECTIVENESS OF AN EDUCATIONAL ACTION ON HEARING PROTECTION FOR WORKERS EXPOSED TO OCCUPATIONAL NOISE.

Authors

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Institution

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Abstract: Hearing Conservation Program is an interdisciplinary set of steps designed with the purpose of preventing the onset and development of hearing loss caused by occupational noise. Noise and audiometric monitoring, training and education of workers and use of hearing protection are among such steps. The purpose of this study was to assess the effectiveness of an educational training action that emphasizes the importance of hearing protection for workers exposed to occupational noise. The study included 94 individuals exposed to noise levels that exceed 85dB HL during their workday. Participants received educational training and complete audiological assessment. All participants answered a questionnaire at two moments (pre and post-training). Participants were divided into two groups: Control Group - composed by 45 individuals who received training after the second questionnaire; and Research Group - composed by 49 individuals who received training between the first and the second questionnaire filling. Results: each response was scored as right or wrong and, for the statistical analysis, ANOVA and chi-square tests were used. A statistically significant difference ($p < 0.0001$) on the comparison between the responses pre and post-training was observed only for the Research Group providing evidence that this practice should be increasingly emphasized on the Hearing Conservation Program.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 32

A MODEL OF AUDIOLOGICAL SERVICE DELIVERY: OUTCOME MEASURES. PARTIAL RESULTS

Authors

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Abstract: In Brazil, more than 60% of Hearing Aid (HA) fittings are carried out by the National Health System Program (SUS) and this percentage is increasing. The current SUS program for the provision of HA involves a substantial team and a large time commitment from clients. This model of service delivery has evolved over the past 14 years with one major revision in 2004. However, systematic program evaluation techniques have not been used to evaluate the effectiveness or efficiency of SUS program relating to the provision of HA. For this, the project "A model of audiological service delivery: Outcome measures" aimed to apply systematic evaluation techniques to compare the current SUS model of service delivery to a streamlined model involving maximized professional and client resources and time. Objective: Comparing client outcome measures data from these two models of service delivery. Method: 61 hearing aid candidates (age varying from 15 to 64 years and 11 months old) with unilateral or bilateral sensory neural or mixed hearing losses were participants, with or without previous experience on hearing aid usage. Individuals with conductive hearing losses, retrocochlear hearing losses and presenting associated disorders were not eligible for this study. The participants were randomized divided into two groups: SUS model ($n=31$) and STREAMLINE model ($n=30$). The main difference between SUS model (which follows the extolled presupposed by SUS Regulation 587) and STREAMLINE model (which proposes caring deaf people in a more objective way), is referred to selecting a unique HA to trial on verifying. Another relevant issue is regarding professional staff, since all cares (audiological evaluation and hearing aid fitting) were carried out by the same professional and should not take more than 30 minutes for unilateral fitting and 1 hour for bilateral fitting. For both models, it was used a specific questionnaire: International Outcome Inventory for Hearing Aids - IOI-HA on the second and third follow up, which occurred three and nine months after HA fitting. Results: 62.30% of participants were female and 37.7% males, regarding age over 45 years old (70.50%) for most of them, belonging to socio-economical class C (US\$25,80) and being illiterates (33.33%). Concerning auditory issues, 50.82% of participants had severe neural sensory hearing loss and 85.25% of participants were bilaterally fitted. There were not found statistically significant differences between the two groups relating to fields evaluated by the questionnaire IOI-HA at 3 and 9 months ($p=0,754$ and $p=0,501$, respectively). Conclusion: The partial results of this study show that there is no difference on results for HA fitting at short and long term between the two trialed models of care. The allocated budget for hearing health services is limited, regarding the need of canalizing financial resources to procedures that enable higher benefit to hearing impaired people. Thus this result analysis may help governmental organs optimizing public budget expense on this population care. Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 33

TECHNICAL FAILURE OF INDIVIDUAL HEARING AIDS: AN EXPLORATORY STUDY ON DEVICES PROVIDED BY THE NATIONAL HEALTH SYSTEM PROGRAM

Authors

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Abstract: Introduction: Hearing Health Care Policy presents detailed report about prescription criterion for hearing aids (H.A.) tendered on Medium and High Complexity from National Health System Program (SUS). The devices offered by services must be registered following the National Agency of Sanitary Vigilance with the descriptions of electroacoustic specifications, however, there is no normative to proceed concerning complaints referring technical failures on H.A. Objective: Evaluating what are the most found H.A. technical failures at SUS, as well as analyzing the patient's and service's conduct regarding this device failure. Method: A multi-centers study, with the participation of auditory health services of states of São Paulo, Bahia and South Mato Grosso. It was analyzed H.A. technical failures whose patients had showed complaints concerning the device on 5 different services (one of a Medium Complexity and 4 of a High Complexity), as well as the respective conduct of the patient and of the service regarding the occurrence, considering the period from January 2008 to May 2009. The data were analyzed by descriptive statistic. Results: The main technical failures found were: 37.44% of failures on amplifier, 25.59% of failures on receptor, 9.0% of failures due to sound distortion, 8.53% of failure on microphone, 6.64% of failure on volume control, 6.64% of failure on battery slide valve, 3.79% of failure on telephonic bobbin, 1.42% of problem on capsule and 0.95% of break on H.A. gain. Related to the device's technological sort and category it's verified that the BTE hearing aids (83.86%) and of category A* (hearing aids non programmable, air or bone conduction, PC or compression limiting, single channel, gain, low and/or high cut maximum, volume control manual, telecoil and/or direct audio input, single memory, omnidirectional or directional microphone) (45.83%) presented higher technical failure incidence, although both presented more quantitative dispensation by SUS. It's also observable that the devices presented utility life of 22 months on average (standard deviation of 16 months), before presenting any technical failure, and the fixing cost to them is on average R\$733,00 (standard deviation of R\$594,00). From the perception of H.A. failure by the patient, 51.82% contacted the service seeking for care, 25.10% quitted using the hearing aids due to the problem, 19.03% contacted H.A. technical assistance to solve the problem and 4.05% of patients waited for returning care to communicate about the device failure. Nevertheless, 58% of analyzed hearing aids were still on guarantee term and they were fixed by technical assistance without additional cost to patient, 33% of the cases received H.A. replacement indication and 9% of the cases the repair was paid by the users themselves. Conclusion: Presented data may help responsible governmental organs to begin debates concerning normative on fitting procedures regarding H.A. technical failure from scientific bases. Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 34

ANALYSIS OF MAIN ETIOLOGIES OF HEARING LOSS ON BRAZILIAN POPULATION: A MULTI-CENTRIC STUDY

Authors

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Abstract: Introduction: Identifying the main etiological factors that cause hearing loss on Brazilian population is necessary and it consists of an important tool to be analyzed in order to take steps on public health. In the country, there's a lack of epidemiological studies that may feature this population concerning the most prevalent causes of hearing loss, what makes difficult the proposition of actions allowing prevention to general population. Objective: A retrospective study identifying the main causes of hearing loss on hearing health services from Unified Health System (SUS). Method: This study had the participation of 7 Brazilian services on hearing health (classified as Medium and High Complexity). The data levy was realized between the years of 2007 and 2009 and the casuistic was defined from spontaneous demand on the service, in order to verify the individual eligibility, according to inclusion and exclusion criteria of the multicenter study. Patients aged between 0 and 14 years and 11 months old were grouped on infant population and patients between 15 and 64 years and 11 months old were grouped on adult population. Etiology was defined from medical diagnosis during data levies. It was made a descriptive analysis from data found using the statistical program STATA (version 9.0). Results: 1402 subjects had participated on this research, therefore 111 children and 1291 adults. Among children, the main causes of hearing loss on the studied population was meningitis (8.11%), multi-factorial prenatal causes (6.31%), congenital rubella (4.50%) and genetical (3.60%). Concerning causes investigated on adult population, Noise Induced hearing loss was the most found cause (10.47%), followed by chronic otitis media (8.46%), genetical causes (5.20%) and otosclerosis (3.18%). The analysis per sex has showed differences between the two populations: on women, the cause found the most was chronic otitis media (9.85%) and on men, noise induced hearing loss (19.21%). An important finding on this study was that the majority of etiologies was classified as "without information access", resulting on 59.46% unidentified causes on infant population and 45.07% on adult population. Discussion and conclusion: This study point out to different causes between hearing loss for infant and adult population, as for men and women, what leads to different proposition of preventive actions and treatment according age and gender. Besides information obtained from parents, audiological assessment, it is also necessary at the ENT routine the inclusion of non auditory procedures, as serological tests, image diagnosis, ophthalmological exams and genetical evaluation, helping on unknown etiologies identification. Thus, changing conducts on services to identify better the etiologies will provide a better comprehension of hearing loss' distribution on population and, consequently, more effective and efficient collective intervention. Agency: Conselho Nacional de Desenvolvimento Científico e Tecnológico- CNPq

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 35

EFFECTIVENESS EVALUATION OF A HEARING LOSS PREVENTION PROGRAM (HLPP) IN A BRAZILIAN INDUSTRY

Authors

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Abstract: Introduction: Documents as the NIOSH (1996) and several other studies refer the evaluation stage as an important step for success of a HLPP. Although occupational hearing loss is liable to prevent, its incidence in industrial area is high. The petrochemical industry, pioneer in automated work processes has brought new risks to the employees' health. As a result, it is necessary the implementation and periodic evaluation of health programs to follow up planned actions. Objectives: To evaluate the effectiveness of a HLPP implemented in a Brazilian petrochemical industry, structure and validate a protocol for evaluating the program, analyze implemented actions considering the perception of workers and professionals from Occupational Health and Safety (OHS), as well as analyze the action product of program setting its correction and standardization. Material and Method: Four distinct questionnaires were used as evaluation tool, elaborated by the authors from the protocols review ever existing in literature and the protocol of Environmental Self-Assessment Program (ESAP) used in the company. From these, the most relevant questions to evaluate the effectiveness of HLPP. The questionnaire was administered through individual interview to four groups: 1 - Security Technicians; 2 - Health Care Team, 3 - Workers; 4 - Managers and Supervisors. The average age of them was 39.5 years old. The analysis of questionnaires was made from dividing the questions of protocols in four areas: I. Evaluation and proceedings for and Risk Analysis II. IPE III. HLPP Actions. IV. Habits and Behaviors and V. Audiological Profile, applied according to the performance of each evaluated person in HLPP. Answers were given on a Likert scale from option 1 to 5 as: 1) "strongly disagree", 2) "disagree", 3) "neither agree nor disagree", 4) "agree" and 5) "strongly agree". Results: All evaluated areas presented higher scores 3. The subject area V. Audiological Profile (4.86) was better assessed by Group 2 - Health Care Team and III. HLPP Actions presented worse results according the perception of Group 1 - Security Technician. The subject area. III. HLPP Actions were the only evaluated in all groups, with better results of Group 4 - Managers and supervisors (4.16), followed by Group 2 - Health Care Team (3.75) and Group 3 - Workers (3.73) and Group 1 - Security Technician (3.17). Conclusion: We conclude from the results, a positive perception of evaluated people in relation to all evaluated categories of HLPP. The questionnaire was essential to verify the effectiveness of developed actions in order to aim possible failures to correct and avoid errors from accumulating. Therefore, the HLPP proved effective in implemented actions. Keywords: Hearing Loss Prevention Program (HLPP), Health Evaluation, the Petrochemical Industry.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 36

COMBINED EFFECT OF NOISE AND VARIABLE SHIFT WORK IN WORKER'S HEARING

Authors

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Abstract: Introduction: work systems in shifts are increasingly deployed in the world, because of their financial benefits and to meet the demands of society. This work system violates the human body functions, bringing implications such as health effects, to the job, life quality and effects on their social life. Noise is an agent able to cause consequences to worker's health: hearing effects like hearing loss and tinnitus, also lead the subject to physiological consequences such as cardiac and digestive disorders, among others. Objective: Analyze the impact in night shift work in the hearing health of workers exposed to noise, taking for granted that shift work can cause, in the medium term, a greater impact on the worker's hearing exposed to noise. Methodology: A study in industries was performed in inland on Paraná state. An Audiometry was performed in employees, divided into three groups: administrative part (A), variable shift (R) and fixed night shift (N) and the risk of exposure to noise above 80 dB, in order to establish the existence of loss hearing. For data analysis audio logical findings were related, intertwined with survey data obtained from a questionnaire applied to workers. Results: In group R was found more frequencies related the complaints: tinnitus (13.6%) difficulty understanding speech in noisy environment (25.2%), dizziness (12.64%), gastrointestinal changes (26.4%), headache (20.6%) and fatigue (24.1%). In Group N the most frequent complaints were dizziness (18.75%) and depression (12.5%). In these groups were also found a higher percentage of workers with audiometric variations suggestive of PAIR: R (19.5%) and N (16.5%). The means and medians of all work systems are within normal limits. We emphasize that the worst mean and median frequencies 3 kHz, 4 kHz, 6 kHz and 8 kHz, in general, are the night or variable shift. Conclusion: The night and variable shifts presented hearing and extra-hearing symptoms percentage increased when compared with the administrative shift as well as the worst means and medians frequencies 3 kHz, 4 kHz and 6 kHz. These data indicate the need to implement a program to prevent hearing loss (PPHL) whose actions planned, containing a systematic monitoring to the hearing health of workers in night and variable system. Key words: noise effects, hearing loss caused by noise, shift work

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 37

HEARING AND HEARING LOSS PERCEPTION IN ELDERLY PEOPLE

Authors

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Abstract: PURPOSE: To evaluate hearing and the perception of elderly individuals about their hearing condition. METHOD: A descriptive and exploratory research was developed using as subjects 40 students, being 34 female and 6 male, with ages ranging from 61 to 88 years, from a university for seniors located in Salvador city at the State University of Bahia. To evaluate the subjects it was used the Hearing Inventory for Elderly (Mesquita, 2001) and audiometric evaluation. The data analysis was done considering the variables: gender, age and the computed answers for the Inventory. RESULTS: 37,5% of the elderly presented normal hearing and 62,5% presented hearing loss, being 30% asymmetric loss and 32,5% symmetric. Of the 25 subjects with hearing loss, only 03 (12%) were aware of it, scoring higher than 10 points at the Inventory. In addition to it, 22 subjects (88%) had a score lower than 10. According to gender, 8% of male and 4% of female scored over 10 at the Inventory and 16% of male and 72% of female scored under 10 points. There were a predominance of the descendent audiometric configuration in 88% of the individuals. CONCLUSIONS: The majority of subjects studied had hearing loss increased by the age. Proportionally, hearing loss occurred mostly in men than women, although few of them have perceived it.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 38

EVALUATION OF SATISFACTION IN PATIENTS USING ANALOG HEARING AIDS.

Authors

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Abstract: Introduction: Hearing is one of the most important sensory functions in human communication. Whenever this function is impaired, partial or complete sensory hearing loss occurs, negatively affecting the individual's social life. In order to reduce the effect of hearing loss on the patient's quality of life, hearing aids have been designed and developed. The use of such devices substantially improves users' level of communication, since these hearing aids increase auditory stimulation levels. In September 2004, the Brazilian Ministry of Health proposed and implemented a "National Auditory Healthcare Policy", through which hearing aids and related services were provided free of charge to all individuals within the Brazilian Public Healthcare System (SUS). This initiative has had an enormous effect on society as a whole, since the consequences of hearing impairment are negative for society and devastating at individual level. Considering the scope of this program, the aim of which was to guarantee universal access to auditory healthcare, thus fostering social equality, it is essential to evaluate the level of satisfaction of hearing aid users in relation to their various routine situations. This can be evaluated through application of self-evaluation questionnaires, which not only measure the user's performance but also record patients' perception of changes occurring during treatment. Objective: To evaluate the satisfaction of analog hearing aid users. Methods: Eighteen individuals, 11 males and 7 females ranging in age from 18 to 64 years with mild to severe conductive or mixed hearing loss, were enrolled in this cross-sectional, observational study. Evaluation was performed following use of hearing aids manufactured by Beltone and Phonak. Patients' perception of improvement in their hearing was assessed using the International Outcome Inventory for Hearing Aids (IOI-HA) and the Satisfaction with Amplification in Daily Life (SADL) questionnaires, applied orally by the principal investigator. Results: The majority of users (88.9%) declared that they were satisfied or very satisfied with their hearing aids. Conclusions: The use of hearing aids by patients with different degrees of auditory impairment was associated with a great improvement in hearing capacity, resulting in high self-reported satisfaction rates. Key-words: auditory healthcare; hearing loss; amplification devices; hearing aids; satisfaction.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 39

SCHOOL HEARING SCREENING - SENSITIVITY AND SPECIFICITY ANALYSIS OF THE SCREENING RELATED TO THE TIMPANOMETRY TEST ISOLATEDLY

Authors

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Abstract: Purpose: to evaluate the effectiveness - accuracy, sensitivity level, specificity level, positive predictive level and negative predictive level - of tympanometry, one of the tests used in a Hearing Screening School Campaign, related to the hearing screening comprised by three tests combined. Methods: 93 children were submitted to a hearing screening composed by tympanometry, pure tones screening and transient evoked otoacoustic emissions (OAE), and basic posterior audiologic evaluation. Results: 47.3% presented failure in the hearing screening; 30.1% in the tympanometry, 26.9% in the pure tones screening and 25.8% in the OAE. As to the audiologic evaluation posterior to the screening, 41.9% of the



children presented altered results; 15.1% of the audiometry and 38.7% of the acoustic impedance test results were altered. The tympanometry revealed: 79.6% for accuracy, 61.5% for sensitivity, 92.6% for specificity, 85.7% positive predictive level, 76.9% for negative predictive level, respectively. For the hearing screening comprised by all tests combined, we obtained, for the same parameters, the following percentages: 79.6%, 82.1%, 77.8%, 72.7%, 85.7%. Conclusions: the tympanometry revealed 61.5% for sensitivity, an inferior level compared to 82.1% of the whole hearing screening; however, it showed a better result for specificity: 92.6%, compared to the 77.8% of the hearing screening comprised by the three tests combined.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 40

INCIDENCE OF UNILATERAL HEARING LOSS IN NEONATES

Authors

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Institution

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Abstract: INTRODUCTION: Unilateral hearing loss acquired in childhood may cause delay in the process of language acquisition, difficulties in speech and in school performance. The early identification of this change can prevent such damages. OBJECTIVE: To investigate the incidence of unilateral hearing loss in neonates seen through the Newborn Hearing Screening Program (NHSP) of the University Hospital of Santa Maria (HUSM) from January to October, 2009. METHODOLOGY: During the study period 1187 newborns were screened. The screening procedure was the recording of transient evoked otoacoustic emissions (TEOAE) in a quiet place with the Otoread Clinical device (Interacoustics/Audiotest). We tested both ears in the 700 to 4000Hz frequency range with a click of 83 dB SPL. The duration of the sound stimulus was approximately 64 seconds. The presence of bilateral TEOAE, signal-to-noise ratio equal or higher than 6dB in at least three of the tested frequencies, and amplitude higher than -9dB were considered pass criteria for NHS. Neonates who failed were retested, and in case of a new fail they underwent the evaluation of Auditory Brainstem Response (ABR) Results: 1187 children were screened; six (37.5%) failed in only one ear and among these, five had hearing loss confirmed by Auditory Brainstem Response - ABR and one of them awaits evaluation. Two of the five children who failed presented a fail in the left ear and three in the right one. Conductive hearing loss was found in one child and sensorineural hearing loss, predominantly deep level, observed in four, being two in the right ear and one in the left ear. CONCLUSION: The incidence of unilateral changes in the NHS - HUSM was 0.5% and the right ear was the most affected one.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 41

HEARING LOSS INCIDENCE IN NEONATES BORN THROUGH THE BRAZILIAN UNIFIED HEALTH SYSTEM IN SANTA MARIA

Authors

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Abstract: INTRODUCTION: Early diagnosis of hearing loss in children promotes language development quite close to the normal. OBJECTIVE: To investigate the occurrence of hearing changes in neonates seen through the Newborn Hearing Screening Program (NHSP) of the University Hospital of Santa Maria (HUSM). METHODOLOGY: Data were collected from January to October, 2009. Newborn Hearing Screening (NHS) was done with transient evoked otoacoustic emissions (TEOAE) in a quiet place, with Otoread Clinical device (Interacoustics/Audiotest). We tested both ears in the 700 to 4000Hz frequency range with a click of 83 dB SPL. The duration of the sound stimulus was approximately 64 seconds. The presence of bilateral TEOAE, signal-to-noise ratio equal or higher than 6dB in at least three of the tested frequencies, and amplitude higher than -9dB were considered pass criteria for NHS. Neonates who failed were retested and if a new fail occurred they underwent the evaluation of Auditory Brainstem Response (ABR). RESULTS: During the study period 1187 newborns were screened. 1045 (88.03%) passed the NHS, 142 (11.97%) failed and were referred to retest. 85 children attended the retest; 69 passed (81.18%) and 16 failed (18.82%) then they were referred for diagnostic procedures. Hearing loss was confirmed in 13 children, a total of 26 ears. Conductive hearing loss was observed in three ears and sensorineural hearing loss in 23. The degree of sensorineural hearing loss ranged from moderate to profound. There was a case of false positive result, one of the children did not attend the test, and another one awaits evaluation. The rate of hearing loss in the NHSP of HUSM from January to October 2009 was 1.09%. CONCLUSION: On the NHSP of HUSM the occurrence of sensorineural hearing loss was 0.75% and conductive hearing loss was 0.25%.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 42

ASSESSMENT OF THE EFFERENT AUDITORY SYSTEM IN NORMAL-HEARING INDIVIDUALS WITH SPEECH RECOGNITION COMPLAINTS

Authors

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Abstract: INTRODUCTION: The evaluation of the efferent auditory system is possible through objective methods such as suppression of otoacoustic emissions and acoustic reflex (AR). People who present difficulties in understanding speech with competing sounds may present absence of otoacoustic emission suppression and acoustic reflex. OBJECTIVE: To study the performance of the efferent auditory system in normal hearing individuals complaining of difficulties with speech recognition in noise. METHODOLOGY: The sample consisted of 50 normal hearing subjects, aged between 19 and 32 years old, who reported difficulties with speech recognition in noise or not. We evaluated 24 subjects with complaints (WC group) and 26 with no complaints (WNC group). Individuals who reported tinnitus, hyperacusis or had involvement of the middle ear were excluded from the sample. Subjects underwent basic audiological evaluation, including acoustic-immittance measurements. Distortion product evoked otoacoustic emissions (DPOAEs) were tested at frequencies from 1500 to 6000 Hz. DPOAEs were considered present when the signal to noise ratio was equal to or lower than 6 dB. The capture of DPOAEs was firstly performed in the absence and next in the presence of white noise at 60 dB HL applied to the contralateral ear. The contralateral acoustic reflex was investigated in the range of 500 to 4000 Hz, being that it was considered normal when elicited from 70 to 90 dB above the hearing threshold. Data were analyzed using the Fisher's Exact Test, considering $p < 0.05$. RESULTS: Although the groups did not differ statistically regarding the occurrence of CAR in the right ear, a predominant absence was observed in the WC group, especially at 4000 Hz. WC and WNC groups differed statistically regarding the occurrence of CAR in the left ear only at the frequency of 4000 Hz ($p = 0.0094$). A predominant absence of contralateral acoustic reflex in the WC group was observed at the other frequencies. At the frequency of 1500 Hz, a statistically significant effect of the absence of DPOAEs in the WC group was found in the right ear ($p = 0.405$). At 2000 and 3000 Hz, although no statistically significant difference was found between groups, there was a predominant absence of the suppression effect of DPOAEs in the WC group. In the ears of the left side, the absence of suppression of DPOAEs was higher in the WC at 1500 Hz ($p = 0.0085$) and 2000 Hz ($p = 0.0129$). The number of subjects with suppression effect was higher in the WNC. There was no association between the occurrence of contralateral acoustic reflex and the suppression effect of DPOAEs in both ears, considering the entire sample. CONCLUSION: An association between self-reported difficulties in discriminating speech in noise and the absence of contralateral acoustic reflex at the frequency of 4000 Hz of the left ear was observed. We also found an agreement between self-reported difficulties in discriminating speech in noise and absence of the suppression effect of DPOAEs, especially in the middle frequencies on both sides. KEYWORDS: Hearing tests, adult, acoustic reflex, efferent pathways.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 43

AUDIOLOGICAL FOLLOW-UP OF PRETERM LOW BIRTH WEIGHT NEONATES: COMPARISON BETWEEN A QUESTIONNAIRE AND AUDIOLOGICAL EVALUATION

Authors

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Abstract: Preterm neonates of low birth weight may present progressive or late onset hearing loss, or may have some disorder in the auditory function development. Aim: To compare data from a questionnaire administered to parents and the results of audiological screening in children up to six years of age, born preterm and with low birth weight in a public hospital. In a multidisciplinary plan of action, 37 children born between 2002 and 2008, with a birth weight up to 1.350 Kg were assessed. A questionnaire with 25 closed questions about ear, nose and throat (ENT), audiological, neurological, language development, and family background was administered by couples of audiologists. Children underwent acoustic meatus inspection and when it was altered, they were referred to an ENT doctor for further examination and treatment, returning after for the screening procedure when possible. The hearing screening comprised bilateral immittance measures and contralateral acoustic reflex testing. Depending on the age, the SRT and the pure tone thresholds at 500 to 4.000 Hz were tested with a clinical audiometer and headphones in an acoustic booth. Children younger than two years of age or those who didn't accept using headphones were assessed with a pediatric audiometer, localization of sound source and eye-blink reflex were also tested with musical instruments. Children with hearing disorders, conductive or sensorineural, were referred to the ENT ambulatory for follow-up. Data from the questionnaire and those from the hearing screening were compared. Results: 37 children, 18 female and 19 male, ranging in age from 1 to 6 years old, mean age of 3,5 years and median of 4 years, were assessed. The ENT doctors removed ear wax from 8 children (22%), and one of them (2,7%) presented type B tympanogram after the ear wax removal. Atelectatic tympanic membrane was found in one child (2,7%) and tympanic membrane thickening was found in 7 children (19%), only one bilaterally. Immittance measures were altered in 10 children (27%), 9 bilaterally, totaling 19 altered ears. Of these ears, 13 presented tympanometric curves type B and 6, type C. Fifteen (40,5%) children presented some kind of alteration in the audiological assessment. Only one of them did not present hearing complaints reported by the mother. Mothers of 25 children reported some hearing disorder in the questionnaire; 14 were confirmed by the screening. Twelve (32%) mothers did not respond at least one question of the questionnaire. Results indicated sensitivity of 93,3% and specificity of 45%. The high sensitivity observed triggers a new study, reformulating, reducing and directing questions in order increase the specificity. An effective questionnaire may be used for pre-screening in case of large number of children to be screened. In this study, mothers did not deny their children's difficulty, since only one case presented altered screening in tympanometry, without a mother's complaint, demonstrating that the questionnaire may have a low rate of false-negative. As it was expected for high-risk neonates, the incidence of audiometric disorders was high which stresses the need of audiological and language follow-up for this population.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 44

NEONATAL HEARING SCREENING PROGRAM: CHARACTERIZATION OF NEONATES FROM THE HIGH-RISK NURSERY OF A PUBLIC HOSPITAL

Authors

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Abstract: Introduction: Hearing has an important role in the cognitive, social and psychological development of the human being. This is common sense among speech and hearing pathologists, otorhinolaryngologists and pediatricians; however, the difficulty to implement a hearing screening program in the public system is steel great, and the sensibilization of professionals in administrative jobs that are not directly involved in the neonatal hearing screening practice is necessary. Aim: to characterize the profile of neonates from the high-risk nursery of a public hospital of ABC region - SP - Brazil. Method: 250 files were analyzed from October 2005 to October 2006 regarding maternal age, gestational age, weight at birth, gender, hospital permanence period, death rate, and presence and type of risk factors for hearing loss according to JCHI, 2007. Results: The mean maternal age was 24,8 years. The mean gestational age was 37,1 weeks; the predominant gender was male; the mean weight at birth was 2.753g; the mean hospital permanence period was 13,7 days; the death rate was 3,6%. At least one of the risk indicators for hearing loss was found in 123 (49,2%) neonates. The permanence in the intensive unit care (IUC) for 48 hours or more was the most frequent one, verified in 103 (41,2%) neonates. Craniofacial abnormalities, including those with auricular pavilion and external acoustic meatus abnormalities, was found in 10 (4%), intra-uterus infection in 6 (2,4%); family history of permanent sensorineural hearing loss in childhood was 5 (2%); and signs or other findings associated to syndromes with hearing loss was 1 (0,4%). Hearing loss was diagnosed in 6 (2,4%) children: 4 (1,6%) were sensorineural and 2 (0,8%) were conductive. Conclusion: The characterization of maternal and gestational ages was similar to those found in private hospitals. Nevertheless, the neonatal hearing screening program and the hearing follow up of high-risk neonates in public hospitals are crucial for prevention and health promotion, once the permanence in ICU for longer than 48 hours may result in progressive or late onset hearing loss; this condition was present in half of the neonates studied, and hearing loss was diagnosed in six children.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 45

ANALYSIS OF THE AUDIOLOGICAL PROFILE OF TEENAGERS ASSISTED BY THE AUDIOLOGY SECTOR OF HC- FMUSP.

Authors

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Abstract: According to data from the Brazilian Institute of Geography and Statistics- IBGE/2007, São Paulo city presents a population of 10.886.518, of which 2.396.392 are young adults from 15 to 24 years of age. In the audiological clinical practice it is observed an important flux of population at this age who present otological pathologies of different etiologies. Aim: To analyze the audiological profile of teenagers from 15 to 24 years old assisted by the Audiology Sector of the Otorhinolaryngology Ambulatory of Clínicas Hospital FMUSP, and to compare the audiological results using the classification proposed by Davis and Silverman and the Recommendation 02/1 from the Bureau International d'Audio Phonologie - BIAP. Method: Retrospective study in which audiological data was collected in medical files of patients from 15 to 24 years of age assisted by the Audiology Sector of the Otorhinolaryngology Ambulatory of the Central Institute of Clínicas Hospital FMUSP, in the period from January/2009 to June/2009. Data collected were statistically analyzed. Results: It was observed a statistically significant higher number of female patients (55%) than male ones (45%). The most frequent diagnostic hypotheses found in female patients were: absence of diagnostic hypothesis, chronic otitis media, and peripheral facial palsy. In male patients, the most frequent diagnostic hypotheses were: absence of diagnostic hypothesis, peripheral facial palsy, and post-surgery of tympanoplasty. Concerning the comparison between the two audiological classifications proposed, it was observed a statistical significant difference for individuals classified with normal hearing, since Davis and Silverman considered normal hearing from 0 to 25dB while Biap considers normal hearing up to 20 dB. Discussion: Data from IBGE 2007 show that the male population is increasing, however, in absolute terms, the female population is greater, as observed in this study. It was also observed an expressive number of cases without diagnostic hypothesis, demonstrating a difficulty in the clinical diagnosis of audiological disorders. The difference found in the audiological classification is clinically significant for this population once considering 25 dB as a mild hearing loss, some cases considered normal by the Davis and Silverman classification would be classified as hearing impaired by the Biap classification. Conclusion: It can be concluded that the teenager population is very expressive in the HC- FMUSP (6% of cases from 0 to 100 years old assisted during the period mentioned above), presenting, in many cases, otological disorders that if diagnosed early may not affect their socio-economic lives.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 46

STUDY OF THE HEARING FUNCTION IN CHILDREN WITH HISTORY OF MALNUTRITION IN THE CITY OF FORTALEZA.

Authors

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Institution

1. UNIFOR, UNIVERSIDADE DE FORTALEZA

Abstract: Objective: To evaluate peripheral auditory function in children with history of malnutrition, living in the city of Fortaleza-CE. Methods: A cross-sectional sample consisted of 34 children aged between 4 and 12 years, a total of 68 ears, served in two services of reference from August 2008 to June 2009. Was held, initially, the history and meatoscopy, then the hearing evaluation that consisted of pure tone audiometry, speech and logaudiometry and impedance. Results: Of the 34 children evaluated, 20 (58.82%) were female, with the predominance of 19 (55.88%) children aged from four to five years. The level of moderate malnutrition was the highest prevalence in the population studied: 18 (52.94%). In the audiological evaluation of the 68 ears tested, 60 (88.24%) had hearing thresholds within the normal range, 4 (5.88%) had sensorineural hearing loss and 4 (5.88%) had conductive hearing loss. Regarding the degree of loss, 4 (50%) children had mild to moderate grade, 2 (25%) had moderate degree and the other 2 (25%) degree of moderate to severe. As the findings of the impedance, 66 (97.05%) of the ears showed tympanometric curves of type An, while 2 (2.95%) had perforated tympanic membrane. For the results of acoustic reflex estapediano found normal values for 61 (89.70%) of ears observed. Conclusion: The results point to the predominance of normal audiometric curves with curves An tympanometric type and presence of bilateral reflex estapediano. However, in consequence of injuries resulting from child development to malnutrition, early referral is essential to this population for a routine audiological evaluation. Key Words: Malnutrition, child and hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 47

THE NOISE LEVEL IN A NEONATAL INTENSIVE CARE UNIT IN PORTO VELHO, RONDÔNIA STATE, BRAZIL

Authors

ISABEL CRISTIANE KUNIYOSHI, JORGE DOS SANTOS AGUIAR, ELANE CRISTINA LOPES DE SOUZA, TATIANA ANDRADE LOPES, VIRGÍNIA BRAZ DA SILVA, VIVIANE CASTRO DE ARAÚJO PERILLO

Institution

1. FSL, Faculdade São Lucas

Abstract: Purpose: To verify sound pressure levels captured at a Neonatal Intensive Care Unit environment in a public hospital in Porto Velho city, Rondônia, Brazil. Methods: Sound pressure levels were measured at the neonatal intensive care unit of Hospital de Base Ary Pinheiro in Porto Velho, Rondônia, with the local direction consent. Porto Velho is the capital of the state of Rondônia which is the third most populous state in northern region of Brazil. It is located in the so called Legal Amazon. Using the sound pressure level tool, model DEC-460 Instrutherm, from April 20 to 24, 2009 in three shifts from Monday to Friday, totaling 90 measurements. Results: The sound pressure levels showed an average of 69.8 dB (A) in the morning, ranging from 66.7 to 71.9 dB (A). During the afternoon there was an average of 72.4 dB (A), ranging from 70.4 to 76.8 dB (A). During the night there was 66.0 dB (A) ranging from 62.3 to 68.2 dB (A). There was a statistically significant difference between the afternoon and evening shifts. Conclusion: The reported rates do not exceed those related by literature as harmful to hearing, but all exceed the values recommended by Brazilian regulatory organs in relation to comfort and overall health status of newborns.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 48

INVESTIGATION ABOUT THE INCIDENCE OF HEARING COMPLAINTS FROM COLLEGE STUDENTS EXPOSED TO HIGH SOUND PRESSURE LEVELS DURING LEISURE ACTIVITIES

Authors

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Institution

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Abstract: Introduction: Young people are always exposed to some type of high sound pressure levels at their leisure activities that could cause hearing damages. The sound pollution in big urban centers is usually above the acceptable noise pressure level, what could cause hearing discomfort and hearing damage. Objective: The aim of this research was to evaluate the incidence of hearing complaints from college students who are exposed to high sound pressure levels at their leisure activities. Methods: A questionnaire with 12 closed questions about hearing complaints of 76 students, men and women, from 17 to 30 years old, from a University Center in the city of Novo Hamburgo, from April to June/2009. Results: The results showed that 18.42% of the students had some type of hearing complaint on a daily basis; the aural plenitude was the most prevalent hearing complaint (11.8%). 84.21% of the individuals go to parties with amplified music and only 40.78% of them has hearing complaints afterwards. 73.68% affirm to use MP3 players and have the perception of a comfortable pressure level. Conclusion: Students exposure to high sound pressure levels in leisure activities could cause hearing complaints and should be more carefully considered in order to prevent future hearing damages.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 49

ANALYSIS OF HEARING CONSERVATION MEASURES OF AN AVIATION COMPANY IN RIO GRANDE DO SUL

Authors

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Institution

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2. UFCSPA, Universidade Federal de Ciências da Saúde de Porto Alegre

Abstract: Noise is an oto-aggressive agent present in many everyday activities that can cause hearing changes that may have negative effects on people's health and life quality. This research aimed to analyze the hearing conservation measures of an aviation institution from the state of Rio Grande do Sul. The idea of this research was to apply a closed-questions questionnaire to the company's workplace safety technician. The answers were analyzed considering the Brazilian regulations. The conclusions of this research were: - in at least one of the company's sector the sound pressure levels exceeded the tolerance limits allowed by NR-15; - audiometric exams and the monitoring of institution's workers were conducted by a hired company; - professionals that were part of the medical and workplace safety group were not familiar with the requirements adopted to promote the audiometries, as well as monitoring these tests; - the individual and collective measures were defined by NR-6 and followed by the institution; - despite of the Hearing Conservation Program (HCP) being a determination of Brazilian regulations present in NR-7 as well as in NR-9, the institution did not have a written HCP, even though it is essential in places where the sound pressure levels overpass the allowed tolerance limits. Seeking for hearing conservation, it is clear the need for this company to implement an HCP, with the participation of a multidisciplinary team of professionals wherever the noise is present, in harmful levels for the hearing system. Key-words: Hearing, noise, professional diseases

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 50

USAGE OF EAR PROTECTION EQUIPMENT AND THE DEGREE OF KNOWLEDGE OF THE HEARING-RELATED RISKS TO THE HEALTH OF WORKERS IN THE CITIES OF PINDAMONHANGABA AND TAUBATÉ, STATE OF SÃO PAULO, BRAZIL.

Authors

ALDILENE RISSATO ADORNO GUIRAU, ANAISA DONOLA COSTA E SILVA, CRISTIANE CLARO DE OLIVEIRA SILVA

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Abstract: Introduction. Knowledge about noise and hearing is of fundamental importance to the people who work in places where the sound pressure level is high. It is important for employees to take part in the process and be aware of the importance of hearing integrity loss, the risks and consequences of noise on health and work (BRAMATTI, MORATA, MARQUES, 2008). This way can be expected greater participation in the measures adopted by the company for the prevention of injuries to workers' health. Objective. To assess the knowledge of the use of EPA - ear protection equipment - such as protection for noise exposure and to investigate the relationship between the degree of knowledge of the risks to hearing health and the adoption of protective measures. Methodology. Two questionnaires were administered: the first, developed by the researchers themselves to identify the population and the second entitled "Beliefs and attitudes about hearing protection and hearing loss (NIOH, 1996) translated into Portuguese by Sartori (2004) in order to assess attitudes, intentions and behavior of hearing protection. The researchers collected information on places of great movement as input from colleges and supermarkets in the cities of Pindamonhangaba and Taubaté, state of São Paulo, Brazil from May to July 2009. 194 questionnaires were applied. This study was approved by the Ethics Committee under number 053/09. Results. The age group studied ranged from 18 to 50 years old, with a predominance of young people (60.30% up to 30 years old) and with operations mainly in industry (89.17%). 97% use EPA and 86.08% received training on use and maintenance of equipment, mostly taught by qualified safety technicians. 106 workers confirm that companies are working with Hearing Conservation Program, but only 48 know professionals responsible for the program. Regarding the perception of hearing loss, 94.84% believe that exposure to loud noise causes hearing damage. About the perception of benefits of preventive action, 89.17% agree that the usage of the EPA can help prevent the installation of hearing loss. Regarding the severity of the consequences of hearing loss, 86.59% of respondents think losing part of their hearing would be a problem. Conclusion. Data from the study confirm that information about risks to hearing health and protection activities in the workplace can develop attitudes of prevention of hearing loss for workers. For those injuries to health workers, we can say that knowledge is present in the workplace or through the dissemination of professional health care or other strategies and the use of EPA is the main measure taken to avoid damage to hearing. We can conclude that there are basic measures being adopted by enterprises in the cities surveyed, but little is known about who should be responsible for the professional hearing health in companies.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 51

AUDITORY AND NON AUDITORY EFFECTS IN VISUALLY IMPAIRED INDIVIDUAL USERS OF PERSONNAL SOUND EQUIPMENT

Authors

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Institution

1. IEAA/SP, INSTITUTO DE ESTUDOS AVANÇADOS DA AUDIÇÃO

Abstract: The visually impaired, blind or low vision subjects, enhance other sensory modalities when they loose the visual information channel. The auditory system is the main modality that compensates for two-way communication and spatial orientation. In general, people with visual disabilities use hearing and tactile cues to help them overcome the visual loss. In accordance with the Brazilian Institute of the Blind (2009), there are some tools that assist in education and in daily life of visually impaired persons, such as: Braille system and spoken book. In a working or leasure environment many of the visually impaired use these technological advances to avoid distracting others uses headphones. We believe that the apparatus with headphones can cause damage to the auditory system in long term. Therefore, people with visual difficulty may compensate the visual system deficit using all these equipments as a mean of communication, information and knowledge. Objective: to investigate auditory and non- auditory effects in low vision individual users of personal sound equipment. Method: the sample was composed by 30 visual impaired subjects, of both gender, aged between 21 and 60 years, congenital or acquired visual deficit, which use personal sound equipment in daily life. All subjects were invited to answer a questionnaire on audiological issues and submitted to pure tone audiometry. They were distributed into three groups according to the time of use: group A – use the equipment every day; group B – use the equipment 3 times a week; group C – use the equipment less than 3 times a week. Results: analysis of pure tone audiometry showed that 40% of participants presented an audiometric notch. Group A, which utilizes personal sound equipment every day, presented 33.33% of audiometric notch, out of this group 33.33% are between 20 and 30 years old. From the studied group, 95% referred irritability, tinnitus and headache after prolonged use of this equipment. Conclusion: visually impaired subjects must be considered at risk for hearing problems. To be updated, they use personal sound equipment to access the "spoken" book. The first sign of these problems is the emergence of extra-auditory signals. Key Words: Noise induced hearing loss; Vision; Deafness.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 52

ACOUSTICS ANALYSIS IN NOISY TOYS

Authors

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Institution

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Abstract: Daily we are exposed to some types of noises, in the case of children make if present the noises generated for toys, being that these attract more the attention of them. All the toys currently commercialized must be in the limit of noise, established for 11786/92 brazilian norm NBR - Security of the Toy, published for the Associação Brasileira de Normas Técnicas (ABNT), where noise generated for toys does not have above 85 decibels (dB) in continuous noise and 100 dB in the case of instantaneous noise. Thus it was objected to verify the specter of frequency and the level of noise emitted for toys used for children of 1 - 5 years. Sixteen sonorous toys, had been available in the room of toys of the Centro de Estudos da Educação e da Saúde – CEES / UNESP – Marília - SP. For the measure was used digital decibelímetro MINIPA, model MSL-1350, level of 65 - 130 dB(A), in room acoustically treated. The levels of noises had been measured in two distances: of the surface of the toy to the ear (2,5 cm) and of the surface of the toy to the arm of the child (25 cm). For the research of the acoustic spectrum was used a portable recorder DAT connected to a stereo microphone. The tape - recording had been digitalized in a sampling tax of 44 kHz with the use of the CSL of the Kay Elemetrics and analyzed through the software Praat. Considering the toys that had exceeded the intensity limit respectively, as resulted it has the following values of intensity and frequency: Guitar 91.55 dB and 345Hz, My little musican 90.05 dB and 2943.85 Hz, Music Mouse 93.25 dB and 2197.8 Hz, 94.3 dB Electronic Drum and 1365.53 Hz, My first book 91.7 dB and 1365.53 Hz. Therefore in 31.25% of the searched toys, the measurement revealed superior value to the praised for the ABNT and the characterization of the acoustic spectrum showed peaks in the averages mean and high frequencies, what it can damage the auditory system, in its nobler area, that is, in the region of the frequencies of speak.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 53

PROMOTION TO HEARING HEALTH OF THE WORKERS AGAINST THE ENVIRONMENTAL RISK

Authors

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Abstract: Nowadays the noise now ranks the third place among the most unhealthy agents affect human health, it is a physical risk. The risk is defined by Occupational Health Safety Assessment Series (OHSAS) 18001 (apud CICC0, 1999) as the combination of occurrence and consequence of a particular hazardous event. It may be present in any work situation, be it structured or unstructured. Brazilian labor legislation classifies risks in physical, chemical, biological and ergonomic accidents (BRAZIL, 1978). The control of risks focuses on the dynamics of Accident (AT), and it makes with the companies seek greater safety and health at work. The recommendation of the Ordinance 3214 of 08/06/78 (BRAZIL, 1978) Regulatory Norm (NR) 15, reports unhealthy activities and operations, amog them the protection in the workplace against noise above 85 dB (A). The goal of this research was to evaluate the promotion of hearing health before the physio risk in the porcelain industry in the city of Conde (PB). To achieve this end, the specific objectives were to collect the levels of equivalent sound - LAeq desktop according to the Technical Report (LT) described in the program of prevention of environmental risks; to characterize audiometric tests performed in the company to check the hearing health of their employees, and describe the management according to audiometric hearing preservation program developed in the company. It is a documentary study of a cross-sectional, descriptive and exploratory character of case study type. It covered a sample of 283 employees during the period from January 2008 until July 2009. The procedures of evaluation was divided in two stages: the first one was to collect data on the physical evaluation and the second stage was the evaluation of hearing health. This project was approved by the Ethics and Research of the University Center of João Pessoa (UNIPÊ) in its 19th meeting. The sound pressure levels varied from minimum of 82.80 dB (A) a maximum of 95.50 dB (A). The 283 subjects evaluated 75.97% had pure tone thresholds within normal limits, while 24.03% showed some kind of hearing impairment. Among the found changes, it can be classified into: 12.72% lowering sensorineural; 7.06% for hearing impairment and 1.75% on hearing loss sensorineural. This company takes steps to control the levels of sound pressure reaching the ear of each individual. These are actions that are part of PPPAA which aims to minimize exposure to risk agents in the case of this research, physical risk, preventing the onset or worsening of hearing loss related to work. The study findings confirms the need to maintain preventive measures to control noise, since the results of the measurements indicated limits above the allowed for eight hours of work. It can be concluded that it is really necessary the audiometric management and the integration of the health team and safety at work in companies. Keywords: hearing health; physical risk; noise.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 54

AUXILIARY SOFTWARE IN REHABILITATION OF AUDITORY DISTURBANCES AS A PEDAGOGICAL RESOURCE IN PROMOTING THE HEARING HEALTH

Authors

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Institution

1. UNIVALI, Universidade do Vale do Itajaí

Abstract: Auxiliary software in rehabilitation of auditory disturbances as a pedagogical resource in promoting the hearing health CASTRO, Jamille D. B. De BALEN, Sheila Andreoli Auditory information processing is an essential factor for a good school performance. There are auditory skills involved in this processing which are determined, mainly, for developmental factors. The phonological awareness is the awareness that an individual has about speech, syllables and phonemes. Both auditory skills and phonological awareness are important in the initial process of literacy and development of written language. In this context, a proposal to be studied is to know if the use of listening strategies applied by teachers with schoolchildren enhance these skills development and, consequently, improve the learning process. This research was aimed at verifying the effectiveness of auxiliary software in rehabilitation of auditory disturbances in the auditory skills development in schoolchildren. The sample was constituted of 31 first grade students from a private school in Itajaí (SC), divided in group 1 (G1) - 15 students age-group 5-7 (average 6 years old) with no intervention of software and group 2 (G2) - 16 students age-group 5-7 (average 6 years old) with intervention of software during 12 weeks. Children from both groups were assessed in two moments, G2 before and after intervention of software during two weeks and G1 having a first measurement separated from the second for two weeks. The assessment procedure was done through an phonological awareness. Teachers from both groups kept on their daily pedagogical activities following the same pedagogical project throughout the research. The G2 teacher used SARDA in computer classes in a period of 50 minutes once a week, while the G1 performed other pedagogical activities in these classes. The auxiliary software in rehabilitation of auditory disturbances consists of six games that are aimed at developing the skills of sound source localization, auditory discrimination and recognition, short-term memory, selective and sustained attention. In the data analysis was checked whether there were differences between G1 and G2, using the Wilcoxon test for independent data. It was also used the Wilcoxon test for dependent data to verify if there were differences in performance between the first and second measurement in each group. A significance level of 5% was adopted. The results showed the average hits in G1 syllabic task of 27.66 and 30.26 points and 10.53 and 11.53 in the phonemic task before and after 12 weeks, respectively. For the G2 was observed average hits of 29.06 and 34.75 points before and after the intervention with this software, as well as 11.06 and 16.87 points in the phonemic task. There was no statistically significant difference between G1 and G2 in the first measurement, but difference was observed in the second measurement, and G2 showed superior performance to the G1. Thus, it's concluded that this software has enabled the development of phonological awareness skills when compared to the group with no software intervention, showing effectiveness and it can be used as a pedagogical resource.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 55

THE TELEHEALTH ORIENTATION HEARING IMPAIRED ELDERLY PEOPLE WHO USE HEARING AID

Authors

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1. FOB-USP, Faculdade de Odontologia de Bauru

Abstract: Aging is a phenomenon, whose growth is observed worldwide, bringing a number of changes which the sensory impairment is causing the greatest impact on the lives of older people. In this context, the difficulty of handling of hearing aids (HA) is one of the biggest reasons for the rejection of amplification. Thus, it is necessary the use of materials in order to guide patients and families. Examples of these materials related to the process of selection and fitting of hearing was prepared and registered in 2008, the Bauru School of Dentistry / USP, the DVD "Knowing and learning more about my hearing." This material was developed to allow convenient access to the theoretical and practical guidelines on the use and care of the BTE hearing aid / earmold. The objective of this study is to evaluate the quality of this DVD for therapists who work in hearing aid fitting and the elderly (target) and verify the effectiveness of this DVD as a tool of guidance for applying the distance in elderly people with hearing new users of hearing aids BTE. Participants of this study 55 hearing-impaired elderly individuals aged 65 to 85 years, and 40 without previous experience of adaptation and adjustment 15 with long BTE hearing aid, Served on the Program for Assistance to Hearing Health in High Complexity Hospital for Rehabilitation of Craniofacial Anomalies (USP) and the Speech Therapy Clinic of the Bauru School of Dentistry, University of São Paulo, accredited by the Ministry of Health This study also will include the participation of 15 therapists working on the site above. First, speech of two health care hearing and elderly hearing aid users will be asked to evaluate the DVD and fill out questionnaires that will cover the presentation and content quality, visual quality and information provided. Later, there will be two groups of elderly new users, and one group will receive the traditional method (speech-language guidelines and instructions of the hearing) and the other group will receive these same guidelines and take the DVD home. After that, both complete a questionnaire to evaluate the retention of content. Expected to assess the importance of using a support material in the process of adapting the hearing aid aiming at better use of amplification by the hearing impaired elderly.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 56

WORKSHOP AUDITORY SKILLS: AN INNOVATIVE PROPOSAL THE APPLICABILITY OF PROJECTS TELEDUCATION

Authors

WANDERLÉIA QUINHONEIRO BLASCA, MIRELA MACHADO PICOLINI, KARIS CAMPOS DE, ANDRESSA SHARLLENE CARNEIRO DA SILVA, PATRÍCIA JORGE SOALHEIRO DE SOUZA, ALINE MARTINS, GUILHERME TOYOGI TANIZAKI BARROS, CAMILA DE CASTRO CORREA, MONICA FARIA DOS SANTOS

Institution

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Abstract: Technology when applied to educational programs can generate change in attitude towards health, with adoption of healthy behaviors, making learning more effective. In this perspective, the Young Doctor Project is a program to develop the prevention of communication disorders through the Interactive Teleducation. To optimize the implementation of these projects of teleducation, the development of practical activities allows greater applicability and acquisition of knowledge. Thus, this study had purpose to describe a new way of learning through a workshop on listening skills. The workshop entitled "Hearing, Listening Skills and My, day-to-day" had dynamic and interactive activities covering aspects of hearing health, for example, hearing definition, the importance of listening and conditions to be a good listener. Also were tackled auditory skills - detection, discrimination, recognition, understanding, attention and memory. The workshop was given to the 18 high school students participants of the Young Doctor Project - Bauru (SP-Brazil), in September 2009 at the Bauru School of Dentistry, University of São Paulo (FOB / USP). This workshop lasted an average of 1 hour and was provided and prepared by teachers and students graduate and undergraduate of Speech Therapy, Faculty of Dentistry of Bauru (FOB / USP). The results were obtained in accordance with the level of satisfaction of participants, reported by testimonials together with the report about evolution of knowledge these subjects acquired during the activity. The insertion of a workshop auditory skill has become an asset in implementation of the Young Doctor Project - Bauru, in relation to the hierarchy of knowledge through effective learning, dynamic and interactive, providing a higher qualification in the implementation of the project and consequently an improvement in quality of life of the population, contributing to the prevention of communication disorders. It can be concluded that the same way Young Doctor Project - Bauru, other projects can benefit from this initiative.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 57

TINNITUS LOUDNESS MATCH USING NARROW BAND CAN BE BETTER THAN PURE TONE THRESHOLDS. SHOULD WE MEASURE THE THRESHOLD FOR NARROW BAND NOISE IN THE FREQUENCY OF TINNITUS PITCH MATCH?

Authors

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Abstract: Introduction: Tinnitus is the perception of a "phantom" sound in the ear or head, which affects 15% of the population. Clinical assessment of its psychoacoustic characteristics includes the determination of the pitch and loudness matching, usually through subjective measurements using pure tones. We have noticed that some patients with tinnitus similar to a frequency band experience difficulty in matching the pitch of their tinnitus when listening to such pure tones. Objectives: to describe tinnitus psychoacoustic characteristics of patients attended at a specialized center, to point out the unconformities in some different cases and to propose changes in tinnitus measurements whenever needed. Methods: the first 120 patients attended at the Instituto Ganz Sanchez were enrolled (age ranging between 28 and 78 years, 60% male gender). After a detailed history and complete otolaryngologic examination, those subjects underwent audiologic tests in a quiet chamber, as follows: 1) pure tone audiometry from 250 to 16.000Hz, using the ascendant method to obtain pure tone thresholds by warble stimuli; 2) vocal audiometry; 3) tinnitus pitch and loudness matching, which were accomplished in the ipsilateral ear (when tinnitus was unilateral) or in the right ear / worst tinnitus ear (in bilateral cases). When tinnitus was described as "whistle", the pitch was matched by using pure tones, adjusting the frequency until patient selects the tone that most closely matches the tinnitus. Then, the loudness was adjusted within the selected frequency. Similar procedure was performed in tinnitus described as a "hissing", but using narrow band (NB) stimuli in each frequency. Results: among the 120 patients, 67 (55.84%) had unilateral tinnitus, mostly in the left ear (33.34%). The pitch was matched between 250 and 12.500Hz, mostly in 6.000 and 8.000Hz (57.23%). The selected pitch was matched to a pure tone in 64 (53.34%) subjects and to a frequency band in 56 (46.67%), almost exclusively to a narrow band. Curiously, among the latest, 28 (50.9%) presented a loudness match better or equal to the pure tone threshold in the same frequency, which was retested and confirmed. Discussion: A possible explanation to this finding considers the difference of auditory stimulation through pure tone and narrow band stimuli. As the concept of loudness involves the subjective perception of the sound intensity, the narrow band noise is able to add loudness, due to the concentration of sound energy around the tested frequency. Thus, lower intensity is needed for a narrow band noise to stimulate the ear when compared to the pure tone, what may justify the 20dB difference that was found in some subjects. In such cases, the authors suggest that the threshold for the narrow band noise be searched in the tinnitus pitch, so that a trustable result of loudness can be obtained. Conclusion: Half of the patients with a tinnitus similar to a frequency band (hissing, waterfall, pressure cooker etc) have their loudness better or equal to the tonal threshold obtained in the same frequency, so that the measurement of the narrow band threshold in this frequency would be highly recommended.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 58

CERUMEN MANAGEMENT BY AUDIOLOGISTS: BENEFIT OR LIABILITY

Authors

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3. Private, Private Practise

Abstract: Despite the burgeoning scope of clinical practice in audiology and the fact that cerumen management is not an exclusive domain, there are a number of states and countries in which cerumen management is not included. The area of cerumen management is fraught with controversy and debate regarding What constitutes clinical competence in ear canal management and how readily licensing boards and departments of health are accepting the additional scope of practice. Many audiologists are of the opinion that training in this area will enable them to provide a more efficient and comprehensive clinical service while others are of the opinion that the area exposes them to unnecessary professional liability. A repeated measures (within subject) design was used to investigate the impact of a one day academic and practical training workshop on 34 practicing audiologists' prerequisite knowledge for cerumen management. Furthermore, the study investigated the impact of the workshop on their perceived level of comfort to perform various cerumen management techniques, including cerumenolysis, mechanical removal, ear irrigation and suction. This poster presentation will show the results of the pre- and post-training questionnaire, analyzed using a matched pairs t-test (n = 34). In respect of the difference scores on pre-test and post-test for pre-requisite knowledge, the mean post-test scores (M = 80.4412, SD = 9.8448) were higher than the mean pre-test scores (M = 46.3673, SD = 12.7603). The t test showed a significant difference (t (33) = 19.93, p < .0001). In terms of the difference scores on pre-test and post-test levels of perceived comfort to perform cerumen management with any technique, the post-test scores (M = 5.4118, SD = 2.3883) were higher than the mean pre-test scores (M = 3.1515, SD = 2.8298). The t test showed a significant difference (t (31) = 4.07, p < .0003). The perceived level of comfort performing the specific cerumen removal techniques all showed significant differences on the matched pairs t test (t (31) = 5.95, p < 0.0001). The motivation of participants to provide cerumen management in their practices and their perceptions regarding the adequacy of academic and practical training provided will be discussed. The results of the study clearly indicate the positive impact of a one day academic and practical training workshop on both the prerequisite theoretical knowledge and practical aspects of cerumen management. Although the project was conducted in South Africa, it serves as a model structure for future training in cerumen management for qualified audiologists that can be used in other countries.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 59

EVALUATION OF HANDICAP AND THE HEARING DISABILITY IN INDIVIDUALS SUBMITTED TO OCCUPATIONAL NOISE

Authors

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Institution

1. UFPE, UNIVERSIDADE FEDERAL DE PERNAMBUCO

Abstract: This study had an objective the evaluation of handicap and the hearing disability by different groups of employees from the rubber transformation industry in the city of Campina Grande-PB, Brazil through the application of a self-evaluation program named "Hearing Disability and Handicap" scale adapted from the "Hearing Disability and Handicap Scale" official papers (STEPHENS; HETU, 1994) by SILVA, 1997. Casuistry was constituted of 198 people, 192 (96,1%) of the male gender and 6 (3,1%) of the female gender. The age-bracket varied from 18 to 58 years old. The patients were divided in two groups. GROUP I, represented by individuals suffering from PAIRO, which in English Stands for Hearing Loss Induced by Occupational Noise, was exposed to occupational noise between 1 and 20 years. GROUP II, formed by individuals with normal hearing, has not been exposed to occupational noise before and was select during the admission procedures in the company tonal audiometry by air and bone was applied, when needed, in all employees. Each one of them who presented hearing loss induced by occupational noise was sent to E.N.T to confirm pathology through nasal diagnosis, and such a procedure was not necessary for the employees with normal hearing. The quiz was applied for all groups after these procedures. The patients suffering from PAIRO (Occupatnal Noise Induced Hearing Loss) were found to more general health problems and more exposition (walkman and loud music) the individuals with normal hearing presented prevalence than those patients suffering from PAIRO (A=0,05). As for hearing disability related to verbal and non-verbal sounds, all patients suffering from PAIRO (A= 0,005). PAIRO restricts significantly social and communicative (handicap) activities in all who have it (A=0,005). In conclusion, it was observed that the self-evaluation quizzes are a good tool to evaluate the effects that hearing loss brings to the employee. The consequences that this fact represents for the life of the individual, concerning the relations with the environment and nature, must be an alert for the need of a more frequent and ampler evaluation without being restricted to an audiometric tests only.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 60

CHARACTERIZATION OF THE AUDIOLOGICAL THRESHOLDS IN WORKERS AT A FUNERAL URN FACTORY.

Authors

ANDRÉA CINTRA LOPES, VANESSA GIOTTO OTOWICZTS, CIBELE CARMELO SANTOS, ERICA GRAÇA COSTA, KARINA AKI OTUBO, NICOLLE CARVALHO SANTANA, MARIA FERNANDA CAPOANI G. MONDELLI

Institution

1. FOB/USP, Faculdade de Odontologia de Bauru-Universidade de São Paulo

Abstract: Introduction: The noise, commonly present in workplace, is considered as a factor for higher prevalence of occupational diseases, among them, hearing loss induced by noise. Aim: Therefore, the aim of this study was to investigate the hearing health of employees funeral urn factory, exposed to chemical and physical agents like noise, the vibration of an electric saw, glue, and dust. Method: Participated in this study a total of 90 employees between 16 and 52 years old, located within a funeral urn factory in São Paulo, exposed to sound pressure levels equal to or greater than 85 dB SPL, vibration and/or chemical agents in the workplace. It was carried out a visual inspection of the external auditory canal with Missouri brand otoscope, TK007 model; specific interview and pure tone audiometry, performed by the audiometer ACOUSTICS ORLANDI, LO-250/TIPO3 model with headphones TDH-39 calibrated attending the standards for measuring the audiometer according to the INMETRO. The tests were performed in an acoustic booth, Vibrasom, with 14 hours of auditory rest. The audiometric tests were classified according to the Fiorini (1994), classifying them into 3 groups, Group I, audiograms suggesting normal hearing, Group II, audiograms suggestive of hearing loss induced by noise, and Group III audiograms with other classifications. Results: According to the classification proposed by Fiorini (1994), 73 participants (81.11%) had normal bilateral hearing, 12 participants (13.33%) had hearing loss suggestive of noise-induced bilateral hearing and 5 participants (5, 55%) presented audiometric tests that did not fit the classification of normal hearing or of characteristics with hearing loss induced by noise. The average thresholds for the frequency range 500, 1000 and 2000 Hz in the right ear was 10.15 dB, and the left ear was 10.22 dB. For the frequency range of 3,000, 4,000 and 6,000 Hz, the right ear received an average of 14.85 dB, and the left ear, a mean of 15.15 dB. Conclusion: From these results it was found that 13.33% of audiometry had alterations, suggestive of hearing loss induced by noise. Therefore, we can conclude that there is a need for intensive work to promote hearing health and hearing loss prevention, especially for workers exposed to high levels of occupational noise, and as well, the appropriate use and form of individual hearing protection equipment.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 61

AUDITORY COMPLAINTS OF YOUNG USERS OF PERSONAL STEREOS

Authors

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Institution

1. PUC Minas, Pontifícia Universidade Católica de Minas Gerais

Abstract: Objective: to verify the presence of auditory and extra-auditory complaints in young users who utilize earphones to listen to amplified music; to measure the sound pressure level when the adjustment of the volume of the personal stereos in its maximum position and the position that the young people who were interviewed habitually use, and to verify the presence of orientations to the users in manuals of the manufacturers of personal stereos concerning adequate use of the volume control to prevent damages to general and auditory health. Methods: 100 individuals of both genders were interviewed, between 18 and 25 years old, users of personal stereos. The data regarding the presence of auditory and extra-auditory complaints had been collected by means of the application of a questionnaire. The sound pressure levels, which the devices emit with adjustment of volume in its maximum position and its position habitually used by the participants, were measured by a sound pressure level meter. A research in the manuals of the manufacturers of some brands of personal stereos was carried through in order to verify the presence of the values in decibels of the volume at 50%, 70% and 100% of the maximum output level, as well as of orientations about the adequate use of volume control of the equipment preventing possible damages to the general and auditory health. Results: 75% of the users of stereos had presented some type of auditory complaint and 76% presented some type of non auditory complaint. The habitual volume average presented by the participants using the personal stereo was 91,24dB with a shunting line-standard of 7,8dB (68 the 103 dB) and the maximum average volume of the device was of 101,36 dB, with a shunting line-standard of 4,1dB of 96 the 113 dB. None of the ten labels of stereos researched presented in its manual the values of volume in decibels at 50%, 70% and 100% of the maximum output level, and only two devices provided orientations but they do not explain adequately to the users how to use the volume control in a safe way. Conclusions: the creation of educational programs about the deleterious effect of the excessive noise to the auditory and general health and how to prevent them is needed for the general population, as well as the creation of laws that establish limits of sound pressure level for personal music players and demands the registration of orientations in manuals of the manufacturers. Keywords: Hearing; Noise Induced Hearing Loss; Effect of the noise; Auditory Fatigue; Auditory Perception.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 62

ETIOLOGY OF HEARING LOSS IN CHILDREN AND ADOLESCENTS UNDER SPEECH THERAPY AT THE HOSPITAL DAS CLINICAS OF FEDERAL UNIVERSITY OF MINAS GERAIS.

Authors

FERNANDO SALES GUIMRÃES, LUDIMILA LABANCA, FABRÍCIO FRANCO CARVALHO, SIRLEY ALVES DA SILVA CARVALHO, LUCIANA MACEDO DE REZENDE

Institution

1. UFMG, Universidade Federal de Minas Gerais

Abstract: Introduction: Hearing is the primary means to acquire the communication skills of the child. When the children are deprived of sensory stimulation acoustic in the most important period of development, they may present also emotional, social and linguistic problems. It is therefore, of great importance to know the main etiological factors that cause hearing loss and also take appropriate measures to prevent and guide the family on the implications of hearing loss in childhood. Purpose: Determine the risk factors for hearing loss in patients treated in outpatient auditory habilitation and rehabilitation of the Hospital das Clinicas, Federal University of Minas Gerais. Method: We performed a review of all files (n=25), of patients currently under treatment in the clinic of speech therapy of hearing health program of the Hospital das Clinicas, Federal University of Minas Gerais. The sample was composed of children and adolescents, 20 boys and 5 girls, ages 5 to 17 years (mean 11 years). Regarding the type of loss, 88% (n=22) had sensoryneural hearing loss, 8% (n=2) conductive and 4% (n=1) mixed loss. In relation to the degree of hearing loss, 4% (n=1) had hearing loss of mild to moderate, 28% (n=7) moderate, 20% (n=5) moderate to severe, 8% (n=2) severe to profound and 40% (n=10) profound hearing loss. The data about the hearing loss etiology were investigated in an analysis. Results: The main etiologic factor responsible for hearing impairment in the population assessed was prematurity (stay in UTI for 48 hours or more), accounting for 28% (n=7) of cases of hearing loss, followed by acute bacterial meningitis, with 24% (n=6). Hereditary factors were responsible for 16% (n=4), idiopathic in 12% (n=3), maternal toxoplasmosis with 12% (n=3), chronic otitis media and neonatal jaundice appeared in the sample, each factor with 8% (n=2). Conclusion: This study demonstrated the heterogeneity of factors that cause hearing impairment. Prematurity and acute bacterial meningitis, were found to be higher incidence in the population. We believe that prevention should be taken, considering the conditions of permanence at the neonatal intensive care unit for a period equal or greater than 48 hours, and the importance of extended vaccination of newborns and infants against meningitis.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 63

ASSESSMENT HEARING: HEALTH FOR THE SCHOOL POPULATION

Authors

LUIZA AUGUSTA ROSA ROSSI-BARBOSA, MAGNA LUCIELE NASCIMENTO PEREIRA, MIRNA ROSSI BARBOSA

Institution

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Abstract: The School Health Program (PSE), launched by the President at the end of 2007, has the perspective to broaden health actions specific to students. One component of the PSE is the "Assessment of Health Status" and among these actions is an "Hearing Assessment". It is justified to believe that this work requires the inclusion of epidemiological studies in schools, promoting health for the referenced population. Objective: This study has focused on auditory discrimination as a subsidy for hearing screening. Methodology: To date 221 children, randomly selected, have been evaluated in 22 public schools who attend the first years of elementary school. The children were aged 5 years and 5 months and 8 years and 5 months, with an average of 6 years and 5 months and a median of 6 years and 4 months old. Regarding gender, 55.7% (n = 123) were boys and 44.3% (n = 98), girls. The students underwent the test Pictures for Phonemic Discrimination (TFDF), which consists of minimal pairs organized into 40 presentations. The test was applied in the school environment, and the child who received more than 25% of errors (over 10 pairs of figures) was considered as "failed". All participants were referred for hearing evaluation and underwent otoscopy and those who failed this underwent audiometry airway thresholds of 15 dB, considering the average pure tone of 500, 1,000 and 2,000 Hz, and bone cavity when hearing thresholds by air had changed. Results: Of 221 children, 123 (55.7%) passed the TFDF and 98 (44.3%) failed. When performing otoscopy it was observed that 25.3% (n = 56) failed due cerumen or body obstruct. Of 74.7% (n = 165) who underwent audiometry, it was found that 18.1% prevalence of hearing loss mild to moderate. There was no statistically significant association between the TFDF and audiometry. Conclusion: The TFDF should be evaluated in a larger number of individuals and verified the cutoff and the application site due to noise in the school environment. Although there was no association between TFDF and the results of audiometry, it is believed that the flaws highlighted in the auditory discrimination should be the focus of study because children can be difficult to understand / distinguish the teacher's speech, harming their performance at school. The rate of ear wax suggests the need to campaign in schools, at the start of the year, aiming for meatuscopy for verification and forwarding them for withdrawal. The prevalence of hearing loss, now estimated, is an indicator of the need for comprehensive prevention programs.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 64

ASSOCIATION BETWEEN SPEECH ARTICULATION AND AUDITORY DISCRIMINATION IN CHILDREN

Authors

SHIRLEY FERREIRA OLIVA, SAMUYARA ALEXANDRA ALVES PEREIRA, LUIZA AUGUSTA ROSA ROSSI-BARBOSA, MAGNA LUCIELE NASCIMENTO PEREIRA

Institution

1. FUNORTE, Faculdade Unidas do Norte de Minas

Abstract: The cities of Icarai de Minas and Santo Antônio do Retiro, both in northern Minas Gerais, were included in the accession to the School Health Program (PSE) to cities with teams of Family Health, prioritized from the Index of Basic Education Development (IDEB), according to decree No. 1861 of four of september 2008 from the Ministry of Health. And as a speech disorder can hinder learning, the objective of this study was to estimate the prevalence of speech problems and its association with problems in auditory discrimination in children of the 1st year of primary education for those cities. Materials and Methods: We used the Screening Test for Articulation Speech - TERDAF and adapted for the assessment of auditory discrimination test was performed with Pictures for Phonemic Discrimination - TFDF. Also was investigated the socio-economic variables through the Economic Classification Brazil - CCEB. We evaluated 113 children being 76.1% (n = 86) of the city of Icarai de Minas and 23.9% (n = 27) of Santo Antônio do Retiro. Of the total, 56.2% (n = 64) were male, aged between 6 to 8 years of which 91.0% were older than 7 years. The socioeconomic 86.7% belonged to classes D and E. We used the chi-square test for associations between disorders and the factors gender and socioeconomic status. We used the test Kolmogorov Smirnov for normality. The level of significance was 0.05. Results: According to the screening test the prevalence of speech disorders was 31.9% (n = 36) in this group studied. The TFDF showed that 20.2% (n = 22) were less than 75% correct. There was a statistically significant association between speech problems and failures in auditory discrimination (p = 0.02). Conclusion: We conclude that the estimated prevalence of articulation had a high rate, but within the standards of Brazilian literature. An association was found between speech and difficulty in auditory discrimination. Final Comments: The children who failed the test of auditory discrimination were referred for audiological evaluation.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 65

HEARING LOSS IN THE ELDERLY – CASE REPORT.

Authors

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Institution

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Abstract: Introduction: According to the Brazilian Institute of Geography and Statistics (IBGE), due to the progressive increase in life expectancy, the aging, a natural consequence of the development process of a society, has been a global trend. Presbycusis (hearing loss in the elderly) is one of the biggest changes during aging and presents itself as one of the biggest complaints among elderly people, whose perceptions of the hearing loss begins when the execution of daily activities on which they need to use the attention selection and listening was lower, especially with regard to communicate in noisy environments. Methods: Case report of a female patient, aged 84, complaining of difficulty hearing, attended the Clinic of the School São Lucas, submitted to audiometry, and immittance measures. Results: During the interview, the patient had a large number of hearing complaints, including dizziness and tinnitus, however, the results of pure tone audiometry, speech and impedance show a better hearing than expected for the patient in the face of complaints. The results of audiometric tests coincide with the expected for age and sex. Tonal: mild sensorineural hearing loss bilaterally downward. The audiometry showed to be compatible with the pure tone, showing slight difficulty understanding speech sounds. The tympanometric curves were of the type "C" in the right ear and the type "A" in the left ear. The Reflex study presented absent afferent pathway from the ipsilateral lateral and bilateral lateral. Conclusion: After the study, we conclude that it is latent hearing loss among the elderly. It is important to emphasize the importance of diagnosis and speech therapy, and prosthetics and rehabilitation of the elderly, when necessary, in order to improve the quality of life, social life and family of the patient. Keywords: Presbycusis, elderly, audiometry, complaint, hearing loss

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 66

THE IMPORTANCE OF EARLY IDENTIFICATION OF THE AUDITORY ALTERATIONS IN THE LEARNING PROCESS

Authors

MARCIA CAVADAS, MARIA LUIZA MODESTO, TALITA COUTINHO, HELEN CRISTIANE ALECRIM FERREIRA, BÁRBARA MANDARINO, DANIELE FERREIRA DA SILVA, IGOR SANT'ANA PINTO, MARILENE DANIELE SIMÕES DUTRA

Institution

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Abstract: The auditory sensory deprivation can lead to multiple disorders that interfere within the linguistic, educational and psychosocial development of an individual. Therefore, the auditory assessment is necessary to early identify and treat possible auditory alterations. The purpose of this study was to analyze the auditory abilities of students with no hearing complaints from a Rio de Janeiro Public School. Forty students currently in the second grade of elementary school, aged between 7 and 9 years, from the same educational institution had their hearing assessed by Speech-Language Pathologists and Audiologists and students from the Speech-Language Therapy and Audiology course of the Medical College of Federal University of Rio de Janeiro. Pure tone audiometry was performed in an acoustically treated booth with an audiometer model AC50-D from Sibelmed. Aerial and bone conduction

auditory thresholds were analyzed. Results that presented three-tone average up to 25 dB were considered normal. The SPSS software was used for statistical analyses. The initial results of this study totaled the assessment of 80 ears among which were observed: 93.75% (75) with a three-tone average within normal limits and 6.25% (5) with mild hearing loss. Among the individuals with alterations, only one presented bilateral hearing loss while the others presented unilateral hearing loss on the left ear. The sense of hearing, along with phono-articulation, constitutes an important part of communication, which has reached a sophisticated learning and coding process in human beings. We must take into consideration that several factors can interfere with students learning among which the socio-cultural disadvantage is an important factor. It should be noted that the population sample of the present study presents such factor. Parents and teachers need to be aware of auditory problems of their children and students. Such problems are often unnoticed, even due to the disadvantageous condition mentioned above. It is necessary to measure the hearing level of children, especially at initial school age, in order to avoid learning problems, future hearing impairments or even aggravation of existing disorders. Whereas in the present study the assessment was performed in children with no hearing complaints, the observed percentage of altered three-tone average was very high. Therefore, we intend to expand the study in order to identify a possible explanation for this finding. This way, we will be able early identify auditory problems in individuals who do not present any complaints yet and carry out the appropriate procedures.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 67

HEARING EVALUATION OF VOLUNTARY MUSICIANS OF THE SYMPHONY ORCHESTRA OF UFMG MUSIC SCHOOL

Authors

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Institution

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Abstract: Introduction: Musicians are professional that especially depend on good hearing conditions for a better acting of their occupational functions. It was observed that the sound pressure level in the orchestras is much larger than recommended for those professionals not to develop hearing losses for occupational noise (Jansen et al., 2008). So, there is a concern in the field of Occupational Audiology relating aspects of care with musicians' hearing and with the atmosphere of those professionals' work. Besides, it is important for audiologists to know the audiologic profile of this group in order to help them with a more efficient performance and also to prevent hearing losses. Objective: Evaluate musicians' hearing from the Symphony Orchestra at the School of Music of Federal University of Minas Gerais (UFMG) as well as the noise level to which they are exposed, identifying possible risks for the development of hearing losses for occupational noise. Methods: Cross-sectional study accomplished with 30 voluntary musicians. Audiometry, speech audiometry and immitance tests were conducted and also questionnaires were applied to obtain information about the history of noise exposure and the possible causes of hearing impairment. It was also accomplished measurement of the sound pressure levels of the auditorium during the rehearsals of the orchestra. Results: Risk factors were observed as high levels of sound pressure during the rehearsals of the orchestra with picks of up to 97,9 dB HL. The audiometry came normal, however with incision in 6 KHz. Speech audiometry results were compatible with the pure tone audiometry findings. Tympanograms were type A in 100% of the sample. The stapedian reflexes were absent or present in intensities higher than 100 dB in 500 Hz (22,2% for left ear and 40,7% for right ear), 1000 Hz (33,3% for both ears), 2000 Hz (25,9% for the left ear and 18,5% for the right ear) and in 4000 Hz (3,7% for left ear and 11,1% for right ear). Conclusion: It was observed that the levels of sound pressure to which the musicians are exposed during the rehearsals are considered high according to ANSI norm. The musicians do not present knowledge on the hearing exams or on cares with their hearing. The musicians' hearing is within normal limits, however with worsening of hearing threshold in the frequency of 6 KHz.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 68

A 1 YEAR IMPLEMENTATION AND OPERATION OF AN AUDIOLOGY PROGRAM IN THE PRIMARY HEALTH CARE OF SÃO PAULO - BRAZIL

Authors

PATRICIA DE CARVALHO MONTEIRO

Institution

1. OSS Santa Marcelina, APS/OSS Santa Marcelina

Abstract: Introduction: Hearing Health Ordinance of Brazil (No. 587 of 07 October 2004) provides hearing health services in primary health care, middle and high complexity. As described by the Municipal Health Secretariat of São Paulo(MHS-SP), services for primary care to hearing health, known as Integrated Center for Hearing Health(ICHH I) should provide services for the promotion of hearing health, prevention of hearing impairment, diagnosis of hearing loss and therapy for the impaired hearing patient. In addition, the referral of patients for the medium and high complexity. Objectives: To describe the implementation and operation of the ICHH I service in 1 year of program. Method: Description of the process of deploying the service with definitions of activities and flows of care and the operation of the service in the first year among all types of activities developed and referrals considering characteristics of area population. Results: The ICHH I of the coverage area of Guaiunases,Cidade Tiradentes and São Matheus, is located in the Basic Health Unit(BHU) / Outpatient Specialty Jardim São Carlos, in Guaiunases District. The ICHH I was deployed in June 2008. The first goal in deploying the service was the structuring of the room for the service in accordance with the needs for care. Before starting the service it was necessary to provide knowledge from the service to the unit and its coverage area. It was performed a screening of all hearing health cases of the coverage area, also monitoring and referral of these cases. Moreover, setting the service schedule with activities and flows. According to the operation of the program, there were established the activities : The audiology diagnosis with audiometry, acoustic immitance measures, behavioral audiometry and hearing screening for patients aged from 3 years old on; patients diagnosed with hearing loss by the otolaryngologist and services of medium and high complexity were referred to hearing aids or a specific audiological evaluation; speech therapy for deaf patients and guidance to parents and schools; health promotion and prevention of hearing impairment in groups that occur in the BHU and community groups such as pregnant women, groups of hypertensive and diabetic and elderly groups; educational and informative actions in the elementary schools of areas covered by the BHU, providing standing information for teachers and parents about hearing health and hearing screening in those children whose teachers present demand from the questionnaire; partnership with other professionals and outer units for service and joint operations. Conclusion: From the description of the implementation and outcome of this first year of service it becomes possible to see the area's demand for the service and the evaluation of developed activities and new possibilities.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 69

UNIVERSAL NEWBORN HEARING SCREENING: TWO FIRST YEARS RESULTS OF A PRIVATE HOSPITAL

Authors

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Institution

1. HU, Hospital Unimed de Itapetininga

Abstract: Universal Newborn Hearing Screening (UNHS) programs have been implemented at different models of hospitals in São Paulo State, Brasil, following new state law requirements effective 2007. Socializing results of these programs may contribute to knowledge on child hearing health and also favor the prevalence statistics on congenital hearing loss in children. Unimed Hospital in the city of Itapetininga was opened two years ago and since its beginning has implemented a UNHS program. The hospital's birth average is 57 babies a month. The goal of this paper is to present results of the first two years of the UNHS program at Itapetininga's Unimed Hospital. Methodology: An observational cross-sectional retrospective analysis of medical records used in TANU Hospital Unimed in its first two years of operation. Being classified as a low-risk nursery, the TANU was performed by means of evoked otoacoustic emissions by transient stimuli, considering the gold standard. In each failure, a retest was scheduled to within 7 to 15 days. In case of a second failure, the baby was referred for diagnostic audiological and medical. The results of the program were compared to the quality goals established by the Joint Committee on Infant Hearing 2007. Results: In the first two years, 1207 babies were born at Unimed Hospital, of which 1176 were evaluated 1176 (97.4%), with the remaining cases (2.6%) not performing the test due to transfers, deaths and refusals. Among the cases tested, 1098 passed the test (93.4%) and 78 failed (6.6%). 98.7% of babies who failed were retested. After the retest, 6 cases were referred for audiological diagnosis (7.8% of those who failed), and 2 cases were diagnosed with neurosensory I hearing loss confirmed → the first with bilateral moderate hearing loss and the second with profound unilateral loss. The two identified cases had no risk factors for hearing loss in their history. The prevalence of hearing impairment was 1.7:1000. Conclusion: The results of TANU in hospital reinforces the importance of universal programs, as confirmed cases did not have any risk factors for hearing loss and probably would have been identified later without the implementation of UNHS. The prevalence of hearing loss observed is consistent with that observed in other services.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 70

PREVALENCE OF HEARING DISORDERS IN A HIGH RISK FOLLOW UP PROGRAM

Authors

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Institution

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Abstract: Progress in child development research has enabled the growing number of babies at high risk follow up programs. These programs enable the early detection of developmental disorders like hearing loss, and also it permits early intervention. The knowledge of the incidence of hearing loss in a certain population enables improved assistance to these persons. The objective of this paper was verifying the prevalence of hearing disorders in a high risk follow up program. It was a retrospective longitudinal study of 554 babies of a follow up program developed in a non governmental institution. Babies were followed from birth until the age of 18 months. They were analyzed data of all babies attended, looking for the prevalence of babies with hearing disorders in general and in subgroups according to: gestational age, most frequent risk indicators for developmental disorders and type of hearing disorders. We found that 31% of the 554 babies left the program before the end of this, 1% died and 1% changed to another city. It was verified that 372 babies completed the program. Their most frequent high risk indicators were: low weight at birth (42%), prematurity (39%), anoxia (15.6%), small for gestational age (12.6%) and ototoxic medications at hospital (5%). From 21 babies identified with hearing disorders (5.6%), 33.3% of them were preterm babies. The hearing disorders included 90.5% of auditory function development disorders and 9.5% neurosensory hearing loss (two cases). As results showed a hearing loss prevalence of 5,6:1000, we concluded that follow up programs are very necessary for identifying hearing problems babies, mainly for preterm cases.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 71

CHARACTERIZATION OF THE AUDIOLOGIC THRESHOLDS IN WORKERS OF A METALLURGICAL

Authors

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Abstract: Introduction: The industrial technological advance has brought benefits and a series of implications that may commit the worker's health and life quality. The exposure to physical, chemical agents and organizational stressors contribute for the increase of work accidents risks. In an industrial development is a concern when you consider the serious implications for physical and mental health workers, which occurred with increasing indiscriminate and unplanned industrialization..The noise, taken as the most frequent physical agent in the work environment, may cause auditory alterations called Noise-Induced Hearing Loss that affect the communication and life quality of the workers. Objective: To research the auditory health of employees in a metallurgical factory. Method: 80 workers took part in this study, aged between 18 and 50 years, exposed to sound pressure levels equal or higher than 85 dBNPS, vibration and/or chemical agents in the work environment. We carried out a specific interview and Threshold Tonal Audiometry. Results: This study identified altered audiometry results in 14.51% the right ear and 17.78% in the left ear and the age also influenced these auditory thresholds. Conclusion: The accomplishment of a workers' health surveillance program with all people involved is critical and will contribute for the human resources formation, in the management to proceed with actions as well as those by the proper workers being careful of their health.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 72

AUDIOMETRIC PROFILE OF A SUGAR AND ALCOHOL PLANT EMPLOYEES

Authors

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Institution

1. UNCISAL, UNIVERSIDADE ESTADUAL DE CIENCIAS DA SAUDE DE ALAGOAS

Abstract: INTRODUCTION: The noise is a common physical agent that you can find in a working atmosphere. The hearing loss induced by the noise is a pathology of cumulative insidious which developing over the years by a noise exposure associated to a working atmosphere. It is caused by any exposure carries an average of 90dB, eight hours a day, regularly for a period of many years. The hearing loss induced by the noise is an irreversible disease and with a progressive evolution fully capable of prevention. PURPOSE: Outline the audiometric profile from employees who is exposed to noise classifying the type and the degree of hearing loss and relating with occupational factors. METHODS: It was conducted about an epidemiologic observational analytical retrospective cross-sectional study. From the evaluation of data in audiometric tests collected from the archives of the Plant realized in 2008. It was evaluated 431 audiometries from employees who work in a place where there is a noise level above 85dB. RESULTS: It was found that 47,00% of the population who were studied, have presented alterations predominantly a sensorineural hearing loss in 90,67% of the cases. In 12,71% of the population studied, it was observed that there was a Noise Induced Hearing Loss(NIRL) and in 71,77% of those population with a sensorineural hearing loss, there is signs of NIRL. Regarding about the sector with the largest number of hearing loss, it is the extraction of juice which is the sector increased noise in the Plant with level above 85dB. CONCLUSIONS: These results highlight the need of a greater awareness about the noise and its effects on the health of the employee. They also show the need not only an audiometric occupational achievement but also the monitoring of the employees hearing in a longitudinal form as a part of a program about hearing conservation. KEYWORDS: Hearing Loss; Audiometry; Employee Health; Occupational Noise.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 73

THE IMPORTANCE TO METALLURGISTS AND MUSICIANS ATTRIBUTE THE HEARING AND ITS PRESERVATION.

Authors

KATARINE MENEZES, RENATA RODRIGUES, MONIQUE KELLY DUARTE, EMANUELLE CONCEIÇÃO FERREIRA, GISELY BELICH, IÊDA CHAVES PACHECO RUSSO

Institution

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Abstract: Objective: Know the importance that metallurgic workers and musicians attribute to the hearing and and its preservation and observe IF the information access do implicate a distinguished way to attribute importance to them. We chose twelve subjects, six metallurgic workers and six musicians of rock and roll. Method: Interviews. We utilized as method Content's Analysis by Bardin (2004). Results: we have the categories: definition of the hearing loss, protection of the hearing and pleasurable and unpleasurable sounds. The importance of the hearing is present in every category. Metallurgic workers and musicians, attribute high value to the hearing and its preservation. The access to the information do not implicate a distinguished way to attribute importance to the hearing and its preservation, on the contrary shows that the information given, sometimes, do not goes by chance to their reality and questions, is a simple transference of data and do not become knowledge. The musicians have the access of the information and professional dependence that day present related to the hearing, also make that they attribute great value to it, in the mean time, the need of a good performance on their presentations seems to be one of the most important factors to the non use of the hearing protection on those moments. Conclusion: This directed us to a most humanist view, where is need to valorize a psychosocial reality and to know the subject's doubts, for that, going by chance to their truly wishes, they could be affected to the information, allowing to the reflection, the knowledge and stimulate the act of having an idea about.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 74

GENETIC AND AUDIOLOGIC STUDY IN ELDERLY WITH SENSORINEURAL HEARING LOSS

Authors

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Institution

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Abstract: Objective: To study the hearing in the elderly, their features and the relation between presbycusis and mutations in genes considered responsible for sensorineural hearing loss. Method: It was randomly selected 40 elderly patients, 24 female (60%) and 16 male (40%), in the age group of 60 to 91 years old presenting sensorineural hearing loss. The patients were submitted to audiologic exams such as tonal audiometry, to evaluate tonal threshold (air and bone pathways), speech recognition thresholds (SRT) and speech recognition rate (SRR). The classification of the degree of hearing loss was based on the Bureau International d'AudioPhonologie (1996), which considers 0-20dB HL to be normal, 20-40dB HL to be mild, 40-70dB HL to be moderate, 70-90dB HL to be severe, and above 90dB HL to be profound according to an average of frequencies: 500 Hz, 1000 Hz, 2000 Hz and 4000 Hz. A blood sample was also collected for further mutation analysis in nuclear and mitochondrial genes related to presbycusis. The questionnaire Hearing Handicap Inventory for the Elderly - Screening Version (HHIE-S) was also applied to investigate emotional or social problems associated to auditory handicap. Results: The results evidenced that the presbycusis was observed more in female than in male and all the cases were bilateral. The grade most found in the research was mild to moderate, presenting prevalence of 70%. The situation of most difficulty hearing was noisy environment and the main otologic symptom mentioned was the tinnitus with 57.5% of the patients. According to HHIE-S Questionnaire, the majority of the patients, 37.5%, obtained scores of 0 to 8, meaning low probability of hearing loss. The genetic study didn't evidence any mutation related to sensorineural hearing loss. Conclusion: There wasn't relation between presbycusis and mutations in genes considered responsible for sensorineural hearing loss because no mutation was detected in this research.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 75

AUDITORY AND VESTIBULAR SYMPTOMS IN PATIENTS AFFECTED BY CHRONIC RENAL FAILURE ON HEMODIALYSIS

Authors

KERLEY OLIVEIRA AQUINO, PÂMELA SARAH GONÇALVES BOTELHO, PATRÍCIA DE OLIVEIRA GONÇALVES, JADSON RABELO ASSIS, MURILLO MENDES AQUINO

Institution

1. FUNORTE, Faculdades Unidas do Norte de Minas

Abstract: Introduction: The role of hemodialysis on hearing loss is unclear. It is know, nevertheless, that metabolic and electrolyte imbalance may be associated, however, the cochlea of patients on hemodialysis is susceptible to various attacks including disease-related base. Objective: Investigating the prevalence of auditory and vestibular symptoms and signs in patients with chronic renal failure on hemodialysis. Methods: This is a descriptive study, which used as a criterion the quantitative and qualitative approach. It was applied a questionnaire with objective questions relating to auditory and vestibular symptoms and signs. The sample consisted of 66 patients affected by Chronic Renal Failure. Results: The study was characterized by 66 individuals, being (43.9%) females and (56.1%) males. The ages of the subjects were from 15 to 59 years old, with an average of 38.39 years old. (30.3%) patients reported having hearing difficulties. Concerning the tinnitus (50%) presented this symptom, being (28.8%) of the acute type, and (16.7%) of the severe type. The symptom of dizziness was reported by (27.3%) of the individuals, and for auricular fullness (33.3%). Conclusion: After the execution of this study it is very important to emphasize the need of audiological follow up to patients with chronic renal failure who exercise or have exercised, at some point in their treatment of ototoxic drugs, as they present such a risk factor for the development of hearing impairment. Given the numerous reports of auditory and vestibular symptoms of the studied population, it is necessary the action of a phonoaudiologist to make that population, nephrologists and nurses aware on the importance of hearing loss early detection.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 76

LEPROSY: EPIDEMIOLOGICAL CHARACTERISTICS AND HEARING

Authors

KERLEY OLIVEIRA AQUINO, NOELMA BANDEIRA ROCHA, JADSON RABELO ASSIS, KATIA SANDRA OLIVEIRA AQUINO, MURILLO MENDES AQUINO

Institution

1. FUNORTE, Faculdades Unidas do Norte de Minas

Abstract: Introduction: The role of hemodialysis on hearing loss is unclear. It is known however, that metabolic and electrolyte imbalance may be associated, however, the cochlea of patients on hemodialysis is susceptible to various attacks including disease-related base. Objective: Investigating the prevalence of auditory and vestibular symptoms and signs in patients with chronic renal failure on hemodialysis. Methods: This is a descriptive study, using as a criterion of a quantitative and qualitative approach. We applied a questionnaire with objective questions relating to auditory and vestibular symptoms and signs. The sample consisted of 66 patients affected by Chronic Renal Failure. Results: The study was characterized by 66 individuals, (43.9%) and females (56.1%) were male. The ages of the subjects was 15 to 59 years, with an average of 38.39 years. (30.3%) patients reported having difficulty hearing. About tinnitus (50%) have this symptom, and that (28.8%) and acute type (16.7%) of the severe type. The symptom of dizziness was reported by (27.3%) of individuals, and for fullness (33.3%). Conclusion: Upon execution of this study is very important to emphasize the need for audiological follow up of patients with chronic renal failure who exercise or have exercised, at some point in their treatment of ototoxic drugs, as they present such a risk factor for the development of hearing impairment. Given the numerous reports of auditory and vestibular symptoms of the study population, it is necessary the actuation of a phonoaudiologist to awareness that population, nephrologists and nurses on the importance of early detection of hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 77

TREATED PATIENTS PROFILE IN A HIGH COMPLEXITY SYSTEM

Authors

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Abstract: The presence of a hearing deficiency (HD) can lead to serious consequences to the development of speech and learning. One extremely important resource to the rehabilitation of the deaf person is the Hearing Aids (HA). Information measures to the population and health professional and a loyal approval which guarantees the monitoring to the diagnosis of the deaf person and early intervention, as well, show up to necessary measures. These aspects have been looked on by the Health Ministry (HM) in the publication of the Ordinance nº 2,073, from September 28th, 2004 and 587, from October 07th, 2004 (BRAZIL, Ordinances nº 2,073 and 587). The Audiologist Clinic of the USP's Audiologist Class/ Bauru College is accredited to the Ordinance GM/MS nº 2,073, from September 2004, which establishes the national policy of health hearing care to be deployed in all federal units, respecting the three levels of management jurisdiction, and therefore offers knowledge related to the deaf person and his rehabilitation way. Purpose: profiling the highly complexity treated patient with the purpose of using the obtained results as a bottom line to the HA acquisition, hearing rehabilitation planning and a monitoring group structuring to adapted patients. Method: analysis of 100 registered patients' medical records between August 2003 and August 2009. The data was: Gender, age, social classification, origin, HD type and level, HD etiology and indicated HA type. Results: From the data in Audiologist Clinic of the USP's Audiologist Class/ Bauru College, was found the prevalence of poor elderly men, with moderated level neural-sensory, bilateral hearing loss patients. Conclusion: We can conclude the prevalence of indicative cases of presbycusis, however the statistics analysis is still running.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 78

HEARING SCREENING: KNOWLEDGE OF MINAS GERAIS'S PEDIATRICIAN

Authors

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Institution

1. UFMG, Universidade Federal de Minas Gerais

Abstract: It is believed that a broader divulgation to the pediatrician about the early detection of hearing problems in childhood may increase the adaption to the programs of neonatal hearing screening. It is not known for sure which are their knowledge about the early diagnosis of infant deafness. Objective: Investigate the knowledge of the pediatricians associated to the "Sociedade Mineira de Pediatria" about the adequate procedures and the techniques used in the detection and early diagnosis of hearing problems in children. Methods and Materials: cross-section study made through inquiry by electronic means with 93 pediatricians associated to the Minas Gerais Pediatrics Association and 34 pediatricians who participated in a congress of pediatric otolaryngology in Minas Gerais. Results: Only 37% of the pediatricians were considered knower of the subject. 98% demonstrate have knowledge about the possibility of evaluate the hearing before 30 days of life, but do not know to identify which are the exams available to that evaluation and only 59% of them send all of newborns to the screening. Most of the pediatricians do not know until which age the diagnosis must be concluded and only a few (8%) know that one baby with least than 30 days can wear hearing aids. Conclusion: The results of this study suggest a real necessity of establishing a more effective way of divulgating to the pediatricians the advantages of the newborn hearing screening, the techniques available to its realization and, mainly, which conducts are more appropriated to the after screening steps.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 79

HEARING SCREENING OF THE MATERNITY ODETE VALADARES: INDICES OF QUALITY AND DESCRIPTIVE ANALYSIS OF 1761 EVALUATED CHILDREN FROM MAY TO NOVEMBER OF 2009

Authors

LUDMILA TEIXEIRA FAZITO, DANIELA ROCHA ARAÚJO, ANDRÉA LIRA LIMA, SÍURA BORGES SILVA, SANDRA LIMA ORNELAS

Institution

1. MOV - FHEMIG, Maternidade Odete Valadares - FHEMIG

Abstract: Objective: To describe the indices of quality found in the Hearing Screening Program of Maternidade Odete Valadares (MOV) in accordance with Minas Gerais' s Hearing Screening Program. Methodology: From May to November of 2009, 1761 children had been evaluated. The hearing screening was carried through the examination of otoacoustics emissions and behavior evaluation. The children had been identified as being of high or low risk for deafness. It was considered "Pass" in the screening when otoacoustic emissions were normal and had adequate behavior evaluation. Babies at low risk for deafness with normal screening was audiological discharged and high risk babies were directed to 6 month evaluation. When the hearing screening was not normal they were directed to a new evaluation 15 days after the first one. Results and Discussion: The average of age of the children evaluated for the auditory selection was of 28,8 days. Of the 1761 children evaluated in the period, 1394 (79.2%) were classified as of low risk for deafness, that is, with an index of 20,8% of children of high risk. The index of high risk was greater than the suggested one in literature, but already was expected considering that MOV is a reference for gestation of high risk. In this period the fail index was of 7%. The comparison of the results of the selection of children of high and low risk discloses that it has statistical significant difference enters the groups being the child of high risk with bigger probability to fail in the selection of what of low risk ($p=0,001$). 98 (5.6%) of the children had been directed for reteste and 21 (1.2%) already had been directed for diagnosis in the Auditory Health of Belo Horizonte. 1393 (79.1%) had been audiological discharged and 248 (14.1%) directed for audiological follow-up to the 6 months.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 80

AUDIOLOGIC FINDINGS OF INDIVIDUALS IN ALCOHOL ABSTINENCE

Authors

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Institution

1. FSL, Faculdade São Lucas

Abstract: Introduction: Ototoxicity is a condition that compromises the auditory function and / or the peripheral vestibular system, caused by chemicals or medicines. There are several types of ototoxic drugs, including ethanol. Excessive use of alcohol over a long period of time can damage the cochlear function, specifically the outer hair cells. Objectives: To describe the audiological findings of alcohol abstinences from the city of Porto Velho - RO. Methods: Participants were 22 adult alcohol abstinences, but two were excluded due to changings in the external and / or middle ear, so the sample was 20 participants. The ages ranged from 32 to 58 years old, 95% were male and only one patient (5%) was female. To be participant in this study, everyone should be member of Alcoholic Anonymous, be in alcohol abstinence and be between 18 to 59 years old. The time of use of alcohol ranged from 16 to 35 years and the abstinence of alcohol a week to 11 years. They answered to the anamnese directed to alcoholic people and were underwent audiometry, and immittance measures. Results: Eleven participants (55%) had hearing thresholds within normal limits and nine participants (45%) hearing loss, sensorineural, but there wasn't statistical significance for hearing loss. When analyzed by frequencies, there was significant elevation of thresholds in the frequencies of 4, 6 and 8KHz among the individuals. Conclusion: There were a greater number of individuals with normal hearing, but when examined by ear, it was possible to verify hearing loss on the frequencies of 4, 6 and 8kHz, they were the type of symmetric sensorineural, occurring predominantly in male individuals, with the oldest ages and the longest duration of alcohol consumption. Key words: Hearing, Audiometry, alcoholism, drug effects, Hearing Loss

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 81

HEARING HABITS OF UNIVERSITY STUDENTS: LEISURE AND RISK

Authors

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Abstract: The busy life of the XXI century causes more and more people seek through the leisure moments that can provide rest and relax. However, often these leisure activities are associated with exposure to amplified music, transforming the leisure activities in dangerous activities for the hearing. The aim of this research was observed hearing habits of university students. To this purpose, 44 university students, aged between 18 and 30 years, answered to a semi-structured questionnaire about answered a questionnaire about hearing habits. It can be observed that 20.45% of young people related to go to night clubs one time per month, and 4.54% related go to this environment until there times a week. Another common activity is to go to the gym, which 31.38% of the university students reported attending the gym about 3 to 5 times a week and they related that the music in this environment is amplified enough. Moreover, 18.18% of university students reported frequent musical bands practice once a month. Added to this, 1.66% of the university students said play some music instruments in the university drums, however, they don't use a personal protective equipment. When the university students were asked about other hearing habits, 31.64% of the students reported listening to music constantly, whether through portable digital music players as mp3, mp4 or mobile phone, or by radio at home or in the car. Also, 23.24% of the students reported playing a musical instrument, like guitar, drums or piano. The less frequent habit among the students was to watch TV (8.33%), since these students said they did not have time for this activity. Thus, it can observe that the university has several habits that expose them to amplified music, a fact that may bring damage to their hearing. However, these young people reported being afraid of losing your hearing (65.90%), yet they do not change their habits, showing that there is important to orient them about the risks to which they are exposed to.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 82

CHILDREN'S HEARING HEALTH: A COMMUNITY BASED SCREENING PROGRAM

Authors

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Abstract: Background: In Brazil there is a lack of trained personnel and low cost testing procedures to enable early detection of hearing impairment in children of low socio-economic level. Therefore, it is mandatory developing a strategic functional model for the identification of hearing impairments through a scheme for the optimal use of the community's scarce and local resources. A questionnaire offers a low-cost option especially if it is administered by non-professionals. This study derived from a previous research that aimed to provide a poor community with a low cost hearing screening program for pre-school children, developing habits and procedures to promote hearing health conservation by the participation of non-specialists. The results showed that it was possible to utilize easily available non-professional human resources in the screening and identification of hearing disorders in pre-school children. Aim: The aim of the present study was: to train community health agents and kindergarten teachers to apply a parent report questionnaire to identify hearing loss in children aged 0 to 3 years old in a poor community of São Paulo city; and to compare the parent report questionnaire results with objective audiological measures obtained by an otoacoustic emissions screening test. Method: The non-specialists training process included: reading of the questionnaire, discussions about its wording, role-playing, and videos observations of the questionnaire being applied by an audiologist. The otoacoustic emissions screening was performed with a handheld screener (Madsen AccuScreen) by a professional audiologist in the Health Unit and in the Kindergarten. Results: The findings of this study showed that the participation of community agents and the use of low-cost technology are possible and positive, as they diminish the costs of hearing screening programs and, therefore, allow the access of a larger number of people to this benefit. Conclusion: The proposed plan of action indicated an innovation in delivering audiological services in the Brazilian Public Health System.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL83

INTELLECTUAL DISABILITIES AND HEARING LOSS: UNDETECTED, UN-SERVED, UNDER-TREATED

Authors

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Institution

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6. UT, University of Tokyo
7. UI, University of Iowa

Abstract: Persons with intellectual disabilities (ID) also frequently experience significant hearing loss that is difficult to detect without annual hearing evaluations. This poster session reports outcome results of 6611 individuals with ID tested at 5 large Special Olympics (SO) events worldwide. Ear exam and hearing test findings for 755 athletes with ID from the 2004 SO Germany National Games, 893 athletes from the 2005 SO World Winter Games (Nagano, Japan), 753 athletes from the 2006 SO USA National Games, 3150 athletes from the 2007 SO World Summer Games (Shanghai, China) and 1060 athletes from the 2009 SO World Winter Games (Boise, Idaho) are displayed. Results indicate that 36% to 53% of SO athletes exhibited excessive ear canal cerumen, and 18% to 38% showed pure tone threshold hearing losses. Depending upon the SO event, athletes revealed sensorineural hearing losses ranging from 4% to 21%. The extent of conductive/mixed losses of these athletes ranged from 6% to 17% across events. The presence of sensorineural and conductive/mixed losses of these athletes was essentially undetected previously. Further, the rates of these types of loss are much greater than found in the general population of adults. Overall impressions from these findings indicate that individuals with ID require: regular ear canal hygiene care; at least yearly medical examinations and treatment as needed for middle ear problems; and annual audiological evaluations, with interventions including hearing aid use as necessary. Undetected, un-served and under-treated ear and hearing problems of individuals with ID should exist no longer.



POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 84

KNOWLEDGE AND PRACTICE OF PROFESSIONALS WORKING AT FAMILY HEALTH CARE PROGRAM ABOUT HEARING HEALTH

Authors

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5. UFC, UNIVERSIDADE FEDERAL DO CEARÁ

Abstract: Introduction: According to the World Health Organization 42 millions of people aged over 3 years old have some kind of audio loss. In Brazil, there are no data in population level about the importance of hearing loss, but estimates show that 1,5% of the Brazilian population is a bearer of any hearing problem. Hearing alterations are considered by WHO, problems of public health and can, in many cases, be minimized and even be avoided through a primary attention in audiology with the insertion of audio health programs, reducing costs with specialized attendance. Objective: About this aspect, the objective of this study was to investigate the knowledge and practice of professionals working at Family Health Care Program of basic unit of family health Cesar Cals about hearing health. Methodology: Thus, 19 interviews with FHCP (Family Health Care Program) professionals were made in order to define analytical categories to subsequent discussion. Results: It's important to reinforce that the results evidenced lacks of knowledge and sensibility of the professionals concerning hearing loss as one of the main reasons for the non-fulfillment of hearing health promotion. This way, the lack of training or orientation about the issue has also contributed to the non-recognition of hearing loss as a health problem in the area and the non- practicality of its prevention. Conclusion: We conclude that preventive measures of hearing health problems should be adopted, starting with a major sensitivity and training of the FHCP staff. KEYWORDS: Hearing; Professionals; PSF

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 85

OTOTOXICITY FROM THE CHLOROQUINA DERIVED SUBSTANCES AND THE IMPORTANCE OF THE PATIENTS' HEARING FOLLOW-UP

Authors

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Abstract: Introduction: : Our hearing represents an important role for our communicative process, however, some ototoxicity agents like medications, drugs, intense noises can significantly affect its functioning. The ototoxicity is defined as a damage for the cochlear and or vestibular systems because of the exposition to medications. Among these medications, the chloroquine and hydroxychloroquine are excelled in this study. They are used in the treatment and prophylaxis of malária. Besides presenting good results in patients with junior heumatoid arthritis, Eritematoso Lupos , among others. They have a fast and good oral absorption action, with a great distribution throughout the organism, being able to be accumulated in organs like the kidneys, liver, and so on and in accumulative doses they may provoke ototoxicity, retinopathy and other adverse effects as for example: headache, buzz, hearing loss, deafness and neuropathy . Among the most frequent hearing alterations, which are reported in the literature, we have: buzz, dizziness, vomits, and hearing loss. Objectives:The current work has as an objective to excel the hearing manifestations presented by the patients on the use of chloroquine and its derived products, identifying the hearing symptoms presented by them, draw a hearing profile , as well as show the importance of their permanent following. Methodology: The study was realized at the Imaculada Conceição School-Clinic, in Teresina-PI , between July and December 2009 with 7 patients of both genders, aged from 30 to 74 years old who have used chloroquine and its derived products for more than a month. Afterwards, these patients underwent a hearing test throughout a conventional audiometry (250-8000 Hz), measures ear pressure and hearing reflex survey (500, 1000,2000 and 4000 Hz). Result: After data collect, among the symptoms which are related to the hearing system, it was noticed that 4 (57,1%) out of 7 investigated patients reported buzz, 04 (57,1%) vomits, 04 (57,1%) dizziness and 02 (28,5%) hearing loss. In relation to their hearing profiles, 03 (42,8%) presented hearing exam results according to the pattern and in 04 (57,1%) damages could be observed through restrict frequency, mainly in 6 KHz and 8KHz, being 01 (25%) in the frequency of 6 KHz, with curve of "A" kind. Related to the following, it was noticed that only 01 (14,2%) was periodic followed. The other investigated patients, even complaining about some alterations in the hearing system, was not followed, turning him into a higher hearing health risk probability case. Conclusion: Throughout the realized survey, it was noticed that the patients who make use of ototoxicity medications need an intervention by the health professionals, making them aware of the importance of a periodic hearing following . Like this, the health professionals will be contributing for the decrease of bigger health damages, promoting a better life quality. Key-words: Hearing; Chloroquine; Ototoxicity.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 86

HEARING LOSS RISK INDICATORS IN NEONATES ON A PERIOD OF 10 YEARS (1995-2005) IN A PUBLIC MATERNITY OF SÃO PAULO.

Authors

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Abstract: Introduction: The data submitted by the Surveillance Epidemiological Center of the State of São Paulo, Brazil, pointed out that the number of children, particularly with infectious diseases increases each year. Some of these diseases are considered as indicators of risk for hearing. To know their occurrence is important in order to support official programs for hearing loss prevention and hearing conservation. Objective: To analyze and compare the occurrence of risk indicators for hearing in a period of 10 years (1995-2005) in a public maternity of São Paulo, Brazil. Method: It is a retrospective and quantitative study, based on collected data of newborn records of a public maternity of São Paulo. Records of babies born between January and December of 1995 (n = 2077) and 2005 (n = 5129) and that presented deafness risk indicators, such as: prematurity, low weight and asphyxia, and/or, have suspected or confirmed diagnosis of TORCH-A group infection (toxoplasmosis, congenital rubella, syphilis, cytomegalovirus, Herpes and HIV+) were included. Results: From all the babies' records, were considered 565 children born in 1995, and 1047 in 2005. Among the risk indicators for deafness analyzed in two years, it was observed that there was significant difference for the indicator prematurity, being the largest percentage of premature children in 1995 (p < 0,001); there was no significant difference between the percentages of low weight indicator occurrence in 1995 and 2005 (p = -0,209), and there was significant difference between the percentages of children with asphyxia in two years (p = 0,027). The higher percentage of occurrence was in 1995. The risk indicators: prematurity, low weight and asphyxia were more frequent than toxoplasmosis, syphilis and HIV. The compared analysis of concurrency of these 3 risk factors has been reviewed and compared, in 1995, 1.2% of children did not present any of 3 risk indicators, while, in 2005, that percentage was 9.1%. In 1995, we observed the largest percentage of children with prematurity and low weight (28.9%), while in 2005 it was only low-weight (31.1%). It was also noted that in 1995 there was simultaneous occurrence of 3 risk factors in 7.3% of children, while that in 2005 the percentage was 3.2%. There is no significant difference between the associated percentages for prematurity, low weight and asphyxia in two years (p < 0,001). In two years, the largest number of indicators observed in one child was 3. Most of the babies presented at least one risk indicator (57.1% in 1995 and 69.4% in 2005). Conclusion: Children born in 1995 tended to have a greater number of indicators of risk than those born in 2005 (p < 0,001).

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 87

HEARING IN YOUNGSTERS FROM 18 TO 25 YEARS OLD: A STUDY OF THE AUDIOMETRIC NOTCH

Authors

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Abstract: Introduction: In recent years, has been increasing the concern of Audiologists related to the hearing health of youngsters exposed to urban noise and loud music, which provokes auditory and extra-auditory effects. It' is been more and more common for young people who undergo pure tone audiometry to present hearing thresholds above 0 dB HL, closer to 20 or 25 dB HL, showing the audiometric notch. This is a hearing reduction within the normal limit, in the frequencies of 3k, 4k or 6 kHz, in presence of a difference of at least 10 dB from the precedent or following the analyzed frequency. The audiometric notch may indicate a tendency of development of noise induced hearing loss with time. Objective: To identify the presence of the audiometric notch in youngsters from 18 to 25 years old, through pure tone audiometry performed at a private hospital in São Paulo, from 2005 to 2007, verifying if gender, frequency, ear and type of notch are sources of variability. Method: This study is retrospective, quantitative and the procedure consisted in the investigation of 722 audiograms of normal hearing subjects, being 353 (48.9%) female and 369 (51.1%) males. Results: The hearing notch was present in 390 (54%) of the 722 studied sample, being more prevalent for female (223 -57.2%) than male (167 - 42.8%). There were statistically significant differences between hearing thresholds for the frequencies: 4, 6, 8 kHz in the right ear and in the left ear, for the frequencies of 1 and 4 kHz. The prevalence of audiometric notch type unilateral - 308 (79%), with the bilateral type present in only 21%. Conclusion: The results showed statistically significant difference in the presence of audiometric notch between gender, ears, frequency and type of hearing notch, suggesting that this population may be at risk for future hearing losses, if adequate measures are not taken in order to preserve their hearing health.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 88

AUDIOMETRIC NOTCH, HEARING AWARENESS AND USE OF PERSONAL STEREO EQUIPMENT BY BRAZILIAN TEENAGERS.

Authors

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Abstract: Introduction: In recent days, the use of personal stereo equipment (PEE) has increased among adolescents, often used inappropriately. These devices have a large memory capacity and high durability of the battery. At the same time, pure tone audiometry in youngsters reveals the audiometric notch which may indicate a tendency for the development of noise induced hearing loss with time. Objective: The research aimed at investigating the audiometric notch, the hearing awareness and the use of personal stereo equipment by a group of young adolescents, in order to raise awareness and inform them about the warning signs of loud music exposure and the proper use of volume control. Method: The casuistry was composed by 40 teenagers from a private school in Sao Paulo, aged from 12 to 17 years, users of personal stereos. The study consisted of two phases: the first was qualitative, through a semi-led interview, held oral and written, in which a questionnaire was used, and the responses of the subjects, later transcribed for the analysis. The second step, quantitative, included the ear canal inspection and minimum level of hearing determination, held in the most silent room of the institution. Results: 55% of subjects always wear the PEE, 40% sometimes and 5% rarely; 52.5% wear them more than one hour per day, 90% use the volume control in position ranging from half to maximum, although 85% feel that the use of personal stereo at maximum volume can cause a hearing loss. The results of the hearing evaluation showed great presence of audiometric notches on 3 kHz and 6 kHz. Conclusion: Despite the adolescents are informed about the hearing risks that the use of such equipment in high intensity can cause, they still wear them in an inappropriate manner. Informing these young people and raising awareness about the warning signs and proper use of personal stereos volume control are essential to preserving hearing. Also, the results showed the presence of audiometric notch, suggesting that this adolescent may be at risk for the future hearing losses.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 89

AUDIOLOGICAL PROFILE FROM BRAZILIAN CIVIL AVIATION WORKERS EXPOSED TO NOISE-INDUCED RISK.

Authors

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Abstract: The aircraft noise can be considered one of the most intense noises existing in work environments. This unwanted noise can cause damage to the auditory system (usually irreversible) in addition to psychosocial damages. Work activities executed in locations close to the airsheds and patios are considered at high risk for hearing loss. Aim: To evaluate audiological profile of workers exposed to occupational noise source comparing the results between airsheds and patio workers and to establish preventive and hearing conservation audiological conducts in the area of occupational health. Methods: hearing evaluation of 160 individuals (80 airsheds workers - AW and 80 workers from patios - PW) working in Brazilian civil aviation exposed to high sound pressure (higher than 85 dBA) aged between 20 and 50 years of age. Audiometric and auditory health aspects record were examined. Results: The results demonstrated the predominance of male gender and use of plug ear protective device for both groups. The mean time exposure to noise was just a little higher to the PW (eight years) than to the AW (seven years). Auditory thresholds from AW (15%) were worst than PW (six percent - 6%) and mild sensorineural losses were predominant for both groups. Conclusion: the small number of workers with changes in auditory thresholds working in Brazilian civil aviation and exposed to sound pressure levels noise-induced reflects the importance of continuity of preventive and auditory health promotion. Key words: noise-induced hearing loss, aviation, hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 90

MATERNAL VIEWS ON NEWBORN HEARING SCREENING IN A SCHOOL-HOSPITAL OF SAO PAULO

Authors

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Abstract: Background: Parental knowledge and commitment regarding infant hearing loss is essential to the success of neonatal hearing screening (NHS) programs. In developing countries a school hospital usually attends to social economic and cultural disadvantage population, what is directly related to the low levels of return-for-follow-up of the NHS programs. Objective : To investigate maternal knowledge about NHS and infant hearing loss. Casuistic and Methods: A structured questionnaire consisting of 12 questions was administered to 40 mothers (mean age 31.4 years, range: 16–44 years) during hospital birth admission. Results: Maternal attitude towards NHS was positive in 97,5% indicating the desire to have their baby's hearing screened after birth, however 85% of the mothers didn't have knowledge about NHS and 72,5% didn't know that HL could be acquired on pregnancy or neonatal period. Conclusions: The study demonstrates the parental lack of awareness/information about NHS and reinforces a need for increased maternal knowledge regarding infant hearing loss. Only with the parental empowerment and the professionals working in partnership with families as a well-coordinated team it will be possible to achieve the Benchmarks and Quality Indicators for NHS. The adequate information among all team members and parents allows the families to make knowledgeable choices about the benefits of the intervention to their children, creating real opportunities for these children to develop their great potentials.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 91

NEWBORN HEARING SCREENING PROGRAM : RETURN-FOR-FOLLOW-UP IN A PEDIATRIC DEPARTMENT OF A SCHOOL-HOSPITAL OF SÃO PAULO

Authors

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Abstract: Introduction: The newborn hearing screening (NHS) program has comprehended even more infants and has been highlighted as the main tool in turning feasible the identification, diagnosis and early treatment of hearing loss. Nevertheless, the return-for-follow-up rates to the different levels of the program, i.e., re-test, diagnosis, intervention, and monitoring, remain low and are the current focus of scientific investigation both internationally and nationally. Objective: To describe the NHS return-for-follow-up rates. Casuistic and Method: Descriptive analysis of the medical records and interview with the relatives of 30 infants, in the age of two and twenty-four months, who attended the pediatric department of the Santa Casa de Misericórdia de São Paulo, within the period of March to May, 2008. Results: Of the 30 infants that participated in the study, 80% performed the NHS during birth admission, having found full endorsement of the re-test sent cases (N=5). However, the return at the cases that were sent to diagnosis evaluation wasn't accomplished (N=2), and of the cases sent to monitoring (N=20) the return rate was 44%. Regarding the knowledge of the NHS, 33% of the mothers did not know that the hearing screening was performed during hospital birth admission. The alleged motives by the mothers to no return were related to the lack of information/awareness about the importance of the program and the accessibility to the NHS service. Conclusion: The analysis of the data showed that the lack of awareness / information of the community about the importance of the early intervention in the hearing impairing is the vital factor of the non-endorsement to the NHS. It is needed to invest in the quality of the data managing of the NHS programs, focusing the accessibility, the covering expansion and the formation of both the team and the relatives. Only the adequate information among all team members and parents allows the families to make knowledgeable choices about the benefits of the intervention to their children, creating real opportunities for these children to develop their great potentials. The rigorous application of the workgroup, evaluating the access and the quality of the NHS, such as the coordination of the screening services, diagnosis, intervention and monitoring are essential factors to the success of the NHS programs.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 92

EFFECT OF HEARING STIMULATION DURING THE FIRST YEAR OF LIFE OF PRETERM INFANTS

Authors

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Abstract: In the first three years of life is the process of maturation of the central hearing system, and the great stage of neural plasticity of the hearing pathway. The late detection of hearing loss may result in loss of important auditory information during the time before such a diagnosis, interfering in the child development. During the period 2004 and 2005, the audiologic were not detected progressive hearing loss and / or late onset. However, there were infants with delayed development aid. So, after this period was introduced formal guidance to parents / caregivers of infants with hearing delayed responses, aiming at stimulating the hearing function, especially in preterm infants. This study aims to assess hearing development of preterm infants with risk factors for progressive hearing loss and / or late in the first year of life (at 4, 8 and 12 months) without (period 1 - the non-stimulated) and with (period 2 - the experimental group) stimulation formal hearing. The audiological evaluation consisted of: medical history, observation of behavioral responses to sound stimuli with visual reinforcement audiometry (PA2 - Interacoustics), observation of responses to verbal and Impedance (MT10 - Interacoustics). For children who presented delay in the hearing, there was guidance to parents through the delivery of a leaflet containing activities appropriate to be developed in subsequent months for each age group, in order to stimulate the hearing pathway of the child. In the next stage of monitoring was carried out questionnaire survey of perceptions of parents / carers about the activities of the leaflet, and the development of the infant. There were no significant differences between stimulated and non-stimulated groups in any of the stages of behavioral hearing assessment and acoustic reflexes. In relation to tympanometry, the comparison between the groups, to the right ear was no significant difference between the groups at 4 months: the stimulated group showed 41.7% of abnormal results while in the non-stimulated were 18,2%; at 8 months, the stimulated group showed higher percentage change (58.3%) than in non-stimulated (29.6%). At 12 months there was no significant difference. In the left ear only at 8 months was significantly different, with the largest percentage change in the stimulated group (56.3%) than in non-stimulated (25.0%). At 12 months the experimental group presented better audiometry (average of the right ear, 21.1 ± 3.5 dB, and the left ear, 21.5 ± 4.8 dB). At the end of the first year of life, the immittance results change occurred to the right ear in 53.3% of infants in non-stimulated and 50% of stimulated, the left ear in 42.9% of infants in non-stimulated and 41.7% of stimulated. At 12 months, the responses of delay in development of hearing loss were 90.5% of infants in non-stimulated and 66.6% of stimulated. Therefore, this study highlights the importance of audiological follow along with the daily work of the family in the life of the infant. Both in order to participate and act on child development, especially of his hearing.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 93

SPEECH-LANGUAGE THERAPY AND AUDIOLOGY NETWORK CARE FOR THE HEARING IMPAIRED IN HEALTHCARE SERVICE IN SÃO PAULO CITY

Authors

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Abstract: Abstract: The early diagnosis of deafness allows prompt intervention, offering better chances for speech development, enabling better psycho-social and educational development. The primary care services are, often, the entrance to the SUS (United Health System) user, and therefore it is mandatory that those services have instruments to diagnose the hearing impairment and qualified professional for early intervention. The Law 587/2004 states that intervention of Hearing Health in Basic Attention must cover prevention and early identification of hearing problems, informative and educational actions, family guidance and referral to High Complexity Service in Hearing Health Attention. According to Brazilian Geography and Statistics Institute in 2000 Census, São Paulo city population is over 10 million people, of which 2,37% present some hearing impairment, indicating a considerable need for attention to those users Aim: To investigate the attention to auditory health in Public Health Service in São Paulo city. Methods: Eight students of Speech-language pathology and Audiology, from UNIFESP participated in this study. The Healthcare Services were assessed by direct phone contact, and contact with regional coordination for each region in São Paulo city, full internet search in the City Hall and City Secretariat for healthcare websites. Of the 703 healthcare services, 90,3% were contacted by phone. The data were obtained through questionnaires answered by employees of those services. Results: From the 635 services contacted, 19,84% had Speech-Language Therapy and Audiology care. Of these, 65,08% did not offer deaf care service, 13,5% only had basic hearing assessment, 4,76% only therapy, 9,52% assessment and therapy, 0,8% assessment, therapy and hearing aid fitting, 3,17% had treatment for deaf without specifying the service, 2,38% assessment but the therapy depended on the hearing loss degree. Of the 509 services that did not have hearing impaired care, 14,14% had a referral service, 49,5% didn't report referring, 17,1% couldn't answer, 6,1% didn't have a referral service, 9,03% had referral through regulation, 1,57% did not have reference, 1,96% demanded a referral from another professional, 0,19% had specialized referral service, 0,19% had a direct referral service and 0,19% through SIGA referral. Conclusion: The results point to the need of the creation of policies for deaf 's care in primary health care, as far as assessment, diagnosis and therapy are concerned. Although the healthcare system has expanded its services in recent years, particularly through the increase of NASF (Support Center for Family Health), only a few offer speech-language and audiology services. The lack of information by professionals about the kind of services offered and about the referrals made for services that do not have speech-language and audiology services was a difficulty for this study, because there's no consistent data about many of the services. This study highlights the need for organization of an effective referral system and qualified professionals, in order to refer the users to a service near their homes.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 94

NEWBORN HEARING SCREENING IN THE STATE OF SANTA CATARINA - BRAZIL

Authors

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Abstract: Introduction: For a child to develop speech, it is usually recommended that a diagnosis of hearing loss occurs before the age of three months and that a therapeutic intervention starts before the age of six months. This will only be possible through Newborn Hearing Screening (NHS). Purpose: To check the status of NHS in the state of Santa Catarina - Brazil. Methodology: At first, a research was made on the website of the State Health Department to obtain the number of maternity hospitals in the state of Santa Catarina - 229 institutions were found. After that, phone calls were made to the hospitals to check whether they had maternity wards or not. The 133 hospitals that confirmed the existence of maternity wards were asked whether they had an Early Hearing Detection and Intervention (EHDI) program as well as the contacts of the audiologists responsible for that service. Later on, a questionnaire



was sent to the audiologists with open questions regarding NHS. Results: NHS in the state of Santa Catarina has been carried out in 21 EHDI programs, but only nine returned the questionnaires with answers. It could be observed that the EHDI program is recent and that only one had been done for more than five years. From the EHDI programs, five do the Universal NHS. In six EHDI programs, the babies are submitted to NHS between 24 and 48h after being born. The procedure most used in NHS is the transient otoacoustic emissions. As to the pass/fail criteria, there is not a standard model followed by the EHDI programs, and only three of them use the same criteria. Five programs send less than 10% of the babies for a new test, and most of them pass the second test. Regarding the diagnosis, only two EHDI programs send less than 4% of the babies to be diagnosed. Only four EHDI programs present data regarding the percentage of diagnosis and four programs report that the hearing loss most commonly detected is neurosensory. Only one of the EHDI programs does the diagnosis before the three months of age. Just one EHDI program fits hearing aid on 100% of the babies. One EHDI program said that the average age of babies who undergo the hearing aid fitting process is up to 21 months. Three EHDI programs have information about the percentage of babies receiving intervention, 1% to 6%. Two EHDI programs said that the babies start intervention before six months of age. The EHDI programs do not have a standard for following up as each of them uses a different method. Conclusion: The number of EHDI programs in the state of Santa Catarina is still small and most programs do not follow the national and international recommendations regarding NHS, especially in terms of the protocol used to carry NHS out and to follow up the babies submitted to NHS.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 95

EVALUATION OF OCCUPATIONAL RISK AGENTS IN THE ACTIVITY OF PROCESSING COFFEE

Authors

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Abstract: The study discusses the main risk agents presents in the activity of processing coffee, identify them and fit them according to Brazilian legislation and ACGIH. The anticipation and recognition of the most significant risks identified by the workers directly involved in the activity of dry-process on coffee were obtained through a standardized questionnaire. In qualitative and quantitative assessments of risk agents were used equipment: globe thermometer, model TGD - 200 Instrutherm for measuring heat, noise dosimeters Larson Davis Spark model and ATEX 706 sound pressure meter with integrated frequency analyzer Larson Davis sound track model Lxt1 for noise measurement. The ergonomic risk assessment was carried out by weight of the cargo moved, distance moved, lifting height, average height of employees evaluated, frequency of weight lifting and number of elevations, average temperature and LEQ in the workplace. Later, they were classified according to criteria established by Brazilian legislation and the ACGIH. The main risk agents reported by workers were respectively heat, noise and ergonomic. The agent did not provide heat values above those established for unhealthy, as the noise is classified as unhealthy. For ergonomic risks were observed hazard due to heavy lifting (high load and frequency of movement) in addition to the completion of the work day without standing place to rest. Ways to eliminate and / or mitigate the risks highlighted as potentially harmful to the comfort and health of rural workers should be taken to preserve their health in the activity of processing coffee.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 96

OTOACOUSTICS EMISSIONS AMONG GRAPHICAL INDUSTRY WORKERS NOISE EXPOSED

Authors

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Abstract: INTRODUCTION: The otoacoustics emissions (OAE) represent an important instrument for epidemiological surveillance of noise induced hearing loss. OBJECTIVE: to study the register of OAE among two different groups of graphical industry workers: exposed and non-exposed to occupational noise and both with normal audiometric thresholds. METHOD: Transient evoked otoacoustic emissions (TEOAE) and distortion product otoacoustic emissions (DPOAE) were researched in 158 ears of 79 subjects, all male, matched by two groups: noise exposed (42) and non-exposed (37). The mean age was 29.3 +/- 6.33 years. RESULTS: Among the non-exposed group were observed 54.1% of present response in both ears in TEOAE, and 24.3% having absent responses in both ears in the DPOAE test. Among the exposed group, 14.3% has presence responses in TEOAE in both ears, and 61.9% have absence in two ears. The statistical analysis indicated noise exposure effect at the percentage of presence of EOAPD in f2(s) of 2002, 5042 and 6348 Hz and in the general result both at TEOAE and at DPOAE (p=0,000). The present response in non-exposed group was significantly higher than in exposed group in both tests. CONCLUSIONS: The test of otoacoustic emissions was an important procedure in the early identification of auditory alterations, differentiating noise exposed and non-exposed subjects.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 97

ANNOYANCE RELATED ABOUT URBAN NOISE AMONG WORKERS OF COMMERCIAL ESTABLISHMENTS IN THE CITY OF SAO PAULO

Authors

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Abstract: Objectives: 1) To evaluate the annoyance caused by noise among workers of commercial establishments of the city o Sao Paulo. 2) To find out the knowledge and opinion of these workers about the urban noise. 3) To identify socio-demographic factors associated to the annoyance, the knowledge and the opinion of the workers of commercial establishments in the city of Sao Paulo about the urban noise. Methods: This is a cross sectional study with 400 workers of commercial establishments located at the central area of the city of Sao Paulo. It was used a questionnaire that included questions about socio-environmental, noise and aspects related to the annoyances caused by them. The interviews were carried on at the worker's workplace, during working hours. It was also measured the noise level at the workstation in one establishment of every street visited. Results: Of the 400 participants, 59% were female aged between 18 and 89 years old with a median of 31 years. 60% of them had complete or incomplete high school educational level, 46% worked with clothes, and 44% were clerks. Noise appears spontaneously in fourth place among the annoyances at the workplace and at home. Of the participants, 65.75% considered the workplace noisy, and 62.5% declared the felt annoyed by the noise at this place. The noise levels were between 70.4 and 90.8 dBA (Leq). Noise interfered with the professional activities of 43% of the workers, being talking to the phone the main activity disrupted (54%). Main problems caused or worsened by noise, for the workers, were: hearing loss (72%), stress (29%), irritability (9%), headache (7%), nervousness (3%), and sleep disturbances (1%). Male gender and higher schooling level were associated to the fact the worker mentions the workplace is noisy. Conclusions: The prevalence of people working at commercial establishments in the city of Sao Paulo who mentioned annoyance related to noise at the workplace was estimated to be 62.5%. 65.75% of the workers mentioned that the workplace was noisy. The traffic noise was disturbing for 62% of the workers. From the results of this study it can inferred that the workers knew the physical risks associated to noise and the annoyances it can cause. The workers mentioned that noise could cause or worsen some health problems, especially hearing loss, stress and irritability.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 98

A STUDY OF AMPLIFIED MUSIC HAZARDS TO EMPLOYEES IN LOCAL NIGHTCLUBS

Authors

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Abstract: Introduction: The electronically amplified music represents an occupational exposure to noise for employees of nightclubs. There is growing concern that amplified music can cause hearing loss and health complaints. Objectives: This study attempts to evaluate the noise effects of employees exposed to amplified music in nightclubs in the city of Sao Paulo. Method: Employees comprising of bartenders, waiters, cashiers and security officers of two selected nightclubs were used for the study. The sample included 30 male (60%) and 20 female (40%) aged between 19 and 40 years old. A questionnaire was used to obtain exposure to noise, length of time in the profession and health complaints. Tympanometric test and Distortion-Product Otoacoustic Emissions (DPOAE) was also performed. Results: The mean amplified music time exposure was 70.4 months. The most complaints were: tinnitus (18%), intolerance to loud sounds (16.0%), headache (24.0%) and insomnia (22.0%). Most employees (n = 31 - 81.6%) reported audiometric test within the normal pattern of bilateral normality. The DPOAE test showed absent responses in the left ear in 21 (42.0%) employees and 17 (34.0%) in the right ear. The absent response was bilateral in 22% of the sample (n = 11). The most affected were f2 = 3174 Hz, 4004 Hz and 6348 Hz. There was a correlation between the results of DPOAE of the right ear with complained of dizziness and smoking habits. The majority of the sample was young and the time exposure was in general very low. This fact show there was not expected many absent responses in DPOAE test.Conclusion: Although preliminary, the study findings highlight the importance of otoacoustic emissions test on the number of ears that will be identified as "at risk" for amplified music-induced hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 99

NEWBORN HEARING SCREENING IN NINE CITIES OF PARANÁ

Authors

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Institution

1. UNICENTRO, Universidade do Centro Oeste do Paraná

Abstract: Introduction: In 2007, the Newborn Hearing Screening (NHS) by transient evoked otoacoustic emissions (TEOAE) was implanted effectively in the city of Irati by Fonoaudiologia graduation students of UNICENTRO. The specific objectives of the program are: to establish an effective link between health and education professionals; to inform population about NHS for all neonates; to integrate NHS in the public health policy of Irati, establishing partnership and delimiting responsibilities; to determine outcomes of neonates with hearing loss for planning and establishing public health policies for early intervention. Methods: The program of NHS is universal and external. The screening is performed at Clínica-Escola of Fonoaudiologia, in the campus of Irati (PR). The neonates belong to nine cities with low Human Development Index (HDI) found in the state of Paraná (Irati, Mallet, Imbituva, Teixeira Soares, Fernandes Pinheiro, Rio Azul, Inácio Martins, Guamiranga and Rebouças). The Health Regional Offices forward the neonates before they complete three months of life. The equipment used is OTOREAD and the results are considered normal when the noise-signal ratio, at least in three frequencies, is equal or superior to 6dB. Rescreening is performed after one month if the neonate shows any risk factors or the cochleo-palpebral reflex is absent. All infants who do not pass the initial hearing screening and the subsequent rescreening are evaluated by an otolaryngologist who has knowledge in pediatric hearing losses. Infants with confirmed hearing loss must receive appropriate intervention not beyond 6 months of age. Results: Between April and December of 2007, 1.111 neonates were screened, corresponding to 60.5% of all infants of nine cities. Rescreening was performed for 123 infants and 29 were forwarded to an evaluation with an otolaryngologist. Between February and December of 2008, 1.502 neonates were screened, corresponding to 80% of all infants of the same nine cities. Rescreening was performed for 231 infants and 51 were forwarded to an evaluation with an otolaryngologist. Conclusion: Aware of the significant variability in the effectiveness index between the nine cities, the management and success of the program is not exclusively dependant on partnerships between the University and Health Regional Offices. Parents must be provided with appropriate follow-up and resource information about early intervention. Despite the fact that the Health Public Policy in Irati has not achieved its objectives, we believe that the information and education of the population is imperative to increase the number of families supported in the future years.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 100

EFFICACY OF NOISE LEVEL REDUCTION PROGRAM DEVELOPED AT THE NEWBORN INTENSIVE CARE NURSERY

Authors

TAINARA MILBRADT WEICH, ANA CLÁUDIA OURIQUE, TANIA TOCHETTO, CACINELI MARION DE FRANCESCHI

Institution

1. UFSM, Universidade Federal de Santa Maria

Abstract: ABSTRACT OBJECTIVES: Evaluating the efficacy of noise level reduction program developed at the Newborn Intensive Care Nursery (NICU) in University Hospital of Santa Maria - (UHSM). METHODOLOGY: The research was took place at the NICU in UHSM, at Santa Maria, Rio Grande do Sul. The first step was to advise workers during morning, afternoon

and night about the damages caused by intense noise to neonates and workers and suggest means in order to have a place acoustically healthier. Flyers were given and banners were placed on the walls to point out the damage caused by noise to neonates and workers and to suggest simply changes that can reduce noise level, as avoid talking too loud, to open and close the doors of the incubator softly and put cell phones on silent. RESULTS: Twenty six workers attended to the speeches. About 12 workers were absent. People reacted in different ways. At the morning, nine workers showed up and payed attention to the speech. In the afternoon, from ten workers, four suggested means to reduce noise as turn off the radio and avoid noisy shoes. At night, seven workers were not interested in listening to the speech. The attention varied according to the occupation. Nurses were more aware than the physicians. Most of the workers said that noise at NICU is moderate and is produced mainly by equipments and workers. We verified that 71,4% from the workers believed that noise can be reduced. CONCLUSIONS: The way people received our information changed according to the schedule and the occupation. In the afternoon, workers were more concerned about the matter, mainly the nurses. The program, according to the workers, helped to reduce noise level at the NICU of UHSM.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 101

PROFESSIONAL EDUCATION TO WORK ON HEALTH IN THE AUDIOLOGY SECTOR

Authors

MARIA CECÍLIA BONINI TRENCH, LUISA BARZAGHI, ALTAIR CADROBBI PUPO

Institution

1. PUC-SP, Pontifícia Universidade Católica de São Paulo

Abstract: The aim of this work is to critically analyze the education of professionals to work on health in the Audiology Sector. The objective is to debate the strategies of changes in work practices and education of professionals in the Health Sector, which have been introduced with the politics of construction and consolidation of the "Sistema Unico de Saude". The movement of the Sanitary Reform began, in Brazil, in the 70's with the proposal of promoting and defending the health of its population. This movement stressed the importance of preventive actions and criticized the pattern of focusing on the illness itself. It pointed the low effectiveness of the health services, which were turned almost exclusively to the individual's attention and assistance. During this period, it is right to say, there have been improvements in the Audiology sector. This happened not only with the implementation of specific programs and the creation of school clinics and college hospitals, but also with technological developments which allowed a better diagnosis and rehabilitation of the hearing function. On the other hand, the access to the benefits brought with these developments was restricted to the population. The education of professionals turned excessively technical and the rehabilitation of patients diagnosed with a hearing disorder was heavily centralized on the pathological aspects. The creation of the SUS and the increase in value given to the principles of universality, integrity and equality regarding health can be considered historical turning points for the work and education in the Audiology Sector. An emblematic example of this change is the "Política Nacional de Saude Auditiva" (National Policy of Hearing Health), introduced in 2004. The SUS as collator of the education of health professionals has influenced the speech therapy/audiology schools, bringing them to implement structural changes in the education of its students. Among others, the following have special importance: the interdisciplinary vision, taking part in multi-professional teams and a better preparation to organize practices of integral health care, considering the level of attention given, which is today less focused on the technical procedures but more on the real context and the real needs of the hearing disabled patient and its family.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 102

EVOKATED OTOACOUSTIC EMISSIONS IN WORKERS EXPOSED TO OCCUPATIONAL NOISE

Authors

NATÁLIA RAMOS, DANIELA VERONESE BENTO, ALINE DOMINGUES CHAVES AITA, LUCIANA PILLON SIQUEIRA, FABIANO SBICIGO AITA

Institution

1. FacFat, Fátima Faculdade

Abstract: Introduction: Exposure to high levels of noise is one of the most important causes of permanent sensorineural hearing loss. Such changes may be diagnosed early through the use of Otoacoustic Emissions. Aim: To verify the efficacy of OEA in order to have an early diagnose of the Noise-Induced Hearing Loss (NIHL). Method: Questionnaire to investigate hearing complaints. Meatoscopy and acoustic immittance to verify the condition of external ear and middle ear, research of Transient evoke Otoacoustic Emission (TEOAE) and Disortion Products Otoacoustic Emission (DPOAE) of 270 male metalworkers aged 18-30 years. To perform the TEOAE a click stimulus was used, 83 dBHL, with the following band power: 1.5, 2, 2.5, 3, 3.5, and 4KHz and for the DPOAE two simultaneous pure tones with different intensities: P1 = 65 dBHL e P2 = 55 dBHL, frequencies: 1.5, 2, 3, 4, 6KHz. For the analysis of the results pass/fail criteria were used to register the answers in at least three frequencies, with the amplitude of the OEA above 6 dBHL in regard to background noise in those frequencies. Besides, the amplitudes of the DPOAE were analysed. Results: The workers were divided into two groups: GI: 160 subjects (59,3%) exposed to background noise from one to five years; GII: 110 subjects (40,7%), over five years. The otologies symptoms most quoted were: 41 subjects (15,18%) with complain with tinnitus, 65 subjects (24,07%) with aural fullness. In regard to EOATE in GI, 132 (82%) individuals passed bilaterally, nine (5,62%) failed both ears, 13 (8,1%) failed only the left ear and six (3,8%) failed the right ear. In GII, 88 (80,0%) individuals passed bilaterally, eight (7,3%) failed bitaterally, ten (9,1%) failed only the left ear and four (3,6%) failed only the right ear. During the DPOAE in GI, 155 (96,9%) passed both ears, one (0,6%) failed them both, two (1,3%) failed only the right ear and two (1,3%) failed only the left ear. In GII, 107 (97,3%) passed both ears, one (0,9%) failed them both, two (1,8%) failed only the left ear and no-one failed the right ear. The answers obtained for the DPOAE were also analysed according to the amplitudes of the frequencies (1.5, 2, 3, 4, 5 e 6 KHz). It was also verified statistically significant difference (p,0,05), through the Mann-Whitney Test between GI and GII for 4 and 5 KHz frequencies. Conclusion: It was verified that the EOATE were more efficient to detect minimal changes in subjects hearing exposed to occupational noise, because out of the 270 evaluated individuals, 67 (24,8%) failed this procedure, even though their periodical hearing evaluations were normal. But during the EOAPD, only 10 (3,7%) had changed results in this exam. It was also observed that the more one is exposed to occupational noise, the less will be one's amplitude of the answers in the EOAPD, mainly in the 4 and 5 KHz frequencies that characteristically portray alterations associated to exposure to noise due to cochlear tonotopy.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 103

STUDY OF THE HEARING DEVELOPMENT OF PATIENTS WHO HAVE FAILED IN THE NEWBORN HEARING SCREENING

Authors

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Institution

1. UNINGÁ, UNIDADE DE ENSINO SUPERIOR INGÁ

Abstract: Objective: Analyze the hearing and communication development of babies born in the University Hospital in Maringa who failed in the Newborn Hearing Screening (NHS) in the first evaluation in the maternity and also in the second test, and for this reason were sent to refer to the doctor and audiological diagnosis. Methodology: the case was constituted by 31 babies who failed in the first and second assessment from the total 908 newborn. The procedures comprised two stages, the first step consisted of a survey of protocols of newborn for 19 months, from May 2007 to December 2008. They failed in (NHS), what means that they didn't answer to one or both ears in the examination of otoacoustic emission evoked by transient stimulation (TS) before hospital liberation and 30 days after birth. While in the second stage was established contact with parents and / or responsible for the newborn via telephone, which answered a questionnaire and were asked to bring their children to undertake a further examination of the TS and cochlear-palpebral reflection (CPR). Results: From the parents and/or responsible for the newborn, 18 of them answered the questionnaire, in which it was possible to observe that the majority of children (66.7%) communicated through the speech, which had started about 1 year of age (58.3%), the first words were mum and dad and 58.3% were able to associate two or more words, considering that the age of the children interviewed ranged from 10 to 24 months. All the parents and / or responsible claimed that children understand the information provided by speech. Regarding the importance of (NHS), everyone thought that it was important the procedure performed by University Hospital before hospital liberation due to the importance of precocious diagnosis in hearing deficiency, however, 16.7% of them felt that there should be further information in the procedure performance by the evaluators. From the total, 83.3% reported that they didn't change the family's routine after suspicion of hearing deficiency with their children. Only 8 (25.8%) parents and / or responsible attended to the new test, from these children, 4 (50%) presented bilateral presence of TS associated to the presence of the (CPR). While the same amount of babies presented absence of answers in the TS unilateral associated to the presence of CPR and 3 babies presented absence of TS in both ears with absence of CPR. The 3 cases (9.7%) who responded to the TS bilateral absences by otoscopic changes were children with high risk for developing conductive changes as Down syndrome and cleft palate. A child presented the diagnosis of sensorineural hearing deficiency, which was confirmed by the presence of mutation in the gene del g 35. Conclusion: Parents and / or responsible for the children who were sent to doctor didn't present, in general, worry with aspects related to HD, which reflects the parents lack of consciousness with the aspects related to the hearing and NHS.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104

PARANAENSES LAWS THAT REGULATE THE NEWBORN HEARING SCREENING UNDER THE HEALTH SECRETARIES PRISM

Authors

JAQUELINE MEDEIROS DE MELLO, NEY STIVAL, LIDIANE YUMI SAWASAKI, ANNE CAROLINE BENEDITO, LARISSA FONSECA DE LA PUENTE, FABIOLA PAULA BARBOZA, VANIA REIMBERG RAMALHO, AUDREI APARECIDA MOTTA, MONICA ROVER, EMILIA OGASSAWARA GERVÁSIO

Institution

1. UNINGÁ, UNIDADE DE ENSINO SUPERIOR INGÁ

Abstract: Introduction: Once that the health secretary has the mission of administering the human resources and the city materials, respecting the universality beginnings, integrity and justness proposed by the Health Single System (HSS) is of addition importance the knowledge about the laws that regulate the Newborn Hearing Screening (NHS). The Parana state was the first Brazilian state to legislate specifically about NHS and now, exist two laws of number 13.272/2003 and 14.588/2004 that determines the NHS free accomplishment through evoked otoacoustic emissions exam in born children in public and private hospitals in the state. Objective: Verify the health secretaries' knowledge about the Paranaenses state laws that extol about the NHS accomplishment. Methodology: The casuistry was composed by 30 health secretary belonging to the Parana State Health Regional 15th, more specifically in the Maringa area that includes a population of approximately 750 thousand inhabitants belonging to the municipal districts of Ângulo, Astorga, Atalaia, Colorado, Doutor Camargo, Florai, Floresta, Flórida, Iguaraçu, Itaguajé, Itambé, Ivatuba, Lobato, Mandaguaiçu, Mandaguari, Marialva, Maringá, Munhoz de Mello, Nossa Senhora das Graças, Nova Esperança, Ourizona, Paçandu, Paranacity, Presidente Castelo Branco, Santa Fé, Santa Inês, Santo Inácio, São Jorge do Ivaí, Sarandi and Uniflor. For ends of data collection, a questionnaire was applied personally, through e-mail and calls, depending on the interviewees' readiness. In the cases in that the health secretaries didn't obtain knowledge about the theme, was explained to the same and at the interview end was supplied the two state laws and an explanatory folder about the theme. Results: Regarding the state laws knowledge that disposes about the compulsory nature of the NHS accomplishment, 56,6% of the health secretaries know the laws and 100% of them believe that NHS should be incorporate in the national maternities routine, as well as the little feet test is accomplished, however 87,6% of the health secretaries were not collected by any state government sphere for the state laws execution. In the health secretaries opinion, the two laws of NHS are not accomplished in the state by reasons as lack of financial resources for professionals' recruiting and equipments purchase; popularization lack for the health regional; collection lack on the part of the government authorities and punishment for the laws non execution; and lack of appropriate place for the exam accomplishment. For larger NHS publicize 83,3% of the health secretaries believe to be important publish NHS in vaccination campaigns, for being an opportunity for the community be become aware on the NHS importance, since vaccination campaigns present great national inclusion and as larger population understanding, larger collection conditions when they don't have access to the NHS benefits . Conclusions: In spite of the health secretaries assume weight paper in the municipal health actions and most have demonstrated interest in the NHS subject, the same are limited to accomplish the laws for the lack of the state and federal government's incentives.

POSTER SESSION II - A DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104 A

NOISE INDUCED HEARING LOSS PREVALENCE ANALYSIS IN CIVIL CONSTRUCCION WORKERS

Authors

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Institution

1. ISEC, Instituto Superior de Educação de Cajazeiras

Abstract: Objective: to determine the noise induced hearing loss occurrence rate in civil construccion company workers. Methods: a retrospective transversal epidemiological study was carried out in 60 carpenters, who answered anamnesis and were submitted to pure tone and speech audiometry. Noise induced hearing loss was classified according to Fiorini's criterion (1994). Results: out of 60 evaluated audiograms, 29 subjects showed normal hearing (NORMAL GROUP) and 31 subjects (51%) showed altered audiograms: being 27 (44%) classified as suggestive of NIHL (NIHL GROUP) and four (7%) were suggestive of other cases (OTHERS GROUP). There was assotiation and/or dependence among Groups and age (p= 0,001) and among Groups and exposure years to occupational noise (p= 0,002). There was no statistical evidence that the regular use of auditory protection was different in both Group of

workers. Conclusion the hearing disorders' prevalence, suggesting NIHL, was 44% in this professional category. The age and the total occupational noise exposure time statistically influenced the pure tone audiometry results, what did not happen to the time of regular use of auditory protections. So, we can conclude that, possibly, the noise control procedures that ae being applied in the tasks made by the carpinters are not enough to prevent significative noise induced hearing loss.

POSTER SESSION II - B DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104B

PROFESSIONAL DRIVERS AUDIOLOGIC PROFILE

Authors

ANDREA CINTRA LOPES, CIBELE CARMELO SANTOS, VANESSA GUITTO OTOWICZTS, NICOLLE CARVALHO SANTANA, ERICA GRAÇA COSTA, KARINA AKI OTUBO

Institution

1. USP, Universidade de São Paulo

Abstract: Introduction: Hearing loss induced by high noise level has been the subject of studies in the field of public health because of hearing impairment that affects communication and quality of life for workers. Currently, the individual is not only exposed to noise in the workplace but also in environments of daily activities such as street noise or home, in which this exposure is transient. Aim: The aim of this study was to analyze professional drivers' audiometric admissions to. Method: Through a cross-sectional study, 76 medical records of professional drivers in leased transport companies participated in this study. Interviews and audiometry performed by the audiometer Interacoustics, model MIDIMATE 622 were carried out. The tests were conducted in a soundproof booth while respecting the period of 14 hours of auditory rest. Prior to audiometry, visual inspection of the external ear canal was performed in order to verify the possibility to do the audiometry. Results: Of the 76 records analyzed, (82.89%) there was a prevalence of 4 kHz notch in the right ear and (68.42%) in the left ear; (84.21%) it showed a prevalence of 6kHz notch in the right ear and (77.63%) in the left ear. The mean thresholds at 500Hz, 1kHz and 2kHz in the right ear was 10.92 dB, and for the left ear was 11.89 dB; the mean average of thresholds at 3kHz, 4kHz and 6kHz frequencies in the right ear was 12.29 dB, and the left ear was 14.54 dB. Na comparação entre as médias dos limiares auditivos das orelhas direita e esquerda foi observado diferença estatisticamente significante nas frequências 1KHz (p=0,026), 3KHz (p=0,043) e 4KHz (p=0,043), evidenciando assim, que a orelha esquerda apresentou piores limiares auditivos nesta população. Conclusion: When analyzing the results of auditory admissions of these workers and taking into consideration that 100% of them reported no hearing complain, and the prevalence of alteration tests was high, it is essential that the audiometric evaluation should not only indicate the annual prevalence of disorders, but also establish a Program for Hearing Loss Prevention, which primarily promotes actions to prevent the onset or worsening of hearing loss, as well as the extra-auditory effects caused by high noise exposure or other agents of hearing for professional drivers.

POSTER SESSION II - C DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104 C

STUDY OF THE NOISE EXPOSURE EFFECT ON THE ACOUSTIC REFLEX THRESHOLD

Authors

FERNANDA GOMES, ATHERINO CIRÍACO CRISTÓVAO TAVARES, PAULA MUSSO, HEIDI BAECK

Institution

1. UVA, Universidade Veiga de Almeida

Abstract: The search for new indicators to anticipate the diagnosis of noise-induced hearing loss has motivated researchers aware of the irreversible loss at 4 kHz. The application of acoustic reflex (AR) - as a predictor of noise-induced hearing loss - has been investigated in recent studies. However, although it has shown some promising results is not yet clear the AR potential for the diagnosis of noise-induced hearing loss. This paper aimed to add a little more to this research investigating the effect of intense noise exposure on acoustic reflex thresholds of 70 workers, 35 exposed to noise and 35 in the control group. The results showed that the intensities required to trigger AR in G1 were significantly higher (< 0.001) than in G2, at all frequencies investigated, for both AR contra and AR ipsi, pointing to a decreased reflex activity in participants with a history of noise exposure. Positive correlations were found between AR and the "noise exposure time" so that the longer the exposure, the greater the AR threshold (absolute value) and vice versa. The best correlation was obtained in AR contra / 4 kHz (81.6%, p < 0.001). To date, the published studies that investigated the AR behavior in workers with hearing loss have conducted all the research in subjects with installed hearing loss. The present study investigated the AR in workers with preserved hearing, since the hypothesis is the possibility that AR thresholds may suffer impairments in subjects exposed to noise, even before the installation of hearing loss. Despite the methodological differences the present results corroborate the results of the literature that concluded that AR thresholds change after exposure to intense noise. One author emphasized 4 kHz as the frequency clearly more committed, a fact corroborated by our results. In contrast, an other author concluded that the noise does not determine changes in the AR threshold behavior. This study and the present one, present many similar aspects: size of sample survey, criteria for inclusion in the control group and statistical analysis findings. Among the few methodological differences that could be pointed out is the blend / model of equipment used to obtain the AR, but it is not reasonable to assume that different conclusions could be supported by such a difference. The lack of explicit methodological differences is at least intriguing forward to getting completely conflicting findings. The continuity of research, perhaps more consistent samples, will be essential to clarify the AR alterations in workers exposed to loud noise. Key Words: audiology, acoustic reflex, noise-induced hearing loss

POSTER SESSION II - D DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104D

THE AUDIOLOGY PROFILE OF CHILDREN WITH THE HIV VIRUS WHO ALREADY HAVE A HISTORY OF OTOLOGICAL CHANGES

Authors

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Institution

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4. IPA, Centro Universitário Metodista do Sul

Abstract: THE AUDIOLOGY PROFILE OF CHILDREN WITH THE HIV VIRUS WHO ALREADY HAVE A HISTORY OF OTOLOGICAL CHANGES SLEIFER P; CONDESSO LSN; CORREA AO UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL(UFRGS) OBJECTIVES: Trace the audiology profile of children with the HIV virus who already have a history of otological changes. METHODS: The study analyzed the personal data of 22 HIV carriers aged 8 to 12 years old, with a history of otological changes during their development. All the members of this group were referred by the Pediatric AIDS Attention Group (GAAP), to the phonaudiology sector of the Nossa Senhora da Conceição Hospital in the city of Porto Alegre. We analyzed the data obtained through the audiological tests: Tonal Audiometry, Vocal Audiometry and Imitanciometry and applied a questionnaire, which contained questions regarding the auditory history of each individual. RESULTS: Among those surveyed, it was found that 7 presented unilateral hearing loss (31.8%) and 7 had bilateral hearing loss (31.8%), and that the majority of children and adolescents had hearing impairment. The hearing loss found in all these cases was the conductive type, where 13.6% had tympanic unilateral perforation and 31.8% bilateral. Moreover, it was found that out of the 44 ears examined, 11 (25%) had moderate degree of hearing loss, 10 (22.73%) of mild and 23 (52.27%) showed no hearing loss. Regarding Imitanciometry, the results presented were tympanometric curves type A and type B. The acoustic reflexes were compatible with the tympanometric curves found, which means, present in cases of tympanometric curve type A and absent in cases of tympanometric curve type B. It was observed by examining the questionnaire, that only 1 of those children and/or adolescents of that group, showed no complaint related to this fluctuating hearing. CONCLUSION: The audiological profile of children carrying the HIV virus with a history of otological changes was conductive hearing loss from mild to moderate degree, being unilateral or bilateral, with tympanometric curves type B in most cases, aswell as absent acoustic reflexes. Such findings probably caused by inflammation of the middle ear and/or tympanic perforation. Keywords: Hearing, Acquired Immune Deficiency Syndrome, Children.

POSTER SESSION II - E DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104E

AUDIOLOGICAL PROFILE OF PATIENTS OF HEARING HEALTH PUBLIC SERVICE – NISA II- PIRITUBA

Authors

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Institution

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2. AUDIO.COM, AUDIO.COM

Abstract: Resumo / Abstract: The Hearing Health Integrated Centre Pirituba (NISA II) is a Public Hearing Health Service of medium complexity in the Universal Health System (SUS), located in Sao Paulo City, and started on September 2006. The goal of this study is to establish a retrospective overview of the audiological profile of the patients attended in the service. Due to implantation process and in order to reach the numbers suggested by the Public Health Secretary Programme, 239 patients had their hearing aids fitted in the first year, 318 in the second year and 475 were fitted in the third year. Objectives: delineate the audiological profile, age and gender of the patients attended in the hearing aid fitting Programme of the Audiological department of NISA II - Pirituba. Methods: through a retrospective revision of patients records, analyze hearing loss characteristics Date: type, degree, configuration and symmetry of loss, age and gender of the patients attended from the first of September 2006 to August 31st2009. Records were obtained from 1032 patients from 5 to 95 years of age. Results: 90% of the records showed a sensorineural hearing loss, 9% sensorineural with a conductive component and only 1% showed a pure conductive hearing loss. The hearing loss degree analysis showed mild and moderated hearing loss in 70% of the patients, against 30% severe and profound hearing loss. Based on those audiograms, 70% were symmetric and 30% showed asymmetry. The obtained results related to gender showed 51% of female patients and 49% of male patients. Regarding the age, 63% of the patients were 60 years of age or more, 20% ranged from 40 to 59 years of age, 9% were 22 to 39 years of age and 7 % were 12 to 21 years of age, and only 2% were less than 10 years of age. Conclusions: Most of the patients attended were more than 60 years of age and have a symmetric mild or moderate hearing loss.

POSTER SESSION II - F DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 104F

DIAGNOSTIC AUDIOLOGY PRACTICE AND EVOLUTION IN NEONATE WITH INDICATOR OF RISK HEARING LOSS AFTER FAILURE

TANU: A CASE REPORT

Authors

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Institution

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Abstract: Background: The diagnosis of hearing disorders in children up to 3 months, and the therapeutic intervention until 6 months of age, allow children with hearing loss presents a language development similar to those listeners (Yoshinaga-Itano, 1999). The Universal Newborn Hearing Screening (UNHS), inserted in hearing health programs, allows the identification and early therapeutic intervention in cases with hearing impairment. As the most used tests in research protocols hearing in neonates are Diagnostic Auditory Brainstem Response (ABR) associated with emissions (OAE), the interpretation of results must consider the changes in electrical responses of the brainstem that occurs in the early years of life due to the maturation process beyond the conductive component that may be present and involved. Both the plasticity and maturation are, in part, dependent on auditory stimulation, whereas auditory stimulation activates and reinforces specific neural pathways (Chermak & Musiek, 1992). Light of this knowledge is currently expected that the amplification is introduced even with partial hearing results (Boéchat, 2003). The program diagnostic audiological services and Phonaudiology in a teaching hospital in São Paulo, adopts as a conduit to conduct two audiological assessments within three months or so in order to minimize the rate of false positives, as well as evaluate the process of maturation of the auditory pathways. Objective: To present the result of evolutionary audiological evaluation in a neonate with risk factors for hearing loss (family history) which failed in TANU. Method: The audiological evaluations were performed in this case through the ABR, OAE and evaluation of behavioral observation, with 2, 5 and screening at 18 months of age. Results: The initial assessment suggested severe hearing loss in both ears. Was decided, then, the binaural hearing aids and auditory stimulation. From the auditory stimulation and behavioral assessment, it became positive response by the patient and 5 months, the assessment of integrity of auditory pathways, was consistent with the age and electrophysiological thresholds corresponding to the psychoacoustic within the normal range bilaterally beyond the presence of functional responses of outer hair cells in transient evoked and distortion product. At 18 months the patient remained in audiological responses appropriate and consistent with his chronological age. Conclusion: It is suggested from the results of a likely association with the maturational process hearing, which also seems to have been triggered by inter diagnostic auditory stimulation. Moreover, the diagnosis of hearing impairment to be defined only in the second examination of ABR became important in this case of false-positive for hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 105

DESCRIPTIVE ANALYSIS OF THE HEARING OF CARRIERS OF LIP-PALATE LESIONS THAT UNDERWENT REPARATIVE SURGERY

Authors

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Institution

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Abstract: INTRODUCTION: Hearing alterations are common in individuals with lip-palate lesions. The alterations result from the exposure of the auditory tube to the entrance of food, traumas and infecting agents. The aim of this study was to find out the hearing conditions of the population carrier of lip-palate lesions. METHOD: A transversal-type descriptive study was performed. The patients took part voluntarily and signed a consent and understanding form. The cohort of this study was made up of patients selected by the team of the project "Operação Sorriso" for lip, palate or lip-palate lesion surgeries, in the Federal University of Rio de Janeiro's Clementino Fraga Filho Hospital. The examination of the patients was done after surgery within the first 24 hours by means of hearing screening (tonal audiometry and imitancimetry). In the audiometric testing the following frequencies were examined 0.25kHz-0.5kHz-1kHz-2kHz-4kHz with a fixed intensity of 20dB and considered normal, positive answers for at least four out of five frequencies studied. In the cases where it was not possible to perform audiometric tests, they were substituted for the behavioral assessment using the following instruments: rattle, drum, large agogô. In the imitancimetry the type "A" curvature was considered normal and the presence of acoustic reflex in at least three of the four frequencies studied (0.5 kHz-1kHz-2 kHz-4 kHz). The cohort was divided into two groups of different age groups: group I (0 to 17 years old) and group II (18 years old and older). In the analysis of this study, the answers of the ears were considered separately except in the behavioral analysis. RESULTS: 88 patients took part in the study, 62 (70.4%) group I and 26 (29.6%) group II. In group I the age varied from 3 months to 17 years old (average: 7.7 years old), 28 of these (45.2%) patients of the male gender and 34 (54.8%) of the female gender. In the audiometric tests normal responses were found in 38 (30.6%) ears, altered responses in 48 (38.7%) ears, and it was not possible to examine two (1.6%) ears. The behavioral assessments were performed in 36 (29%) ears with normal responses in 100% of patients examined. In the imitancimetry the tympanic membrane curvature of the "A" type were found in 29 (23.4%) ears, type "B" in 61 (49.1%), type "C" in 25 (20.1%), type "Ar" in six (4%) and "Ad" in one (0.8%) ear. It was not possible to perform the imitancimetry in two (1.6%) ears. In Group II, the age varied from 18 to 59 years of age with an average of 30.8 years old, 15 (57.7%) patients were male and 11 (42.3%) female. In the audiometric exams normal responses were found for 36 (70.2%) ears and altered responses were found in 15 (29.8%) cases. In the imitancimetry testing 33 (63.4%) ears presented type "A" curvature, seven (13.4%) presented type "B" curvature, six (11.5%) type "C" curvature, one (1.9%) type "Ar" and four (7.6%) type "Ad". It was impossible to examine one of the ears (1.9%). CONCLUSION: The younger population presented more alterations than the population folder age. The imitancimetry testing was more sensitive in the detection of the alterations in younger population when compared the audiometric test. This relation was inverted in the population of the group I.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 106

PURE-TONE AUDIOMETRY OF TUBERCULOSIS CARRIERS AND ITS ASSOCIATION WITH EXPOSURE TO NOISE, USE OF TOBACCO AND ALCOHOL

Authors

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Institution

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Abstract: INTRODUCTION: Tuberculosis (TB) is currently a great concern of governments and world health authorities. Estimates of the global burden of TB show that there were 9.2 million new cases of TB in 2007, of which 3.7 million were not diagnosed or treated. Brazil ranks 18th of the 22 countries that account for 80% of the global burden of TB (WHO, 2009). The estimated prevalence is of 50 million people infected with the TB bacillus. Treatment lasts at least six months and interruption of the treatment is the main cause of the emergence of resistant strains of TB bacillus. Aminoglycosides are used to treat MDR-TB (multidrug-resistant tuberculosis), increasing the risk of debilitating hearing loss. Noise exposure is the leading cause of hearing loss in adults. Normally, the loss starts at 4 kHz and may reach other frequencies (KATZ, 1999; FERNANDES e MORATA, 2002; CORDEIRO et al, 2005). Smoking is recognized as an epidemic disease caused by nicotine addiction. Some studies have linked the use of tobacco to hearing loss (PAHO, 2002). The ototoxic potential of alcohol has not been fully understood yet. There are very few studies on the theme, and many show conflicting results (BELLÉ, SARTORI e ROSSI, 2007; RIBEIRO et al, 2007). There is not enough hearing data about these patients in the developing countries. The purpose of this study was to investigate the hearing of the population on tuberculosis and multidrug-resistant tuberculosis treatment by means of pure-tone audiometry (PTA), and associate the results to the variables of interest. METHODS: The study was approved by the Research Ethics Committee (CEP) of the Clementino Fraga Filho University Hospital of the Federal University of Rio de Janeiro under No. 065/07. A descriptive cross-sectional study was conducted in two reference hospitals for the treatment of TB and resistant TB in the Rio de Janeiro state. We verified the hearing thresholds at frequencies between 0.25 kHz (kilohertz) and 8.0 kHz of the patients who agreed to participate in the study. To analyze the data, the population was divided into groups according to age: G1, 18 to 40 years old; and G2, 41 to 60 years old. The Mann-Whitney test was used for statistical analysis. When it was not applicable, we used Fisher's exact test. RESULTADO: Ninety-seven patients were evaluated, 65 (67%) of which were men. Use of tobacco, use of alcoholic beverages, noise exposure, and use of ototoxic medication were observed, respectively, in 65 (67%), 51 (52.5%), 53 (54.6%) and 45 (46.4%) patients. Results that showed alteration in the PTA were observed in G1 and G2 in 24 (44.4%) and 31 (72.1%) of the patients, respectively. No association among gender, alcohol, tobacco and noise exposure was observed in G1. In G2, we observed a statistically significant association between the altered responses and the use of tobacco (p=0.021) and the male variable (p=0.001). CONCLUSION: No association was found in G1. In G2, the use of tobacco and male gender were associated with hearing thresholds alterations.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 107

EVALUATION OF HEARING DAMAGE CAUSED BY OTOTOXIC SUBSTANCES IN THE TREATMENT OF MULTIDRUG RESISTANT TUBERCULOSIS

Authors

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Abstract: INTRODUCTION: Hearing damages caused by iatrogenic medications are increasingly common. The decrease in hearing sensitivity and the difficulty to understand speech may make the social interaction of the individual difficult, especially for adults. The damage resulting from the use of ototoxic medication starts at the basal region of the cochlea, where high frequency sounds are decoded, and may reach top portions, causing problems in speech frequencies. Hearing alterations may occur temporarily or permanently, depending on the medication used. The purpose of this study was to investigate, with pure-tone audiometry, the hearing thresholds of a population being treated for resistant pulmonary tuberculosis with streptomycin and amikacin, and correlate the hearing loss to the use of these medications. METHODS: The study was approved by the Research Ethics Committee (CEP) of the Clementino Fraga Filho University Hospital of the Federal University of Rio de Janeiro. We conducted a descriptive cross sectional study, in which the population was composed of patients of both genders aged between 18 and 60, with a resistant tuberculosis diagnosis, in out-of-hospital care or in reference hospitals for the disease in the Rio de Janeiro state. Clinical history, otoscopy, and pure-tone audiometry were performed. Conductive or mixed hearing loss patients were dismissed from the study. Exams in which the air-conduction thresholds were above 25 dB were regarded as altered. Therefore, values up to 25 dB at the frequencies of 0.5kHz, 1kHz, 2kHz, 3 kHz, 4 kHz and 6 kHz were regarded as normal. To analyze the data, the population was divided into groups according to age. The Mann-Whitney test was used for statistical analysis. RESULTS: Forty-five patients were evaluated, 26 (58%) of which were men, and 19 (42%) of which were women, with an average age of 40 years old. From the population, nine (20%) patients had been using streptomycin, and 36 (80%) had been using amikacin for at least 15 days. An increase in the hearing thresholds was found in 32 (71.1%) patients, of which 10 (31.25%) had a mild degree, 11 (34.37%) showed moderate degree, 8 (25%) had a severe degree, and 3 (9.37%) had a profound degree. In 23 (71.8%) cases, the increase in the thresholds occurred exclusively at high frequencies (above 3 kHz). In the pure-tone audiometry analysis, a statistically significant association was found (p= 0.034) between the use of ototoxic medications and the hearing thresholds of patients 18 to 40 years old. No association was found in the group of patients aged 41 to 60. CONCLUSION: The use of ototoxic medications is associated with the increase in hearing thresholds in the population of Group 1. This association was not observed in Group 2.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 108

STUDY OF HEARING COMPLAINTS OF TUBERCULOSIS CARRIERS DURING THE TREATMENT

Authors

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Abstract: INTRODUCTION: In 2007, estimates showed 9.2 million new cases of TB, of which 3.7 million were not diagnosed or treated. Brazil ranks 18th in the 22 countries that account for 80% of the global burden of TB (WHO, 2009). The estimated prevalence is of 50 million people infected with the TB bacillus. Treatment lasts at least six months, and interruption of the treatment is the main cause of the emergence of resistant strains of TB bacillus. Aminoglycosides are used to treat MDR-TB (multidrug-resistant tuberculosis), increasing the risk of debilitating hearing loss. The Ministry of Health classifies the reactions to the treatment as minor and major adverse drug reactions. Rotational dizziness (vertigo) and hearing loss are considered major adverse reactions and require specialized treatment in reference units (MINISTÉRIO DA SAÚDE, 2000). In the developing countries, there is not enough data on the hearing or hearing symptoms of these patients. Hearing complaints have been observed by attending physicians, leading to the monitoring of the hearing of TB patients, as it is not a routine procedure in this population. The purpose of this study is to find out the frequency of the most common hearing complaints of the target population of this research and correlate them to the audiometric results. METHODS: The study was approved by the Research Ethics Committee (CEP) of the Clementino Fraga Filho University Hospital of the Federal University of Rio de Janeiro under No. 065/07. A descriptive cross sectional study was performed in two reference hospitals for the treatment of TB and resistant TB in the Rio de Janeiro state. We verified hearing thresholds at the frequencies between 0.25 kHz (kilohertz) and 8.0 kHz of the patients who agreed to participate in the study. Patients both male and female up to 40 years old were included in the study. They were evaluated by means of a standard interview and with pure-tone audiometry. In the interview, patients were asked about complaints such as tinnitus, hypoacusis or dizziness. Conductive or mixed hearing loss patients were dismissed from the study. The Mann-Whitney test was used for statistical analysis. When it was not applicable, we used Fisher's exact test. RESULTS: Fifty-four patients were evaluated, 31 (57%) of which were men and 23 (43%) of which were women. We verified the frequency of the hearing complaints (tinnitus, hypoacusis and dizziness) and related them to the audiometric results of the PTA. Dizziness was reported by 14% of the population, hypoacusis was reported by 18%, and tinnitus was reported by 24% of the studied population (the most frequent). No association was found between the tinnitus and dizziness complaints with the audiometric results. A statistically significant difference was verified in cases in which the patients reported difficulty to hear (hypoacusis) and showed altered audiometric results, with a prevalence of increased hearing thresholds at higher frequencies, starting at 3 kHz. CONCLUSION: Although tinnitus and dizziness complaints were considerably frequent, hypoacusis was the only complaint that was associated with hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 109

THE HEARING LOSS IN PATIENTS WITH CLEFT LIP AND PALATE: A RETROSPECTIVE STUDY

Authors

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Institution

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Abstract: Introduction: Individuals with cleft lip and palate may have conductive hearing loss caused by otitis media, which is associated in this population given malfunction of the tensor veli palatini muscle responsible for the mechanism of opening and closing the auditory tube, causing inadequate ventilation in the middle ear and making it more susceptible to infections. OBJETIVE Verify the occurrence of sensory neural hearing loss (SN) in individuals with cleft lip and palate aiming to guide and identify the presence of this type of hearing loss in order to intervene as fast as possible in future cases. METHODOLOGY One hundred records of patients with cleft lip and palate were randomly selected. It consisted of subject who underwent a surgery from 1988 to 1995 at the HRAC-USP. The hearing history of patients, their complaints and the audiological evaluation (pure tone audiometry), the presence/absence, type, degree of hearing loss, in the first and last evaluation from their records were analyzed. Five hundred and one records were selected for statistical analysis. The exclusion criteria were: inconsistent responses and missing data in one of the assessments considered. 65.6% are male. In the first evaluation only 4.6% of individuals had hearing complaints and the most common was otalgia. 46.8% of the individuals were younger than 6 years old, 44% between 7 and 11 years, 5.4% between 13 and 18 years and 3.8% were over 19 years.

24.2%of the right ears and 22.8% of the left ears did not have not hearing loss.The occurrence of SN hearing loss in the right ear was 0.4% while the left was 0.6%.The most type of hearingloss found was the conductive (74.6% in the right ear and 0.2% in the left ear).Mixed hearing loss was also present (0.8% in the rightand 1.2% on the left).The degree of hearing loss in right ear was the minimum 39.4%,followed by moderate grade 1 20.8%. In the left ear to the predominance degree of hearing loss was minimum 44.2% , then followed by moderate grade 1 21.4% At the last evaluation,2.2% of individuals were younger than 6 years old,18.4% between 7 and 12 years,58% between 13 and 18 years and 21.4% were over 19 years.36.3% of individuals had hearing complaints and the most common was about the atalgia too.The occurrence of SN loss in the right ear was 2.4% while the left was 2.0%.It was not statistically significant when compared to the first evaluation.The values for ears without hearing loss found were 75.8% in the right ears and 74.0% in theleft in the last evaluation.The conductive hearing loss found was 17.4% in the right ears and 19.2% in the left.The mixed hearing loss present in the right ear was 4.2% and 4.4% in the left. The degree of hearing loss in right ear was minimum 16.2%, followed by moderate grade 1 8.2%.In the left ear the predominance degree of hearing loss was also minimum 44.2%, followed by moderate grade 1 10.6% **CONCLUSION** In the population of individuals with cleftlip and palate all types of hearingloss are found,with a lower incidence of SN loss and a higher incidence of conductive hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 110

HEARING IMPAIRMENT CONNECTED WITH MUTATIONS IN GJB2 GENE: CLINICAL MANIFESTATIONS.

Authors

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Institution

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Abstract: Molecular genetic testing of deafness-causing mutations in the GJB2 and GJB6 genes allow to provide correct information at genetic consultation. We have developed molecular diagnostics of c.35delG mutation in the GJB2 gene at 406 unrelated probands suffered by congenital and early childhood hearing loss or deafness. In the survey group 197 children with c.35delG mutation in the GJB2 gene were reveale; 146 of them (74%) segregated two c.35delG mutations. All these patients had a nonsyndromal bilateral sensorineural hearing impairment. The degree of hearing loss in this cohort was: profound - in 52.1% of individuals; severe to moderate - in 26%; moderate - in 18.5%; mild degree - in 3.4% of probands. The age of primary diagnosis of a hearing disorder in 87% of homozygotes comprised the period of two years after birth. It was shown that 47% children with c.35delG mutation in the GJB2 gene had no family history. The cause of hearing loss before the genetic analysis was determined as unknown in 24% of homozygotes, not clear - in 20% due to an abnormal pregnancy of their mothers, acquired - in 11.7% due to the diseases of the first years of life, and in 2.4% due to heavy infections (except meningitis). The c.35delG mutation has been revealed in half of cases when parents mentioned the use of ototoxic antibiotics and other drugs. It is assumed that the molecular testing of deafness-causing mutations in the GJB2 gene is essential for nonsyndromal bilateral sensorineural hearing loss of different degrees detected in the first years of life. The accurate diagnosis of the genetic cause of the hearing disorders has opened the future trends in their prediction and prognosis.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 111

SUPPRESSION EFFECTS OF OTOACOUSTIC EMISSIONS AND THE PERFORMANCE OF NORMAL HEARING INDIVIDUALS IN THE SENTENCE RECOGNITION IN NOISE

Authors

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Abstract: INTRODUCTION: An increasing interest on the action of the auditory pathways has been observed lately. Some authors agree with the idea that the medial olivocochlear system (MOS) makes sound localization easier and promotes hearing discrimination in the presence competing noise. OBJECTIVES: To compare the occurrence of the suppression effect of Distortion Product Evoked Otoacoustic Emissions (DPOAEs) with the performance to recognize sentences in noise. METHODOLOGY: The sample consisted of 50 normal hearing subjects, aged between 19 and 32 years old, divided into two groups. The study group was composed of 24 patients complaining of difficulty in recognizing speech in noise (WC) and the control groups was composed of 26 subjects with no complaints (WNC). Individuals who reported tinnitus, hyperacusis or had involvement of the middle ear were excluded from the sample population. Subjects underwent basic audiological evaluation to prove normal-hearing condition. DPOAEs were evaluated using the Otoread Clinical device (Interacoustics / Audioteq). We tested in the 1500Hz to 6000Hz frequency range, firstly without and next in the presence of white noise with an intensity of 60 dB HL applied in the contralateral ear using headphones TDH-39P coupled to an audiometer Siemens, model SD 25. DPOAEs were considered present when the signal to noise ratio was equal or higher than 6dB. The suppression of DPOAEs was considered present in the ear examined when it occurred in at least four of the six frequencies tested. The signal / noise ratio was investigated and Sentence Recognition Threshold in Noise was obtained using the Portuguese Sentence List Test (Costa, 1998). Sentences and noise were presented from a CD, in a monaural ipsilateral way using headphones, with noise fixed at 65 dB, varying the intensity on the sentences. Ears were evaluated separately. RESULTS: Although the groups did not differ statistically for the presence of suppression of DPOAEs in the right ear, its predominant presence was observed in the WNC group. In the left ear, groups differed statistically (p = 0.0246) for the presence of suppression of DPOAEs. The number of subjects with the presence of suppression of DPOAEs was higher in the WNC group than in the WC group. The WNC group showed adequate performance in the test of sentence recognition in noise (SRN) in both ears. In the WC group, 18% (n = 9) of the subjects had SRN performance altered in the right ear and 20% (n = 10) in the left ear. Although the SRN performance and the occurrence of suppression of DPOAEs in the right ear did not have statistically significant agreement, the number of subjects who performed well in SRN and presented the suppression effect of DPOAEs was considered high: 50% (n = 25). CONCLUSION: Based on our findings, we can consider that there is an agreement between self-reports of patients complaining of speech intelligibility in noise regarding the absence of suppression of DPOAEs and changes in SRN. KEYWORDS: efferent pathways, speech discrimination, noise.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 112

THE INTERFERENCE OF TINNITUS IN DIFFERENT TYPES OF HEARING LOSS

Authors

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Abstract: Introduction: Tinnitus can be defined as a sensation of sound perceived by the subject in the absence of external sound source. In 15% to 20% of cases, tinnitus interfere on quality of life, affecting sleep, concentration, emotional balance and social activities. Tinnitus Handicap Inventory (THI) is a questionnaire with 27 questions, the number of points ranging from 0 to 100. The higher the score, the greater the impact of tinnitus on quality of life of the patient. This questionnaire was developed by Newman et al in 1996 and translated and adapted to Portuguese by Schmidt et al 2006. This is used widely in the clinical setting to assess patients with tinnitus, to quantify the trouble related to this symptom and to evaluate responses to treatments. Purpose: Qualify and quantify tinnitus in patients with sensorineural hearing loss, conductive hearing loss, and mixed hearing loss, through acuphenometry, a questionnaire that assesses the disadvantage caused by this symptom (Tinnitus Handicap Inventory). Methods: This research has been approved by the Research Committee of the otolaryngology department, substantiated by Ethics Committee of "Irmandade de Misericórdia da Santa Casa de São Paulo", number 120/09. There were five subjects evaluated of male and female gender, in the range of 50 to 75 years old. All subjects will be submitted to history, otoscopy, basic audiological evaluation (pure tone audiometry, speech audiometry, acoustic immittance measures), acuphenometry (frequencies of 250Hz to 18kHz) and Tinnitus Handicap Inventory (THI) questionnaire. Results: There were analyzed a total of 10 ears, 40% were sensorineural hearing losses, 40% were conductive hearing losses, and 20% were mixed hearing losses. In intensity and frequency measures of tinnitus was found 33% of tinnitus in the narrow band noise and 67% in high frequencies (3000 to 6000 Hz), 50% had mild tinnitus intensity (30-40dB), 20% had moderate tinnitus intensity (50-60dB), 20% had severe tinnitus intensity (70-80dB) and 10% had profound tinnitus intensity (90dB). Concerning the result of THI (questionnaire that assesses the interference of tinnitus on quality of life), 40% of subjects attributed a moderate discomfort, 20% mild discomfort, and 40% didn't attributed any discomfort of tinnitus on quality of life. The higher was the hearing loss, the higher was the interference of tinnitus on quality of life. Conclusion: Tinnitus interferes with the quality of life of 60% of individuals. Regardless of the type of hearing loss most people observe their tinnitus in high frequencies.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 113

PURE-TONE THRESHOLDS IN INDIVIDUALS EXPOSED TO METALLIC MERCURY

Authors

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Institution

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Abstract: INTRODUCTION: Occupational hearing loss is often used as a synonym for noise-induced hearing loss, but this is not the only risk factor for the hearing health of workers. Studies have also shown hearing, vestibular and neurological damages that were caused by ototoxic chemical agents used in occupational activities, such as mercury, solvents, agrochemicals, carbon monoxide, lead, among others. A synergistic effect between these agents and noise is also observed, aggravating the hearing problems. The purpose of this work was to study the hearing characteristics of individuals who were occupationally exposed to metallic mercury and noise at a lamp factory of Rio de Janeiro, and individuals who were not exposed to any of these agents. METHODS: We conducted a descriptive cross-sectional study, in which two groups were evaluated: G1, formed by 12 subjects, male and female, aged 34 to 54, with a history of occupational exposure to noise and metallic mercury; and G2, formed by 15 subjects, male and female, aged 30 to 53, with no history of exposure to noise, metallic mercury, and other chemicals. The subjects were required to spend 14 hours in acoustic rest prior to the audiologic assessment, which was performed after the meatoscopy examination, and consisted of the following exams: tympanometry, to evaluate the integrity of the middle ear and dismiss subjects with type B and type C curves; and pure tone audiometry, in which the pure-tone thresholds of 250 to 8000 Hz were investigated. To interpret the results, we used the recommendation described in Appendix I - picture II of NR-7 as a standard for normal and altered exams, in which subjects with hearing thresholds less or equal to 25 dBNA at all the tested frequencies were regarded as having normal standard hearing, whereas those with at least one of the frequencies worse than 25 dBNA in at least one ear were regarded as altered. RESULTS: In the study of the pure-tone thresholds, we noted that there was no statistically significant difference in the tested frequencies in the pure-tone audiometry with respect to right ear and left ear separately, which is why we chose to analyze the frequencies from 250 to 8000 Hz of G1 and G2 without taking into consideration the right year and left ear variable. When we analyzed each frequency, we also noted that there was no statistically significant difference; however, we noted a great variation between the minimum and the maximum thresholds found in G1 at all the tested frequencies when compared to the same values of G2. In the analysis of the audiometry results regarding normal and altered states, there was a statistically significant difference between G1 and G2. In this respect, we observed 33.3% of altered exams in G1, while in G2 there was no alteration (p = 0.028). CONCLUSION: This study suggests that exposure to noise and metallic mercury increases the prevalence of hearing alterations in the subjects who were exposed to these agents.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 114

EFFECTIVENESS OF NEWBORN HEARING SCREENING: COMPARISON OF TWO PROTOCOLS.

Authors

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Abstract: Background: hearing and language functions are correlated and interdependent, and the anatomical and functional integrity of the auditory system is critical for language acquisition. Language and hearing skills are developed in the first two years of life, especially in the first six months, therefore the early detection of hearing loss as well as its topographic diagnosis (peripheral or central) and immediate intervention are imperative. In epidemiological surveys, hearing impairment is the most prevalent disease in routine neonatal hospitals, reaching 1 to 3:1000 births with no risk and 1 to 4:1000 neonatal intensive care units. Aim: To test two newborn hearing screening protocols and analyze their effectiveness in detection and early intervention. Method: Three hundred and twenty four newborns (167 female and 157 male) were screened, 214 (66%) without risk for hearing loss and 110 (34%) at risk (83



risk for retrocochlear hearing loss and 27 for cochlear damage), using a protocol consisting of transient otoacoustic emissions (TEOAE) and automatic click evoked brainstem response (ABRa). Newborns at risk for retrocochlear hearing loss, click diagnostic evoked brainstem response (ABR) was also included. Results: In 214 infants without risk, 200 passed the first stage and 14 (6.5%) failed. Of the 110 newborns with risk, 93 (84.5%) passed the first stage and 17 (15.5%) failed. Of the 31 newborns who failed, 27 returned for retest. Considering these 27, 18 (66.7%) passed and parents were counseled about the development of hearing and language skills and were instructed to return for further evaluation when the baby was six months old in order to monitor auditory development. Nine newborns, who failed the 2nd stage, were referred for diagnostic hearing evaluation, which revealed conductive bilateral impairment in two newborns. These two babies were referred to the ENT. One child was diagnosed with unilateral hearing impairment on the left ear and was referred for hearing aid fitting. Retrocochlear alterations, as evidenced by abnormalities in clinical ABR, were diagnosed in six neonates. Of the 106 newborns at risk, 83 for retrocochlear and 22 for cochlear hearing losses, 81 passed ABRa. Of these, diagnostic ABR was normal in 70 (84.4%) and revealed prolonged latencies of waves III and/or V in 6 babies (7.2%). Elevated electrophysiological thresholds were observed in two neonates (2.4%). Three infants showed no responses in automatic ABR, but clinical ABR revealed elevated thresholds in one child, and in the remaining two bilateral absent responses was confirmed. Conclusion: The hearing screening is an effective procedure for the detection of hearing loss. The ABRa was sensitive to detect changes in the electrophysiological threshold. Supported by FAPESP – Fundação de Amparo à Pesquisa do Estado de São Paulo

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 115

NEW SPEECH TESTS FOR CASTILIAN SPANISH WITH INTERNATIONAL COMPATIBILITY

Authors

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Abstract: In order to better understand the effect of hearing impairment on speech perception in everyday listening situations a thorough understanding of mechanisms and factors influencing speech recognition in quiet and in noise is highly desirable. Furthermore the effect of modern hearing instruments in improving the speech intelligibility for hearing-impaired listeners is a matter of particular interest. Therefore, an appropriate instrument for estimating speech intelligibility is needed. This contribution presents the development of new speech tests for Castilian Spanish as an extension of already existing tests in other languages (German, Dutch, English, French, Swedish, Polish). The tests comprise a digit triplet test ("Spanish Digit Triplet Test"), using spoken numbers in a noise background as a screening test of speech recognition for internet or telephone use, as well as a sentence intelligibility test ("Spanish Matrix Test") consisting of ten names, verbs, numerals, objects and adjectives. From this material a large number of syntactically equal, but semantically unpredictable sentences can be composed that are phonetically balanced, permitting repeated measurements which are required, e.g., for hearing instrument fitting or research purposes. Advantageously this test procedure can also be used in terms of a closed-set format with given response alternatives. The recordings of the speech material for both tests were recorded with a native speaker of Castilian Spanish from Valladolid (Spain) using a method that accounts for the effect of coarticulation during resynthesis of the complete test sequences. To achieve a high efficiency of the tests for speech reception threshold (SRT) estimation, a steep slope of the discrimination function was obtained by maximizing the homogeneity in intelligibility across the recorded word material. The results of the subsequent optimization procedure will be described where the word-specific speech discrimination functions were measured with native Spanish-speaking subjects. This led to high similarity in intelligibility across words, sentences and test lists. To demonstrate the compatibility with the languages covered so far with appropriate closed-set test methods, the resulting overall discrimination functions and between-list variability will be compared to the functions obtained for the respective other languages.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 116

HEARING AND BREATHING EVALUATION IN PATIENTS SUBMITTED TO RAPID MAXILLARY EXPANSION

Authors

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Abstract: Breathing is a vital function. The inspired air, when passing through the nose, is purified, filtered, heated and humidified in its course to the lungs. Any obstruction on the air passage leads the individual to breathe through the mouth. Such supplementary mouth breathing may cause: a reduction of the thoracic expansion leading to long-term alterations in the development of the thoracic box; and morphological changes in the spinal column and facial skeleton such as maxillary atresia. Maxillary atresia causes occlusion alterations and has become increasingly observed on the daily routine of otolaryngologists and pediatricians and at a higher frequency at orthodontic clinics as well. Individuals with reduced nasal breathing present hearing impairment and deficient general health. Children with mouth breathing have narrowed dental arch and high palate - "v" form - which result from the unbalance between the tongue position and the jaw muscles. In typical development, the palate grows down and forward. The Theory of Compression or Inactivity - a current valid theory - claims that the palate inactivity in mouth breathers promotes a reduction on the development of the nasal cavity and maxillary sinuses. The mouth breather is very vulnerable to otitis and, therefore, subject to hearing fluctuation. Therefore, the purpose of this study was to verify whether improvements in hearing and breathing are observed in patients submitted to maxillary disjunction. This study was performed with three patients from the Orthodontics Department and the Speech Therapy and Audiology Department of UFRJ. Participants were two girls and one boy aged between 11 and 14 years who presented malocclusion such as cross bites or atresic palate. All participants underwent orthodontic treatment with Hyrax palatal expander in order to transversally correct the measures. All participants were submitted to tonal and vocal audiometry, immitancymetry, rhinomanometry and acoustic rhinometry. All these tests were carried out twice and results were observed at two different treatment times: T1 - before the maxillary disjunction treatment; and T2 - immediately after the finished disjunction was achieved with a 7mm disjunctur screw, and activation of a quarter turn in the morning and a quarter turn in the evening, totaling two quater turns per day. Such tests were aimed to assess the auditory, respiratory and occlusive conditions of the patients. The comparison between results of tests performed before and after treatment of maxillary disjunction showed an important improvement in respiratory conditions as well as in occlusive relations. However, no difference was observed regarding to hearing when comparing the two assessments. The results of the present study revealed that the breathing of assessed patients significantly improved after treatment. However, this was not observed regarding hearing. Nevertheless, it should be emphasized that even before therapeutic intervention, the three patients presented favorable hearing conditions - that is hearing within normal limits. Even so, the importance of investigating the hearing and breathing of these patients should be highlighted because, once alterations are observed, actions to improve or treat such conditions are necessary.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 117

ANALYSIS OF THE EFFECTS OF THE CYCLOSPORIN AND TONE THRESHOLD IN LIVER TRANSPLANTATION.

Authors

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Abstract: Many are the problems already documented in scientific literature that can derive from immunosuppression, such as: infections, neurologic complications, systemic arterial hypertension, renal dysfunction, diabetes, bone disease, obesity, among others. Regarding hearing, there are reports in international scientific literature that associate change in the pure tone threshold of audibility to immunosuppressants. In the use of CsA, there is interaction with erythromycin and a case report of hearing loss associated with FK506. FK506 is a macrolide just like erythromycin, of which reports about sensorineural hearing loss have been described in literature for about three decades. Clinical observation of gross hearing alterations in patients subjected to orthotopic liver transplant has led to the interest in studying the auditory acuity of liver transplant patients (TxH), since in domestic literature there are no studies related with hearing in that population. The aim of this research was to verify the potential effects associated with hearing in liver transplant patients and compare the potential changes in the pure tone threshold stemming from the use of cyclosporin (Csa) and tacrolimus (FK506). The subjects were assessed by liminal pure tone audiometry for pure tone thresholds of audibility in 84 ears of 42 patients, before and after orthotopic liver transplant. The patients were divided in two groups, cyclosporin (Csa n=18) and tacrolimus (FK n=24). The analysis tests and use of occupational audiology criteria. The results pointed out to a statistically significant change in pure-tone threshold, particularly in high frequencies, in orthotopic liver transplant. Csa and FK506 were assumed to have noxious effects on the inner ear of these patients. Other results showed a greater significant change in the pure-tone threshold, between the right and left ears, in high frequencies, in group FK. The analyses undertaken, from an occupational perspective, confirmed the statistic data that pointed out to a trend of change in the pure-tone threshold in group FK. It was concluded that: liver transplant patients showed a worse pure-tone threshold after orthotopic liver transplant; the ones using tacrolimus showed more accentuated losses than those using cyclosporin; the worsening in the pure-tone threshold of audibility is more accentuated in high frequencies; the ones using tacrolimus had a loss in the pure-tone threshold in both high and low frequencies. The effects of a worsened pure-tone threshold may be multifactorial, since these patients show more co-morbidities and, thus, are subjected to several drug treatments, being exposed to the adverse effects and side effects of the drugs used. It's underscored, however, that in this study the patients served as witnesses to themselves before and after the orthotopic liver transplant. Further studies are suggested so that the variables can be sorted with the purpose of characterizing this population in order to institute a phonological counseling.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 118

DIZZINESS, TINNITUS AND HEARING LOSS RELATED TO HTLV-1 INFECTION

Authors

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Abstract: Introduction: Human T-Lymphotropic virus type 1 (HTLV-1) associated Myelopathy / Tropical Spastic Paraparesis (HAM/TSP) is related to a predominant damage of the spinal cord motor tract. Abnormalities in this tract may be related to balance disorders due to a late proprioception arc-reflex response. The correlation of Human T-cell leukemia virus type 1 (HTLV-1) infection and otoneurological manifestations has not been studied. Objective: The purpose of the present study was to estimate the prevalence of otoneurological complaints in HTLV-1-infected individuals and to compare with the general population. Methodology: Individuals with and without HTLV-1 infection answered a questionnaire related to hearing-loss, dizziness and tinnitus. Results: From the 54 individuals of the control group, 11 (20.4%) reported dizziness, 9 (16.7%) hearing loss, 6 (11.1%) tinnitus and 18 (33.3%) at least one of the three evaluated symptoms. From the 96 patients infected by HTLV-1, 39 (40.6%) reported dizziness, 25 (26%) hearing loss, 38 (39.6%) tinnitus and 59 (61.5%) at least one of the three evaluated symptoms. The individuals infected by the HTLV-1 exhibited a higher frequency of dizziness (p=0.009) and tinnitus (p=0.000). Conclusion: A potential association between HTLV-1 infection and the complaints of dizziness and tinnitus can be related to abnormalities in the motor vestibulospinal tract. Reports of postural instability have been shown to precede neurological abnormalities in HTLV-1-infected patients. The follow-up of these patients reporting dizziness and tinnitus will clarify the prognostic value of such symptoms for HAM/TSP.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 119

AUDIOMETRIC FINDINGS FOR HIGH FREQUENCY IN INDIVIDUALS WITHOUT OTOLOGICAL COMPLAINTS FROM 20 TO 30 YEARS OLD: A NORMALIZATION PROPOSAL FOR NORMALITY STANDARDS.

Authors

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Abstract: Introduction: - Recent research has investigated possibilities to evaluate the hearing sensitivity of higher frequency aspect (above 8000 Hz) and brought new perspectives concerning to the early diagnosis of recent hearing damage caused by ototoxic agents, premature aging, high intensities to noise etc.. (SAHYEB et al, 2003). Despite there are equipments that allow performing pure tone audiometry in high frequencies (8 - 20 kHz), these studies have not shown any consensus as for the importance of these sounds and approached the lack of fidelity to the calibration standards, the equipments limitations, methodologies used of the found results. Such doubts have demonstrated the lack of knowledge related to normality (FLEET, 2003). Objective - Verify the hearing thresholds in high frequencies of individuals without complaint ear at the age of 20 to 30 years old. Methodology - So, seventy individuals of both sexes, aged from twenty to thirty years old, signed a free consent form and after it they went through conventional pure tone audiometry, with the audiometer GSI-

61phoneTDH 39. Individuals who presented normal hearing and had no otological complaints went through high frequency audiometry with the audiometer GSI-61 phone TDA-200. Results - There was a statistically significant difference in auditory thresholds in the left ear to group the males and females. Hearing thresholds were females better than males in all frequencies. There was a statistically significant difference between the average hearing threshold of right and left ears among different age groups, confirming that age influences the auditory threshold, because younger individuals showed higher levels of audibility in all frequencies. Conclusion - These data can be used as normal reference for further studies, using similar standard equipment that they have to investigate hearing alterations presented in individuals in this age group.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 120

HEARING EVALUATION WITH COMPLEX FILTRATES SOUNDS AND NORMALIZED: STANDARDIZATION AND QUALITATIVE EVALUATION

Authors

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Institution

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Abstract: Introduction: In the considerations about biological calibration of the audiometer of pure tone, the difference among the hearing threshold obtained for a person regarding to other previous measure no exceed to, otherwise the electronic calibration of the apparel should be made arrangements. In other words, it can admit among two measurements, for a same individual, differences of even. Naturally, the audiometria for being a subjective test is susceptible to small variations of the answers, due to the subject's condition, its concentration for occasion of the test. The system SONAR is constituted of normalized sounds (no gauged) press in frequency that admit variations of until on the reference. In some special situations of evaluation of the audition, like hearing deficient, síndromas kids, senior the test with pure tone can become very difficult of being accomplished. In these situations, more complex incentives, with more information, although press in frequency band as Warble or sounds of the SONAR, they make possible an answer faster and mainly more solid, making possible larger reproducibility. Methodology: This job 51 young guys with audition within normality patterns were submitted to the hearing evaluation with pure tones and SONAR'S system sounds. The frequencies of 500, 1000, 2000, 3000 and 4000 Hz were tested, with the objective of Investigating qualitatively and quantitatively the difference among the hearing evaluation with pure tones and with the sounds of the system SONAR. Results: In general, SONAR'S System sounds demanded smaller intensity that the pure tone to elicit answers in the hearing evaluation of the sample, probably due to its largest dynamic and ghostly wealth. In the frequencies of 500, 1000, 2000, 3000 and 4000 Hz the corrected differences (DC) they ponder around zero dB. The corrected difference consists of adding to the results obtained with the sounds complex filtrates 20 dB in the frequency of 1 kHz and 15 dB in the other researched frequencies. And 38.04% of the answers didn't present any difference after correction, 83,5% presented DC less the of the result obtained with pure tone and 98,04%, 99,02%, 93,14%, 96,08 and 94,12% respectively of the answers (DC) they are among of the result obtained with pure tone, in other words, 96,1% of the differences are solid with the acceptable pattern among two audiometers of pure tones appropriately gauged. Results qualitative indicate that 80% of those researched refer more safety in the perception of the threshold with the complex sounds filtrates. Conclusion: In practice the result of the test with SONAR'S System sounds must be subtract of 15 dB in the frequencies of 500, 2000, 3000 and 4000 Hz and of 20 dB to frequency of 1000 Hz. The data show that the difference must not exceed it in more than 93% of the cases. Data that appear for the possibility of the use of these sounds in the hearing evaluation in special populations referred above.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 121

SPEECH INTELLIGIBILITY IN CLASSROOM AND URBAN TRAFFIC NOISE: MODELING AND INTERRELATIONSHIPS

Authors

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Institution

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Abstract: The urban noise is growing and its implications in the classroom have been the subject of several studies. Based on the answers of 60 students, with ages from 19 to 40 years-old, whose hearing thresholds are considered normal, when they listen to phonetically balanced sentences of Portuguese spoken in Brazil, in the presence of noise of urban traffic in a controlled environment, it was observed the intelligibility speech index. An analysis of speech signals and noise was done in order to comprehend the problem. In the production of the material that would be used on the tests, it was preserved the long-term feature of the traffic signs. The research has showed that function of Laplacian probability density was the best one in representing the voice signals and traffic noise. Features of noising, which was recorded on a place with heavy traffic, as non Gaussian, implies the existence of dominant and prevalent urban traffic noise. The spectral analysis has showed that the traffic noise and signal voice have overlapping spectra's frequency. Signs of voice, traffic noise and white noise have presented dynamic ranges of 60, 30 and 2dB, respectively, and variability about 30, 15 and 1 dB for the same signals. The signals of traffic noise and voice have indicated physical and statistical characteristics pretty similar for all models used, which results in intersecting signals. For the rates of the intelligibility speech, it was obtained values of 21.00, 32.83, 64.33. About 90.83% was related to signal and noise, which represented -5, 0, +10, +20 dB, respectively, with level of significance of 0001. These data have allowed obtaining an equation that relates the intelligibility of speech with the relation between signal/noise of urban traffic. The gradient of the intelligibility of speech, in the presence of noise, has showed that is possible to improve the white noise in 21% per dB in relation with signal noise, while the urban traffic noise will allow just 3.45% per dB with the signal noise in its maximum.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 122

HEARING PROFILE OF PATIENT WHO WERE ATTENDED AT HEARING SCHOOL-CLINICS IN TERESINA-PI

Authors

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Abstract: Introduction: Our hearing is essential for the acquisition and development language and it follows us since the beginning of our intra-womb lives and this fact makes our hearing, one of the most important senses for human intellectual development. The hearing loss is a sensorial privation and its characteristics do not limitate only the hearing difficulties, but it also interferes in the speaking, emotional, educational and cultural aspects. Because of this, it is necessary the existence of places where processes of continued interventions survey, prevention, diagnosis and rehabilitation may be realized. School-Clinics offer an important contribution in this intervention because they are places where teaching, survey and practice are available for the future professionals and also for the community. Objectives: The main objective of this survey was to describe the hearing profile of patients who were attended at the Hearing Sector at Hearing School Clinics, reporting the most heard complaints and hearing symptoms, characterizing types of hearing alterations found. Methodology: This study was realized at the Hearing School-Clinic, known as Imaculada Conceição in Teresina-Pi, through a descriptive analysis of 242 medical reports, involving patients of both genders and age, between 4 and 89 years old. The medical reports were used for analyses and hearing exams of those patients attended between February/2003 and January/2008. Results: After data collect, it was noticed that, in relation to hearing damage complaints, the most reported ones were: 73 (19%) difficulty in hearing, 56 (14%) buzz, 53 (13%) hearing loss and 40 (10%) earache. In relation to kinds of loss, the ones which were analyzed through the ear, totaled 484. 232 (48%) were ears with normal hearing, 150 (10%) were ears with health damages observed in at least a frequency of (250Hz , 6 KHz or 8 KHz), 26 (5%) mixed loss and 24 (5%) conductive loss. Conclusions: The Studies show that the hearing profile of patients at School-Clinics, contribute not only for the hearing health of their users, but these studies also identify the pre-disposition factors for hearing loss, making possible health program planning, early diagnosis, hearing habilitation and rehabilitation. Key words: Hearing; Patients; School-Clinic. Key words: Hearing; Patients; School-Clinic.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 123

TEMPORAL RESOLUTION IN THE ELDERLY WITH AND WITHOUT HEARING LOSS

Authors

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Abstract: Temporal processing refers to the perception of a sound and its possible alterations in defined spaces of time (Bellis, 2003). Temporal resolution conducts part of the temporal hearing processing and refers to perception of rapid aspects of hearing processing, which allow detecting brief interruptions between sounds. The objective of this study was to evaluate the average of the threshold of the interval of silence between sounds in healthy elderly people with and without hearing loss.The following individuals participated in the study: fourteen elderly people with normal hearing up to 4000Hz and an average age of 68 , fourteen elderly people with moderate sensorineural hearing loss, and an average age of 69 and 14 elderly people with moderately severe sensorineural hearing loss with an average age of 70. They were all seen at the Integrated Hearing Assistance, Research and Teaching Center of the Department of Speech and Audiology of the Federal University at São Paulo in 2008 and 2009. The test proposed by Musiek (2004), Gaps in Noise Test (GIN) was applied to the volunteers. The average threshold of the interval of silence in the group of elderly without hearing loss up to 4000Hz was 10.2ms in the right ear and 9.2ms in the left ear. The group with moderate sensorineural hearing loss had an average gap threshold of detection of 12ms and 11ms for the right and left ears respectively. The group of elderly with moderately-severe hearing loss had an average gap threshold of detection of 12.25ms and 11.37ms for the right and left ears respectively. We conclude that the elderly individuals without hearing loss have better temporal resolution when compared to the elderly with hearing loss.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 124

PATIENTS WITH NORMAL HEARING AND CHRONIC PAIN EXPERIENCE MORE RELIEF FROM TINNITUS WHEN SUBJECT TO DEACTIVATION OF MYOFASCIAL TRIGGER POINTS

Authors

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Abstract: Introduction: Different kinds of treatment have already been proposed for tinnitus control, but discrepant results reflect the need of new alternatives. A possible relation between tinnitus and myofascial trigger points (MTP) in patients with chronic pain has been suggested. If such relation does in fact exist, tinnitus relief would be expected after treatment of the painful muscles through trigger point deactivation; especially in normal hearing patients. However, no such relation with the audiometric pattern was ever studied. Objectives: 1) to evaluate the efficacy of MTP deactivation for the purpose of tinnitus control in patients with chronic myofascial pain 2) to verify whether the results in tinnitus control are associated to the presence of normal hearing thresholds. Methods: A double blind placebo control randomized clinical trial was performed, so as to verify the efficacy of a treatment based on 10 weekly sessions of MTP deactivation when compared to placebo deactivation (n=33 and 24, respectively). The inclusion criteria for both groups were: 1) unilateral or bilateral tinnitus for at least 3 months; 2) frequent pain complaint for at least 3 months; 3) presence of at least one active MTP in muscles of head, neck or shoulder girdle. A possible variation was analyzed for the following parameters before treatment and after 5 and 10 sessions: intensity of tinnitus and pain, Tinnitus Handicap Inventory, and number of myofascial trigger points. Results: Patients who underwent MTP deactivation showed a highly significant improvement of all parameters when compared to the placebo deactivation group (p < 0,01). Focusing only on the former group, 29 performed a pure tone audiometry test from 250 to 8000Hz. Among them, 11(37.9%) had normal thresholds and 18 (62.1%) had at least mild hearing loss in one frequency. Both groups were similar as to the mean age (p = 0,744) and gender (p = 0,352). Patients with both normal and abnormal audiometry results improved the intensity of tinnitus and pain before and after treatment (p < 0,05). However, those with normal audiometry results also improved both in the Tinnitus Handicap Inventory and in

number of myofascial trigger points ($p < 0,05$). Conclusion: The deactivation of myofascial trigger points in patients with tinnitus and chronic pain may relieve both tinnitus and pain. Although the presence of normal hearing thresholds is less common, this subgroup improved in more parameters than the group with abnormal audiometry results. Moreover, this study shows an example of interdisciplinary approach for tinnitus patients, including otolaryngologists, audiologists and physiotherapists

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 125

DEAD REGIONS OF THE COCHLEA AND HEARING AID BENEFIT: A STUDY IN A GROUP OF CHILDREN

Authors

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Abstract: Introduction: Situations in which ICC are injured, inactive or absent, losing their functional abilities, is defined as dead zones in the cochlea (Moore and Glasberg, 1998). Several studies have shown that in such situations, the person may have little or no benefit with hearing aids, and not always a satisfactory improvement in speech recognition, since the information generated by the vibration basilar membrane in dead zones is not transmitted to the central nervous system (Moore and Glasberg, 1998). In hearing impaired children, auditory stimulation is fundamental to avoid the process of desensitization caused by sensory deprivation. Thus, it is important for early identification of hearing loss for the child to be (re) habilitated in order to achieve the language development, auditory functioning and education, consistent with the age in which it is. Therefore, the investigation of the presence of dead zones in this population is essential in order to obtain better results in the process of fitting hearing aids. OBJECTIVES To investigate the occurrence of cochlear dead zones in children with mild to severe sensorineural hearing loss, hearing aids users and to study the correlation between the presence of dead zones and the benefit obtained with the use of amplification. METHODS This is a quantitative, cross-sectional and prospective study. 15 children with sensorineural hearing loss, mild to severe, ranging from 7 to 12 years age, hearing aid users were evaluated. For the identification of dead zones, the test TEN (Threshold Equalizing Noise), developed by Moore (2000) was utilized. The PEACH questionnaire (Ching and Hill, 2002) was applied to the perpetrators in order to verify the performance of the children in real-world situations with amplification. RESULTS Of the total sample of 15 individuals, 33% of children presented inconclusive responses to the TEN test. In the group studied (67%), 50% of the children had evidence of cochlear dead zones in one or more frequencies tested, i.e., masked thresholds differed by at least 10 dB of absolute threshold and 10 dB of noise level. CONCLUSION The occurrence of children with sensorineural hearing loss and evidence of dead zones, was 50% in the sample surveyed. Children with TEN test results indicative of dead zones had a worse performance in everyday situations with amplification compared to children without evidence of dead zones

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 125 A

PROPOSAL AND EVALUATION OF A NEW FREQUENCY COMPRESSION ALGORITHM FOR IDENTIFICATION OF FRICATIVE PHONEMES

Authors

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3. UFABC, Universidade Federal do ABC

Abstract: Purpose : To evaluate the frequency compression algorithm developed for the present study using a test of fricative phonemes identification. Methods : The test was applied in four hearing impaired individuals with sloping sensorineural hearing loss suggestive of cochlear dead regions, three men and one woman, with ages between 25 and 57 years and with education level compatible with full high school diploma or higher. This novel frequency compression algorithm was developed to act only on fricative phonemes. In order to evaluate the new algorithm, a speech sample material was created containing 24 monosyllabic words which presented the following initial phonemes: /s/, /z/, /f/, /v/, /i:/, /fÉ/, varying the vowels /a/, /i/ and the presence of the final fricative /s/. The words had been recorded for eight Brazilian Portuguese speakers, both sex, totaling a sample of 192 records. Two models of study were established: Experimental and Comparative model. The first one referred to the use of compression of frequencies of the speech sample and the Comparative model referred to the absence of frequency compression of the sample. A test of fricative phonemes identification was applied, in which the subject would hear a word and identify it on the computer screen. Twelve response options were offered with the same vowel and with varied initial fricative phoneme and varied presence of the final fricative /s/. The test was composed of 384 words: 192 words with frequency compression and 192 with no frequency compression. The test was double-blindly designed and the responses were computed and compared according to the model of the study, using T-pareado or Wilcoxon statistics tests. Results : There was a statistically significant higher identification of the /i:/, /fÉ/ phonemes when frequency compression was used. However, a decrease in identification of the final fricative /s/ was observed, despite the average of correct responses remaining high - above 78% - when the frequency compression was applied. The identification of other evaluated phonemes did not modify. Conclusion : The frequency compression algorithm was effective for the identification of the fricative phonemes /i:/, /fÉ/.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 126

VESTIBULAR ASSESSMENT IN AUDITORY NEUROPATHY.

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Abstract: Auditory neuropathy is a term used to designate the set of alterations in the hearing loss of patients with damage in the speech intelligibility, but without hearing impairment documented. It does not present a sexual preference, not even an age range. It is considered a disorder that primarily affects the auditory nerve, bringing problems of intelligibility in speech perception despite the integrity of the peripheral auditory pathways. The studied case is a female 18 years old patient, diagnosed with bilateral sensorineural hearing loss who attended in the Clinic of Fonoaudiology of NOVAFAPI college in Teresina-PI to educational audiology therapy (hearing loss rehabilitation). Had auditory and vestibular complaints. Examinations: OMET and DP-gram present, ABR present in wave I. Tympanometry type A and ipsilateral and contralateral reflexes absent. MRI and CT normal. Otoneurological examination: static and dynamic anteropulsion balance test, index-naso and Dix-Hallpike without nystagmus / vertigo, but with absent responses in rotational chair testing and unilateral weakness altered according to Jongkeens's rate. In such cases, the incompatibility should be investigated to determine the possible etiology, and therefore how it is conducted the rehabilitation of the communicative functions, social reintegration and vestibular function. The working together between health's professionals of was of great value to these findings.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 127

COFFEE CONSUMPTION IN AGED PEOPLE WHO RELATE BALANCE COMPLAINTS

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Abstract: Dizziness, defined as a wrong sensation of the body equilibrium, is highly prevalent in the world population, and it is the main complaint over the 60s. Coffee is the nourishment with the highest levels of caffeine and it is consumed by near 80% of the people around the world. Considering that caffeine is a substance that acts significantly on the vestibular system, this study aimed to investigate the coffee consumption by aged people who relate complaints about their balance. The research was realized in July 2009 in a center which takes care of aged people, linked to a public university in the state of Pernambuco (Brazil). The population of study was composed by 24 aged people (12 men and 12 women over 60 years old), who relate complaints about their equilibrium. The subjects were submitted to an interview about coffee consumption and their complaints about balance. The consumption of caffeine from 200 to 300mg (a 60ml cup of coffee has an average of 50,4mg of caffeine) was considered as moderate. The study was approved by the Ethical Center for Studies with Human Beings of Universidade Federal de Pernambuco. Twenty aged people (83,3%) related to consume three cups of coffee a day. Considering the population, the consumption of coffee was related by 11 (91,6%) men and 9 (75%) women. To conclude, it was perceived that many aged people who related dizziness consume coffee and this consumption can increase the dizzy sensation in these subjects.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 126

VESTIBULAR ASSESSMENT IN AUDITORY NEUROPATHY.

Authors

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Institution

1. FACULDADE NOVAFAPI, Faculdade de Saúde, Ciências Humanas e Tecnológicas do Piauí

Abstract: Auditory neuropathy is a term used to designate the set of alterations in the hearing loss of patients with damage in the speech intelligibility, but without hearing impairment documented. It does not present a sexual preference, not even an age range. It is considered a disorder that primarily affects the auditory nerve, bringing problems of intelligibility in speech perception despite the integrity of the peripheral auditory pathways. The studied case is a female 18 years old patient, diagnosed with bilateral sensorineural hearing loss who attended in the Clinic of Fonoaudiology of NOVAFAPI college in Teresina-PI to educational audiology therapy (hearing loss rehabilitation). Had auditory and vestibular complaints. Examinations: OMET and DP-gram present, ABR present in wave I. Tympanometry type A and ipsilateral and contralateral reflexes absent. MRI and CT normal. Otoneurological examination: static and dynamic anteropulsion balance test, index-naso and Dix-Hallpike without nystagmus / vertigo, but with absent responses in rotational chair testing and unilateral weakness altered according to Jongkeens's rate. In such cases, the incompatibility should be investigated to determine the possible etiology, and therefore how it is conducted the rehabilitation of the communicative functions, social reintegration and vestibular function. The working together between health's professionals of was of great value to these findings.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 127

COFFEE CONSUMPTION IN AGED PEOPLE WHO RELATE BALANCE COMPLAINTS

Authors

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Institution

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Abstract: Dizziness, defined as a wrong sensation of the body equilibrium, is highly prevalent in the world population, and it is the main complaint over the 60s. Coffee is the nourishment with the highest levels of caffeine and it is consumed by near 80% of the people around the world. Considering that caffeine is a substance that acts significantly on the vestibular system, this study aimed to investigate the coffee consumption by aged people who relate complaints about their balance. The research was realized in July 2009 in a center which takes care of aged people, linked to a public university in the state of Pernambuco (Brazil). The population of study was composed by 24 aged people (12 men and 12 women over 60 years old), who relate complaints about their equilibrium. The subjects were submitted to an interview about coffee consumption and their complaints about balance. The consumption of caffeine from 200 to 300mg (a 60ml cup of coffee has an average of 50,4mg of caffeine) was considered as moderate. The study was approved by the Ethical Center for Studies with Human Beings of Universidade Federal de Pernambuco. Twenty aged people (83,3%) related to consume three cups of coffee a day. Considering the population, the consumption of coffee was related by 11 (91,6%) men and 9 (75%) women. To conclude, it was perceived that many aged people who related dizziness consume coffee and this consumption can increase the dizzy sensation in these subjects.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 128

THE RELATION BETWEEN THE PRACTICE OF PHYSICAL ACTIVITY AND THE OCCURRENCE OF DIZZINESS IN AGED PEOPLE

Authors

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Institution

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Abstract: The vestibular system informs the position and movement of the head, constituting the sense of equilibrium, helping in the coordination of the movements of the head and eyes and in the adjustments of the corporal position. With aging, a natural consuming of structures pertaining to this system happens and, as a consequence, dizziness can occur. The participation of aged people in regular physical exercise programs can influence the process of healthy aging, having impact on the quality and expectation of life and improving the organic functions, guaranteeing more independence. This study aimed to characterize the relation between the practice of physical exercises and the occurrence of dizziness in aged people. It was realized an interview with 40 aged people (over 60 years old), from both genders, who participate in a center which takes care of aged people, linked to a public university in the state of Pernambuco (Brazil). 20 of the 40 aged people (10 men and 10 women) practiced physical activities and 20 (10 men and 10 women) did not realize any physical activity. The data was analyzed through EPI-INFO for Windows and the prevalence ratio and qui-square test was calculated, considering less than 5% as the statistical significance. The occurrence of dizziness was related by 45% of the aged people who practiced physical activities and by 75% of the ones who did not. It had an association between variables, with prevalence ratio of 1,66. The situation most related as the cause of dizziness was the movement of the head. Most of the subjects (especially the women) related that after the beginning of the physical activity, they perceived the diminish of dizziness symptoms. Then, it was noticed a relation between the practice of physical activity and the minor occurrence of dizziness symptoms and, after the beginning of the practice of the physical activity, the complaints about dizziness diminished.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 129

IMPLICATIONS OF THE COCHLEAR IMPLANT ON THE VESTIBULAR FUNCTION

Authors

SABRINA ALVES LIMA, ANNA CAROLINA MARQUES PERELLA, CRISTINA FREITAS GANANÇA, FLAVIA BEZERRA DE PAULA

Institution

1. UNIFESP, UNIVERSIDADE FEDERAL DE SAO PAULO

Abstract: Introduction: The cochlear implant (CI) is an effective method of restoring hearing in patients with a severe-to-profund hearing loss in whom traditional hearing aids do not provide satisfactory results. The insertion of the CI electrode may alter normal inner ear fluid homeostasis, induce direct trauma to the vestibular sensory structures, or incite inflammation with resultant fibrosis or hair cell loss. In these cases, significant dizziness, vertigo and imbalance would occur as a result of the vestibular lesion. In addition to the potential for vestibular injury at the time of surgery, the CI also carries the risk that the electrical current provide by the implanted array could spread beyond the auditory portion of cranial nerve VIII and stimulate the vestibular portion. Sometimes the vestibular system remains intact in patients with profound bilateral sensorineural hearing loss, although the majority has a weak or nonfunctional vestibular system associated to the hearing loss. The aim of this study is to investigate the impact on vestibular function and the occurrence of vestibular symptoms after CI. Methods: Case Report. EJP, male, 63-year-old, profound bilateral sensorineural hearing loss. EJP was sent by the Cochlear Implant Ambulatory to the Balance ambulatory of the Discipline Otology and Otoneurology of the Otolaryngology's Department. Results: EJP's vestibular system was examined by the computerized VENG system (Neurograff Eletromedicina Ltda), his postural stability by the balance Rehabilitation Unit (BRU) and EJP also answered the Dizziness Handicap Inventory (DHI) questionnaire; before and after the cochlear implant. The results were compared in these two moments. Conclusion: More comprehensive testing of preoperative vestibular function would increase our understanding of the nature of inner ear dysfunction after CI and guide the development of postoperative vestibular rehabilitation program.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 130

COMPARISON OF VESTIBULAR EVOKED MYOGENIC POTENTIAL (VEMP) IN PATIENTS WITH MULTIPLE SCLEROSIS AND NORMAL INDIVIDUALS

Authors

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Institution

1. IUMS, Faculty of Rehab. -Iran University of Medical Science

Abstract: Objective/Purpose: Vestibular-evoked myogenic potential (VEMP) is a new test of vestibular function. So far, many studies have focused on clinical use of VEMP in various pathologies. In contrast, the test role in brain stem pathologies and demyelinating processes of central nervous system remains to be defined. The aim of this study was to examine VEMPs abnormalities in patients with multiple sclerosis (MS). Subjects/Methods: This cross-sectional, descriptive and analytic study was carried out on 21 patients (15 female, 6 male) fulfilling diagnostic criteria of clinically definite MS and 20 normal individuals (14 female, 6 male) with ages ranging from 18 to 50 years old. VEMPs were evoked by means of 500 HZ tone burst stimuli. Studied parameters including unilateral weakness, P13 and N23 latencies and P13-N23 amplitude. Results: There was a significant difference between MS patients and control subjects with respect to P13 latency (longer in the MS group) and P13-N23 amplitude (lower in the MS group) in both ears. Vestibular evoked myogenic potentials were absent unilaterally in tow patients. P13 latency was delayed in 9 patients (14 ears). Overall, VEMP results were abnormal in 47.6% of MS patients. Conclusion: VEMPs may represent a new test for functional assessment of brainstem in multiple sclerosis. VEMP abnormalities in the patient group might be the result of conduction impairment in vestibulocollic pathway.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 131

PERIPHERAL VESTIBULAR DISORDERS AND DGI SCORES

Authors

JULIANE ALMEIDA LUCARELI, LUCAS VIEIRA ALVES, MARILIA RODRIGUES CARVALHO, CARLOS KAZUO TAGUCHI

Institution

1. UFS, Universidade Federal de Sergipe

Abstract: This is an exploratory and quantitative research that we aimed to evaluate the results obtained for the applying of the Dynamic Gait Index (DGI) in patients with peripheral vestibular disorder and we tried to verify the relationship with the gender and age and DGI scores in this evaluation. We submitted twenty three (23) patients from a private service in São Paulo city - Brazil, whit both gender, and age ranged fourteen to eighty one years, with the diagnoses of peripheral vestibular disorders to Dynamic Gait Index inventory in order to qualify the gait behavior when you demand other kinds of activities during this response. We analysed this responses in simple distribution as percentual scores and for the statistical analysis we used several non parametric tests as the Kolmogorov Smirnov test; Kruskal Wallis test. All date were analyzer for the software named Statistical Package for the Social Sciences, version 10. Our results showed that thirty nine percent of this patients (39,1%) reach scores around or inferior as19, which proved that gait alteration was presented in our population. We conclude that an important numbers of the patients with peripheral vestibular disorders presented gait alteration which means tendency to falls and the gender and the age carried significant changes in Dynamic Gait Index scores.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 132

THE BERG BALANCE SCALE ANALYSIS IN A ACTIVE ELDERLY GROUP

Authors

RAQUEL DOMINGUES SANTOS, RAFAEL OLIVEIRA GOIS, BRUNO OLIVEIRA GOIS, CARLOS KAZUO TAGUCHI

Institution

1. UFS, Universidade Federal de Sergipe

Abstract: Purpose: The purpose of this research was to analyze the results of the Berg Balance Scale (BBS) in active elderly group whit or without dizziness complaints. Method: this is a analytic-explanative, blind and randomize, performed in a group of active elderly people where a hundred and thirty volunteers were evaluated. The same researcher collected all reports of falls and complaints of dizziness by the Claussem et al (1987) inventory. Three blind observes pointed the BBS. Age range, gender, falls; dizziness complaints, complaint/fall and kind of dizziness were compared to the total scores and the fourteen tasks of BBS by means of the Mann-Whitney, Kruskal Wallis. Results: there was no significant relationship between the results of BBS global scores and all the variables. Nevertheless, the comparison of the tasks showed significant differences. Conclusion: people above sixty years scored better in the transference and base reduction tasks, which showed a little imbalance due to the aging. The male scored better in task 13 , showing a tendency to great fragility aspects on the female gender. Persons whit dizziness complaint scored better in the transfer and base reduction tasks than those that mentioned only a fall, showing that BBS not a good tool to the detection of individual with dizziness complaint associated to tendency to falls. Nonetheless we noticed that BBS was unable to show tendency to fall, task 14 showed efficiency in this discriminations of individuals with and without tendency to fall.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 133

VESTIBULAR REHABILITATION IN THE TREATMENT OF DIZZINESS IN A TEENAGER: A CASE OF THE CLINICAL-SCHOOL OF SPEECH AND HEARING THERAPY AT THE SATE UNIVERSITY OF BAHIA

Authors

MARIA DA GLÓRIA CANTO DE SOUSA, ROBERTA PAULON

Institution

1. UNEB, UNIVERSIDADE DO ESTADO DA BAHIA

Abstract: Introduction: The vestibular system is responsible for body balance as and its relation with the peripheral sensory system and central sensory receptors system. Body balance depends on the integrity of these systems, and the interrelation between the somatosensory and visual systems, and the maze responsible for body balance and body position in space. Vestibular rehabilitation seeks restoring the balance, restore vestibular function and reduce altered responses. Objective: To verify the effectiveness of rehabilitation program in improving of the labyrinthine dizziness of a teenager. Methodology: NAC, 13 years old, male, went to the Clinical School of Speech and Hearing Therapy at the State University of Bahia - UNEB, referred by a otorhinolaringologist doctor with a request to carry out vestibular rehabilitation. It was made clear to the patient the purpose of the study group, called Vestibular Rehabilitation: an alternative method for the treatment of dizziness, and his mother allowed him to participate. The vestibular rehabilitation program was conducted at UNEB, between July and October 2008, with a weekly meeting, with a total of fifteen meetings. The DHI - Dizziness Handicap Inventory - was applied before the treatment and as soon as it finished. The Protocol of Cawthorne and Cooksey adapted to the Brazilian population was used, as well as exercises to relax the neck and shoulders. The patient was submitted to the optokinetic stimulation every week for an hour. Results: the most reported complaints were headache, imbalance, blurred vision and dizziness objective type. The application of DHI before treatment indicated that the symptoms happened to the fast movement of head, physical activity, ay in situations and when he needs to get up quickly. After treatment, the DHI was applied again and these symptoms disappeared. Conclusion: The vestibular rehabilitation protocol adopted promoted total remission of symptoms that the patient referred before the treatment and provide, according to the patient, improvement in his quality of life.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 134

EFFECTIVENESS OF REHABILITATION VESTIBULAR IN SUBJECTS WITH TINNITUS.

Authors

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Institution

1. UNIME, UNIÃO METROPOLITANA DE ENSINO

Abstract: Objective: Check possible discharge of tingling sensation in patients underwent vestibular rehabilitation. Methodology: This study was conducted at the Center for Specialized Care in Speech and Hearing Care, located in the city of Lauro de Freitas - Bahia. The participants were 5 subjects, 4 females and 1 male, aged between 26 and 61 years, and reported that, in history, among other complaints, the sensation of tinnitus. These were submitted to vestibular rehabilitation (VR). For this procedure was used protocol Cawthorne and Cooksey, which is composed of eye exercises, torso and head. Before starting the RV, the protocol was applied Tinnitus Handicap Inventory, to characterize the degree of sensation of tinnitus, and after completion of treatment to monitor a possible change in the degree of sense of it. Treatment occurred in ten sessions of sixty minutes, being held once a week at the clinic. The exercises performed during the sessions, also hosted by the subjects 03 times a day during the course of the week in their homes. Results: The subject S1 showed moderate degree of zoom, pre and post-RV RV mild, the S2, pre-and moderate RV after RV negligible, S3, RV moderate before and after VR negligible, S4, and take before RV after RV negligible degree, and the subject S5 result with severe pre RV after RV and mild. This way, it was possible to identify that vestibular rehabilitation allowed for 60% of the individuals, decreased sensation of tinnitus and the other 40% showed extinction of the sensation of it. Conclusion: Given the diversity of etiologies of tinnitus, which is hampering the choice of appropriate treatment, it was found that vestibular rehabilitation provided the study subjects decreased and / or extinction of the sensation of tinnitus.



POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 135

GAZE EVOKED NYSTAGMUS AS A SIGN OF VASCULAR ISCHEMIA

Authors

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Institution

1. UNIFESP, UNIVERSIDADE FEDERAL DE SÃO PAULO

Abstract: Introduction: Vestibular assessment is an important tool in the topographic diagnosis of vestibular disorders. The examination includes the investigation of the peripheral vestibular system function (labyrinth and / or nerve cochleovestibular) and the central portion function (nucleus, pathways and connections of the central nervous system). The clinical manifestation of an ischemic event can help to define the vascular territory affected. When the ischemia is near to protuberant bulbar transition, the occurrence of vertigo associated with other neurological signs and symptoms is higher. When it's far, occurrence of instability increases. Objective: To describe the central findings in vestibular assessment that contributed to the diagnosis of central vascular ischemia. Method: Case Study. LSM patient, 82 years old, female, was evaluated at the Balance ambulatory of the Otology and Otononeurology Discipline at the Otolaryngology's Department, UNIFESP-EPM. Complained of non-rotatory dizziness, daily, sudden, lasting seconds, type instability and gait deviation to the side. The patient was submitted to audiologic and vestibular evaluation, consisting of computerized electronystagmography (VENG - Neurograff Eletromedicina Ltda). Results: In VENG, was observed the presence of gaze evoked downbeat nystagmus on downside deviation and torsional nystagmus on the right and left side deviation. Other oculomotor tests were within the normal parameters. Normoreflexia and symmetry of responses in the caloric test. After the results, a magnetic resonance was performed showing the presence of microangiopathy in the brain stem level. Conclusion: The identification of gaze evoked nystagmus, a pathognomonic finding of central vestibular dysfunction in the absence of labyrinthine crisis and significant ocular disorders, was essential for the diagnosis of vascular ischemia, contributing to appropriate treatment and prevention of new ischemic episodes.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 136

PROFILE OF PATIENTS EVALUATED AT THE UNIFESP VESTIBULOMETRY AMBULATORY DURING THE SECOND HALF OF 2009

Authors

FLAVIA BEZERRA DE PAULA, ANNA CAROLINA MARQUES PERRELLA, SABRINA ALVES LIMA, CRISTINA DE FREITAS GANANÇA

Institution

1. UNIFESP, Universidade Federal de São Paulo

Abstract: Introduction: Dizziness, in its various manifestations, is one of the most common symptoms in clinical practice. Dizziness may occur at any age, being more frequent and severe over the years due to association with other symptoms. Balance disorders show a heterogeneity of etiological factors and symptoms. It's possible to find the same individual with vertigo and other types of dizziness that can occur alternately or concurrently. Furthermore, the proximity between the cochlea and the vestibular system makes frequent association with auditory symptoms such as hearing loss and tinnitus. Objective: To characterize patients seen at the Balance ambulatory of the Otology and Otononeurology Discipline at the Otolaryngology's Department, UNIFESP-EPM, from August to November 2009. Method: Data were collected from the patients' medical history and test results of vectoelectronystagmography (VNG). From the interview, it was analyzed factors like age, gender, symptoms, and presence of tinnitus or hearing loss. In relation to the complaint, we observed the presence of dizziness (vertigo) alone, dizziness (any type other than rotatory) alone or the combination of vertigo and dizziness. The characteristics of the complaint were investigated, such as the onset of symptoms (sudden or constant crises), intensity (mild, moderate or severe), occurrence (sporadic, frequent or very frequent) and duration (seconds, minutes, hours or days). The test results were classified as follows: with vestibular dysfunction in the presence of abnormalities to the examination and without vestibular dysfunction when we obtained normal findings. Results: We evaluated 205 patients between August and November, with an average of 51 patients per month. Ages ranged from 9 to 85 years with a mean of 49.5 years, the most frequent age group between 46 and 55 years (27.3%). Females predominated in 70.7% as well as the presence of vertigo alone, which appeared in 45.8% of patients. The symptoms occur in most cases of sudden onset (45.8%), severe (41.9%), sporadic (41.9%) and duration of seconds (30.7%). An association of auditory symptoms in most of the studied population was found: 69.3% of patients with audiometric alterations and 80.5% of tinnitus patients and 54.6% of the entrance examination result in vestibular dysfunction. Conclusion: Despite the intense symptoms of the patients received at the clinic, only 54.6% had abnormal tests, being dizziness isolated the most common complaint.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 137

VESTIBULAR AFFECTION PREVALENCE IN PATIENTS OF AN UNIVERSITY AUDIOLOGY CLINIC IN THE CITY OF NOVO HAMBURGO/RS

Authors

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Institution

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2. Feevale, Centro Universitário Feevale

Abstract: The vestibular proprioceptive system is an important point of interaction? between humans and the environment. Body balance control is a complex phenomenon that depends on the integration of multiple mechanisms: motor system, vestibular system, visual system, proprioceptive sensibilities, cerebellum and central nervous system. An information conflict in these systems may alter the balance system, which can be manifested in the form of symptoms such as dizziness / vertigo, headache, nystagmus, nausea, vomiting, and imbalance. When the vestibular system is affected, the changes may be characterized as peripheral (lesions in the labyrinth and / or vestibular nerve) or central (when there is damage in the central nervous system). In addition, peripheral vestibular problems can be characterized as irritative or deficitary, in one or both labyrinths. The vectoelectronystagmography is one of the most effective methods to assess the labyrinth function. Based on results of the vectoelectronystagmography it is possible to identify labyrinth disturbs and the type of changes. A specific diagnosis allows the identification of the most effective treatment for reducing dizziness and improving the quality of life of patients. OBJECTIVE: To verify the prevalence of abnormal vestibular exams and the most frequent type of disturbs. METHODS: In this research we carried out a retrospective study using the archive files from 87 patients of an university clinic of audiology in Novo Hamburgo - Brazil, who underwent vectoelectronystagmography from March 2004 to June 2009. Out of the total number of patients, 77 were female and 10 were male patients, that aged between 15 and 77 years old. Information from the files was tabulated and analyzed quantitatively in relation to the prevalence and type of change. RESULTS: Using the analysis of results obtained from the exams we could observe normal results in 65% (57) of exams and abnormal results in 35% (30). Regarding abnormal results, 43% (13) were characterized as irritative peripheral vestibular syndrome, 40% (12) were characterized as right deficitary peripheral vestibular syndrome, 14% (4) were characterized as left deficitary peripheral vestibular syndrome and 1% (1) were characterized as central syndrome. CONCLUSION: The analysis of vectoelectronystagmography exams led us to conclude that the majority of these exams did not show vestibular changes; among the alterations found, the irritative peripheral vestibular syndrome was the most prevalent.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 138

POSTURAL CONTROL IN BENIGN PAROXYSMAL POSITIONAL VERTIGO (BPPV)

Authors

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Institution

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Abstract: Posturography is a useful new tool to study the influence of vestibular disease on balance. Purpose: to compare the outcomes of Balance Rehabilitation Unit (BRU) static posturography in elderly patients with Benign Paroxysmal Positional Vertigo (BPPV), pre and post Epley's maneuver. Material and Method: prospective study of 20 elderly patients with BPPV. They were subjected to BRU static posturography. Limit of stability (LE) and ellipse area were measured. The Dizziness Handicap Inventory-Brazilian version was used to verify the efficacy of the treatment. Results: 80% were female, average age was 68.15 years old. The ellipse area results before the maneuver (Mean±SD) were: condition 1 (stable surface without stimulus) 3.19±2.28 cm², condition 2 (stable surface and closed eyes): 4.46±3.9 cm², condition 3 (unstable surface and closed eyes): 12.19±13.27 cm²; condition 4 (stable surface and horizontal visual-vestibular interaction): 1.94±1.05 cm²; condition 5 (stable surface and vertical visual-vestibular interaction): 2.54±2.03 cm²; condition 6: 3.24±3.60, condition 7: 3.26±3.49, condition 8: 2.58±2.14, condition 9: 4.31±2.17, condition 10: 3.76±1.78. The LOS was 139.05±59.86 cm². After Epley's maneuver (1 to 3 times), LOS increased (181.85±47.76 cm²) significantly (p=0.001). The conditions 2, 7, 8 and 9 decreased significantly and so the DHI. Conclusion: the study suggests that elderly patients with BPPV may present static postural control impairment and Epley's maneuver is effective for remission of symptoms, increase of the limit of stability and improvement of postural control in situations of visual, somatosensory and vestibular conflicts.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 139

VESTIBULAR ASSESSMENT AND NOISE AND METALLIC MERCURY EXPOSURE

Authors

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Institution

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2. UFRJ, Faculdade de Fonoaudiologia/ UFRJ

Abstract: INTRODUCTION: Exposure to noise and chemicals has been a great concern in collective health, as it can cause temporary or permanent damage to the hearing and vestibular systems of the exposed workers. The purpose of this study is to learn the vestibular characteristics of subjects who were occupationally exposed to metallic mercury and noise at a lamp factory of Rio de Janeiro, and subjects who were not exposed to any of these agents. METHODS: We performed a descriptive cross-sectional study, in which two groups were evaluated: G1, formed by 12 subjects, male and female, aged between 34 and 54, with a history of occupational exposure to noise and metallic mercury; and G2, formed by 15 subjects, male and female, aged 30 to 53, with no history of noise exposure or exposure to metallic mercury and other chemicals. We asked the subjects to stop the intake of foods that contain caffeine, alcoholic beverages, medication for dizziness and tranquilizers 72h before the exam. The vestibular assessment was performed by means of a vectoelectronystagmography exam (VENG) with a Contronix device, and the following tests were performed: positional nystagmus, calibration, spontaneous nystagmus with eyes closed and opened, directional nystagmus, pendular tracking, optokinetic nystagmus, and caloric testing. RESULTS: In our analysis, 58.3% of the G1 subjects (exposed group) had alterations in the vestibular (VENG) exam in at least one of the tests, whereas in the G2 (non-exposed group), only 6.7% of the subjects had alterations. A statistically significant difference was found in the comparison between the two groups (p = 0.005). CONCLUSION: The results of this study suggest that noise and metallic mercury exposure increased the prevalence of vestibular problems in individuals who were exposed to these agents.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 140

VESTIBULAR REHABILITATION IN THE ELDERLY

Authors

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Institution

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Abstract: Introduction: In the natural aging process occurs changes in the vestibular system, because there is loss of neurons and vestibular sensory cells, causing damage in the daily lives of the elderly. Vestibular Rehabilitation (VR) can contribute to the treatment of elderly with limited mobility and social interaction, reducing the rate of falls, promoting wellness, fitness concept of space and interfere positively on quality of life. Objective: To assess the effectiveness of a program of customized vestibular rehabilitation in elderly patients with chronic vestibular disorders. Method: It was analyzed medical records of 30 elderly patients aged 60 years old or more, who underwent VR Custom. All subjects complained of dizziness and with otorhinolaryngologic diagnosis confirmed labyrinth. Results: The subjects had a mean age of 73.86 years-old with a minimum age of 61 and a maximum of 88 years-old, 5 (16.67%) males and 25 (83.33%) females. These elderly complained of dizziness, and 11 (36.66%) of them presented dizziness of the non-rotational and 19 (63.33%) of type rotatory. It was performed the average number of 8 sessions of VR, with a minimum of 2 sessions and a maximum of twelve. Every thirty elderly responded to DHI (inventory of quality of life, with 25 questions that examine the emotional, functional and physical) before and after VR, and the average score of the total pre VR was 46.20 and the average the post-VR was 22. Moreover, the thirty seniors responded to the anaçogic scale of dizziness, which gave a note for the sensation of dizziness before and after VR, has achieved an average of 6.7 pre VR and average of 2.8 in the post VR. Conclusion: These data indicate that the VR Custom was effective in the treatment of elderly patients with vestibular disorders.



POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 141

THE CHARACTERIZATION OF THE ELDERLY WITHIN THE VESTIBULAR REHABILITATION.

Authors

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Abstract: Introduction: The Vestibular Rehabilitation (VR) it is an exercise program associated with a set of measures and changes in habits aimed at accelerating the compensation, it has been an important and effective strategy of elderly treatment of patients with body balance disorders, contributing to increasing the quality of life. However, often the results do not correspond to that expected due to the presence of comorbidities associated with the imbalance and the use of multiple medications, which can promote undesirable side effects. Objective: To characterize the profile of the elderly with chronic vestibular disorders underwent VR Custom. Method: We analyzed medical records of 30 elderly patients with a minimum age of 60 year, who underwent VR Custom (VRC). All subjects complained of dizziness and with otorhinolaryngologic diagnosis confirmed labyrinth. Results: The elderly had a mean age of 73.86 years with a minimum age of 61 years and a maximum of 88 years, and 5 (16.67%) elderly males and 25 (83.33%) were female. Among these elderly, 12 (40%) had normal hearing and 18 (60%) had some degree of hearing loss. These elderly complained of dizziness, and 11 (36.66%) of them presented dizziness of the non-rotational and 19 (63.33%) of type circle. Performed the average number of 8 sessions of VRC, with a minimum of 2 sessions and a maximum of twelve. Of the thirty people, 14 (46.66%) reported not having tinnitus; those who reported having tinnitus, 4 (13.33%) reported to be unilateral and 12 (40%) bilateral. Twenty-six (86.67%) mentioned did not have aural fullness, and 4 (13.33%) presented this event. Seven people (23.34%) had diabetes. Five (16.67%) of the thirty subjects had psychological disorder. We observed the presence of hypertension in 21 (70%) elderly. Six (20%) of subjects had a neurological disorder. It was observed that 16 (53.34%) of subjects had column alteration, 13 (43.34%) with cardiac disorder, 20 (66.66%) with metabolic disorder and 13 (43.34%) had ocular problems. Only 3 (10%) subjects had psychiatric disorders. Of the total of thirty elderly, 4 (13.33%) were smokers, 6 (20%) were using substances containing caffeine in excess, and 20 (66.66%) used more than three continuous medication use. Conclusion: It was noted that in this population comorbidity that appears most often is hypertension, in addition, the use of more than three drugs, also characterize the profile of this elderly group.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 142

PREVALENCE OF DIZZINESS AND VERTIGO IN PATIENTS WITH TINNITUS IN A CLINIC SCHOOL OF SPEECH REFERENCE IN BAHIA - UNEB.

Authors

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Abstract: Introduction: Tinnitus is considered one of the three major otoneurological events and by him we can suggest the hypothesis that the dizziness in patient with tinnitus, wheezing, and hearing loss it is originated on the cócleo-vestibulopatia. Dizziness can also occur in a way of crise of acute vertigo, characterized by intense episodes of vertigo, nausea, vomit and other neurovegetative events. Objective: Check prevalence of patients with tinnitus and dizziness or rotational vertigo from an epidemiological analysis of promptuaries in a Clinical School Reference in Speech in Bahia - UNEB. Methodology: The retrospective study was realized analyzing 460 promptuaries of patients with complains about tinnitus that were tooked for audiometry - treated between the years 2005 and 2008, in a Clinic School of Speech at Universidade do Estado da Bahia (UNEB). Results: The data showed a predominance of female patients, between 40 to 79 years old, complaining of bilateral tinnitus and on the left ear. Among 279 patients with sensorineural hearing loss and tinnitus: 148 -53.04% reported dizziness, and 39 of these patients specified rotational vertigo -26.35%, 107 patients -35,3% suffered hypertension and 188 patients reported the acute pitch of tinnitus. In another group, 181 patients who had tinnitus and normal thresholds hearing: 107 patients -59.1% reported dizziness, and of these, 36 patients -33.6% specified rotational vertigo. 107 patients -59.1% reported acute pitch of tinnitus and 47 patients - 25.9% were hypertensive. Other symptoms related that prevailed between the two groups were headache and ear pain associated with tinnitus. Conclusion: The evaluation of vestibular function can detect significant changes that justify the origin and evolution of tinnitus. The importance of electronystagmography in identify presence of a primary vestibular lesion responsible for tinnitus shows the importance of including this test on the battery of additional exams to help the discovering the cause of tinnitus.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 143

STUDY OF THE NUMBER OF POSITIONING MANEUVERS TO BPPV REHABILITATION

Authors

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Institution

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Abstract: Introduction: The Benign Positional Paroxysmal Vertigo (BPPV) is a biomechanical disorder of the vestibular labyrinth and it is considered one of the affections of the peripheral vestibular system that happens more often. It is characterized by brief vertigo crisis with the presence or not of paroxysmal nystagmus, triggered by cephalic movement under determined head positioning, usually when turning at the bed, laying down, standing up, bending the torsos forward, or looking asides, as well as up; followed or not by sickness, nausea, and vomit. Objective: To check the number of necessary maneuvers in order to abolish the positioning nystagmus in patients with BPPV. Method: It was included in this research the patients with BPPV, confirmed by the presence of positioning nystagmus at the Dix-Hallpike maneuver, attended at the audiology department of the Hospital Israelita Albert Einstein, from January 2008 to September 2009. The patients were classified according to the phisiopathological substrate and the semicircular canal involved (through the triggering position, duration and direction of the nystagmus). All the patients have been treated through the repositioning of statoconies maneuver – Epley´s Maneuver. Results: It was observed eighteen cases of BPPV, thirteen females and five males, with average age as of 50,22 years-old (minimum: 15 years-old; maximum: 67 years-old). Under the eighteen patients, eight (44,4%) were submitted to the rehabilitation maneuver at the Hospital. In 100% of the cases it was observed canalolithiasis of posterior semicircular canal. Regarding the side of affected semicircular channel, three (37,5%) were at the left side and five (62,5%) at the right side. Regarding the number of Epley´s Maneuvers, it was executed in average of 2,1 repositioning maneuvers in order to abolish the nystagmus, outlining that one maneuver was executed as a minimum and five as maximum. Conclusion: There were necessary two repositioning maneuvers in an average in order to abolish the positioning nystagmus in patients with BPPV.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 144

CHARACTERIZATION OF THE COMPUTADORIZED VENG RESULTS AT A PRIVATE HOSPITAL.

Authors

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Institution

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Abstract: Introduction: The vestibular assessment consists in a group of procedures that permits semiologic exploration of hearing and vestibular systems, and their relation with the central nervous system. The Computadorized Vectoelectronystagmography (Comp VENG) allows recording not only the horizontal ocular movements, but as well as those vertical and obloquies movements, besides that Comp VENG makes the evaluation more sensible, becoming the diagnoses of vestibular affections more accurate. Objective: To characterize the results obtained with Comp VENG from patients attended at Audiology Section of Hospital Israelita Albert Einstein, through the years of 2008 and 2009. Methods: Retrospective study where data has been collected from VENG assessment from January 2008 to September 2009. All the evaluations were done with the VECWIN program, from Neurograph Eletromedicina. Results: From January 2008 to September 2009 there were 172 attended patients, 93 (54.1%) female and 79 (45.9%) male, with mean age 46.26 years old (minimum: 4 years old; maximum: 85 years old). Within the conclusion of the evaluations it was obtained 95 (55.2%) of normal results; 54 (31.3%) with peripheral vestibular dysfunction; 8 (4.7%) with central vestibular dysfunction; and, 15 (8.8%) with inconclusive results. Within the peripheral dysfunction it was observed three (5.5%) cases of unilateral deficit disjunction, 10 (18.5%) with unilateral hyper-reflex at post caloric test; 4 (7.4%) with directional preponderance at post caloric test; and 37 (68.6%) with bilateral hyper-reflex at post caloric test. At the inconclusive results, in 6 (40%) patients the evaluation has not been concluded due the presence of neurovegetatives symptoms, in one case (6.7%) the test solicitation excluded the post caloric test, and in 8 (53.3%) cases were not concluded due the presence of spontaneous nystagmus with closed eyes and/or pre caloric nystagmus associated to the asymmetric response at the post caloric test at 10°C, not been possible though checking if there was or not the influence of them. Conclusion: It is possible to conclude that in major of the evaluation the patients with dizziness and balance disorder attended at this Hospital the results of VENG was normal, followed by peripheral dysfunction and only a few cases of central disorder.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 145

STATIC POSTUROGRAPHY IN DIZZINESS ELDERLY PATIENTS COMPARISON WITH CALORIC TEST RESULTS

Authors

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Institution

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Abstract: Introduction: Body balance is a complex process which depends on the integration of visual, vestibular and somatosensitive systems, central processing and muscular adjustments, particularly tonic muscles. Objective: to compare the results of BRU (Balance Rehabilitation Unit) static posturography in patients with normal and with reduced caloric responses. Method: Transversal study with 42 patients distributed into two groups: Group 1 (G1) composed of 21 subjects with normal caloric responses and Group 2 (G2) composed of 21 subjects with uni or bilateral reduced caloric responses. Both groups were submitted to BRU static posturography. The parameters analyzed were limit of stability (LOS) and velocity of oscillation (VO). The conditions were: 1 - stable surface without stimulus; 2 - stable surface and closed eyes; 3 - instable surface and closed eyes; 9 - stable surface and horizontal visual-vestibular interaction; 10 - stable surface and vertical visual-vestibular interaction. Results: In G1 all subjects were female with average age of 70 years and, in G2 82% were female with average age of 73,1 years. The results of LOS (average \pm SD) were 140 \pm 48,559 cm2 in G1 and 130,86 \pm 33,286 cm2 in G2. The results of VO (Average \pm SD and p-value) for each condition in G1 and G2 were respectively: condition 1: 0,876 \pm 0,215 cm2 and 0,885 \pm 0,293 cm2 (p= 0,880); condition 2: 1,249 \pm 0,546 cm2 and 1,114 \pm 0,491 cm2, (p= 0,326); condition 3: 2,487 \pm 1,273 cm2 and 2,541 \pm 1,030 cm2 (p=0,589); condition 9: 1,546 \pm 0,441 cm2 and 1,607 \pm 0,613 cm2 (p= 0,870) and condition 10: 1,607 \pm 0,621 cm2 and 1,647 \pm 0,649 cm2 (p= 0,930). Conclusion: there were no significant differences in static posturography of elderly dizziness patients with normal and with reduced caloric responses

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 146

SELF PERCEPTION OF HEARING LOSS IN ELDERLY PATIENTS

Authors

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Abstract: INTRODUCTION: Hearing loss is one of the main abnormalities which come with aging process. It may have a major impact on an older person's physical, social, and emotional well-being and can cause embarrassment, interfering with a person's ability to interact with others, and contributing to feelings of depression. Therefore, it may compromise life quality and lead to social exclusion. OBJECTIVE: correlate self perception of hearing loss and the results of basic audiological evaluation in elderly patients METHOD: Transversal and descriptive study of 89 elderly patients records; ages between 60 and 84 years old; 9 male and 80 female. All subjects were submitted to a questionnaire on hearing and balance abilities and to hearing evaluation (pure tone audiometry, speech audiometry, acoustic immittance measures). RESULTS: 42 (47,2%) subjects complained of hearing difficulties. Out of these 42, 35 (84%) presented bilateral hearing loss in pure tone audiometry, 4 (9,52%) presented unilateral hearing loss and 3 (7,14%) had normal hearing thresholds. 47 subjects did not complain of hearing difficulties. Out of these, 23 (49%) presented bilateral hearing loss, 4 (8,5%) unilateral hearing loss and 20 (42,5%) normal hearing. In relation to the degree of hearing loss, 15 (65,21%) subjects without hearing difficulties but with abnormal evaluation presented average thresholds from 500 to 2kHz better than or equal to 25 dB for both ears, 3 (13,04%) in one ear only and 4 (17,39%) had mild hearing loss. 100% of the subjects had sensorineural hearing loss in this group. Out of 42 subjects with hearing complaint and abnormal evaluation in both ears, 8 (22,85%) average thresholds from 500 to 2kHz better than or equal to 25 dB for both ears, 9 (25,71%) had mild hearing loss and 13 (37,09%)

moderate hearing loss at least in one ear. 37 subjects had sensorineural hearing loss. CONCLUSION: 42,5% (20) of the elderly patients evaluated had hearing difficulties complaint and only 7,14% (3) had normal hearing evaluation. 65,21% of the subjects without hearing difficulties complaint but with hearing loss presented normal average thresholds from 500, 1k e 2kHz. Therefore, these results reinforce the importance of these frequencies for everyday communication and their contribution for the absence of hearing loss perception.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 147

AUDITORY AND VESTIBULAR CHARACTERIZATION OF PATIENTS WITH MENIÈRE'S DISEASE.

Authors

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Abstract: Introduction: According to the Committee on Hearing and Equilibrium guidelines for the diagnosis and evaluation of therapy in Meniere's disease, American Academy of Otolaryngology- Head and Neck Foundation, Inc. (1995) the Menière's Disease is characterized by intercalated crisis with normal periods. The recurrent and spontaneous episodic vertigo varies from patient to patient, during at the minimum twenty minutes, are usually followed by nausea and/or vomit, without consciousness loss, with spontaneous nystagmus at the crisis. It is associated to a hearing loss, aural fullness and tinnitus at affected side. Objective: To check the results from the auditory and vestibular assessments in patients affected by Menière's Disease attended in an ambulatory of vestibular rehabilitation. Method: Retrospective study where it was analyzed the charts of 27 patients affected by Menière's Disease, attended through the years of 2008 and 2009 at the ambulatory of vestibular rehabilitation, in UNIFESP. It was analyzed the anamneses data, audiological and vestibular assessment. Results: There were 27 Menière's Disease evaluated charts, 7 (25.9%) male and 20 (74.1%) female, with average age as of 48.4 years-old, in a range from 19 to 64 years-old. All the patients complained about aural plenitude. Regarding the tinnitus complain, 15 (55.5%) presented unilateral tinnitus, 11 (40.8%) bilateral tinnitus and only one (3.7%) did not notified tinnitus. Among the individuals, 12 (44.4%) presented unilateral hearing loss, 10 (37%) bilateral hearing loss and 5 (18.6%) normal hearing. Considering the number ears, 32 (59.2%) presented hearing loss, among them one (1.8%) had conductive hearing loss, one (1.8%) had mixed hearing loss, 30 (55.5%) with sensorineural hearing loss. Regarding the degree of hearing loss, 12 (37.5%) presented mild hearing loss, 14 (43.7%) moderated, 3 (9.3%) severe and 3 (9.3%) profound. At computerized vectoelectronystamography (VENG), 4 (14.8%) presented normal results, 3 (11.1%) inconclusive test, 8 (33.3%) unilateral peripheral dysfunction, 3 (11.1%) unilateral hyper-reflex to caloric test, 7 (29.4%) bilateral hyper-reflex to caloric test and 2 (7.4%) with Directional Preponderance at the post caloric test. Conclusion: The major of the individuals affected by Menière's Disease showed unilateral tinnitus, moderate hearing loss and unilateral peripheral dysfunction to the VENG.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 148

COMPARATIVE STUDY BETWEEN WOMEN AND MEN WITH NO BALANCE COMPLAINTS USING THE VIRTUAL REALITY ON THE COMPUTERIZED DYNAMIC POSTUROGRAPHY

Authors

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Abstract: INTRODUCTION: : Posturography with virtual stimulation contributes to the identification of body balance impairment. Projected sensorial stimulation on eyeglasses recreate real life situations that cause giddiness or vertigo, that demand adaptation of the vestibular system. PURPOSE: To compare computerized posturography findings of healthy women (Feminine Group-FG) to those of healthy men (Masculine Group-MG) based on center of pressure, limit of stability and sway speed for different visual stimulations. METHOD: The research was carried out in the Otononeurology Sector of UNIFESP involving 25 women and 25 men (i.e., with no balance complaints) seen in 2008 and 2009. Their ages ranged from 18 to 25. The equipment was Balance Rehabilitation Unit-BRU(Medicaa®). All the individuals underwent an initial evaluation with digital vectonistamography before posturography, in order to discard any otoneurology alteration. The program evaluates patients by means of a module with virtual visual stimulations, grouped according to oculomotor reflex involved (foveal, retinal and sensorial interaction), projected on eyeglasses. The posturography was composed of 11 visual stimulations and carried out using a platform of balance that converts the pressure applied on plain surface into electric signals to determine the area of the center of pressure(CoP), through quantitative indicators: area of limit of stability(LOS), area of ellipse and sway speed in ten sensorial conditions. RESULTS: The average age of FG was 20.6 and of MG was 22. The average value of LOS was 207.08cm² for FG and 268.28cm² for MG. Ellipse area on firm surface was 1.93cm² with open eyes for FG and 2.33cm² for MG. It was 1.94cm² with closed eyes for FG and 2.69cm² for MG. On foam, with closed eyes, it was 8.83cm² for women and 8.63cm² for men. On firm surface, with saccadic movement, it was 1.47cm² for women and 1.98cm² for men. With optokinetic movement to the right=1.98cm² for women (2.11cm² for men), to the left=1.42cm² for women (1.83cm² for men), downwards=1.51cm² for FG (1.96cm² for MF) and upwards=1.69cm² for FG (1.97cm² for MG). With visuovestibular interaction it was 2.25cm² for women in horizontal direction and 4.53cm² for men. It was 2.37cm² for FG in vertical direction and 5.03cm² for MG. The sway speed on firm surface with open eyes was 0.72cm/s for FG and 0.68cm/s for MG. With closed eyes, 0.87cm/s for FG and 0.96cm/s for MG. On foam with closed eyes, 2.49cm/s for FG and 2.34cm/s for MG. On firm surface, with saccadic movement, it was 0.87cm/s for FG and 0.88cm/s for MG. With optokinetic movement to the right=0.78cm/s for FG and 0.81cm/s for MG, to the left=0.78cm/s for FG and 0.84cm/s for MG, downwards=0.81cm/s for FG and 0.83cm/s for MG, upwards=0.81cm/s for FG and 0.90cm/s for MG, with visuovestibular interaction in horizontal direction=1.04cm/s for women and 1.42cm/s for men. Finally, 1.21cm/s for FG and 1.81cm/s for MG in vertical direction. CONCLUSION: We found significant difference between FG and MG in the area of limit of stability(LOS) and in the firm surface condition with visuovestibular interaction in the horizontal and vertical directions, the feminine group results being smaller.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 149

VESTIBULAR TESTING: THE PACIENTS' POINT OF VIEW

Authors

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Abstract: Introduction: Dizziness is a common complaint among adults and usually those patients are submitted to the vestibular test in the attempt of finding the dizziness cause. In the clinical routine it is common to observe the fearful patient before accomplishing the exam, which happens due to the ignorance of what the vestibular test is and what happens during the test. Also, it is well-known the presence of anxiety in this population. Such symptom front to the vestibular test can cause as result a bilateral hyperactivity. This result can also be associated to a picture of central alteration; therefore, it is possible to find false results in the vestibular tests due to anxiety. Purpose: Check the previous knowledge of the individuals whom will undergo the vestibular test, investigating what kind of information these patients receive. Investigate the patient's emotional state before, during and after the exam. Methods: Cross-sectional study accomplished with 48 individuals who were submitted to vestibular test at the Audiology Clinic in Federal University of Minas Gerais. Two questionnaires were elaborated by researchers, and questionnaire 1 was applied before the accomplishment of the test and questionnaire 2 was applied right after the test. Results: Middle age of the sample was 54.4 years and 83.3% of the participants were females. The results of the vestibular test showed 66.7% of normal results, followed by results that suggested peripheral alterations (31.2%) and central alterations (2.1%). Anxiety before accomplishing the exam was present in almost half of the sample, and more than 80% of the participants were never been submitted to this exam, more than 60% ignored the stages of the test and never received any explanation on how the test is accomplished. When there was previous explanation of the vestibular test, 22.9% affirmed to have received an acquaintance's information and that the explanation was only regarding the procedures of caloric testing. It was not found association between the result of the exam and the anxiety degree before the test. Regarding the patients' orientation, 41.7% of the sample prefer to receive the orientations in the immediate pre-test by the person that will do the exam and 31.3% of the sample affirmed to be the doctor the most suitable person to give such orientations. Conclusions: In the investigated group, most of the participants did not present previous knowledge on the vestibular test and usually the type of information that those patients received was only about the caloric testing. The presence of anxiety before accomplishing the exam in the studied population was quite expressive. However, it was observed an appropriate performance of the audiologist regarding the immediate daily pre-test directions, which reduced the presence of anxiety after the exam. Those evidences demonstrate the need of a better orientation to the patient that will be submitted to vestibular test, minimizing the anxiety during the test.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 150

STATIC AND DYNAMIC BALANCE IN DIZZINESS ELDERLY PATIENTS WITH NORMAL AND WITH REDUCED CALORIC RESPONSES

Authors

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Institution

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Abstract: Introduction: dizziness and imbalance complaints are frequent in elderly patients and they are directly related to the linear increase of age and to vestibular dysfunction.. Objective: to analyze static and dynamic balance in elderly patients with normal and with reduced caloric responses. Method: Transversal study with 42 patients distributed into two groups: Group 1 (G1) composed of 21 subjects with normal caloric responses and Group 2 (G2) composed of 21 subjects with with uni or bilateral reduced caloric responses. Both groups were submitted to BRU™ static posturography and to the Dynamic Gait Index (DGI). The parameters analyzed were centre of pressure displacements (COP) in the following conditions: 1 - stable surface without stimulus; 2 - stable surface and closed eyes; 3 - instable surface and closed eyes; 9 - stable surface and horizontal visual-vestibular interaction; 10 - stable surface and vertical visual-vestibular interaction. Results: there was no statistically significant difference between G1 and G2 in relation to age (G1 70,00±5,38 e G2 73,19±6,86, p=0,11). There was an increase of COP in G2 in conditions 1, 2, 3 and 9, although it was not statically significant: condition 1 (G1 2,68±2,09 cm² and G2 4,86±7,93 cm², p=0,54); condition 2 (G1 4,13±6,05 cm² and G2 6,35±13,67 cm², p=0,52); condition 3 (G1 9,71±7,82 cm² and G2 15,10±27,89 cm², p=0,77); condition 9 (G1 4,33±2,2 cm² and G2 5,21±4,59 cm², p=0,60). There was no significant statistically difference between groups in condition 10 (G1 4,05±3,40 cm² and G2 3,78±3,60 cm², p=0,74) and in the DGI (G1 20,33±2,28 points e G2 20,26±2,72 points, p=0,97). Conclusion: dizziness elderly patients with normal or reduced responses in caloric test may present abnormalities in posturography and poor gait performance probably because of multisensorial abnormalities and vestibular comorbidities, which may lead to the increase of boy oscillation and gait instability.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 151

AIR-DRIVEN CALORIC TEST IN MIDDLE EAR ALTERATIONS: A STUDY OF THE PARADOXICAL RESPONSE IN THE SECRETORY OTITIS MEDIA

Authors

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Abstract: Introduction: The battery of vestibular tests is an important tool in identifying disorders of the systems related to balance function. Within this battery, the caloric test is able to provide data of each labyrinth function separately, helping to identify the affected side. The air caloric stimulation is the preferred option in cases of middle ear alterations, but the exam in these cases is still controversial, since existing studies point to different directions for the interpretation of data obtained and the possibility of paradoxical response in warm air stimulation has been rarely described. This phenomenon, due to the contact of warm air with the fluid present in the middle ear, produces nystagmus in the opposite direction than expected and occurs mainly in perforated tympanic membranes, but there are only a few studies in cases of middle ear alterations without perforation, as in secretory otitis media. Aim: This study aims at analyzing the effects of air caloric stimulation in ears with intact tympanic membrane and presence of middle ear fluid. Method: This study has been approved by the Ethics Comittee of Santa Casa de Misericórdia de São Paulo, with authorization 170/05. Only individuals with intact tympanic membrane, presence of middle ear fluid in one or both ears and type B tympanogram, without any peripheral or central vestibular disorder, will be examined. All participants will be submitted to anamnesis, otorhinolaryngological otoscopy, basic audiological evaluation – tonal thresholds, logo audiometry and impedance audiometry –, eye movement calibration, open and closed eyes spontaneous nystagmus study and air-driven caloric test (42°C and 18°C) of 80 second duration. Partial results: there was no occurrence of paradoxical response in warm air stimulation in the ears studied so far. The post-caloric nystagmus in all cases had expected direction in warm and cold stimulations and amplitude within normal limits set by the software VecWin2, with slow component angular velocity between 2 and 24 °/s.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 152

EFFECT OF THE WARM AIR CALORIC STIMULATION TIME ON THE PARADOXICAL RESPONSE IN TYMPANIC MEMBRANE PERFORATION

Authors

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Abstract: Introduction: The caloric test is the primary test of vestibular function since it provides information of each labyrinth separately, which aids in topodiagnosis of lesion. In chronic otitis media cases, air stimulation is the preferred option. However, the possibility of inverse response in warm stimulation makes the test and its interpretation controversial. It is important to differentiate between the inverted nystagmus and the paradoxical response. The inverted nystagmus has central origin, while the inversion of the answers in paradoxical response happens because of the contact between the warm air and the middle ear's fluid that causes a cold stimulation, resulting in an outcome similar to the central inverted nystagmus. The 120 degrees head flexion, often used when there are inverted responses in the caloric test, is not able to distinguish between the inverted nystagmus and the paradoxical response. Also, there are only a few studies that search for clinically applicable methods which help to distinguish the two phenomena, such as changes in time or temperature of warm stimulation. If an increase in the duration of warm stimulation (which has no effect on the central inverted nystagmus) can surpass the cooling process of the middle ear with fluid and heat this cavity, it will cause nystagmus reversion and may be a viable method to confirm the occurrence of the paradoxical response. Aim: To investigate whether the increase of the stimulation time is able to surpass the paradoxical response of warm air caloric test in ears with tympanic membrane perforation with effusion. Method: This study has been approved by the Ethics Comittee of Santa Casa de Misericórdia de São Paulo, with authorization 170/05. The evaluated subjects had unilateral or bilateral tympanic membrane perforation with effusion and no complaints of dizziness. Only ears with occurrence of paradoxical response in the warm air-driven caloric test were considered in the study. All participants were submitted to anamnesis, otorhinolaryngological otoscopy, tonal thresholds, logo audiometry, eye movement calibration, open and closed eyes spontaneous nystagmus study and air-driven caloric test. A Neurograff air otocalorimeter was used with 42°C temperature during enough stimulation time to revert the nystagmus, up to a maximum of 600 seconds (10 minutes). Results and discussion: In 57.14% of the analyzed ears there was reversion of nystagmus. The average interval time until reversion was 362.75 seconds (approximately 6 minutes), with a standard deviation of 149.57 s. The possibility of nystagmus reversion and the time required for it to happen seem to be directly related to the amount of liquid present in the middle ear. However, further studies are necessary to confirm this hypothesis. Conclusion: The increase of the stimulation time was able to surpass the paradoxical response process in some cases. However, since in a significative amount of ears there was no occurrence of nystagmus reversion, increase of warm stimulation duration seems not to be the ideal method to differentiate between central inverted nystagmus and the paradoxical response. An increase of the stimulation's temperature can be another alternative to distinguish the two phenomena.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 153

VESTIBULAR REHABILITATION WITH VIRTUAL REALITY: CASE STUDY

Authors

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Abstract: Introduction: Exercises of Vestibular Rehabilitation (VR) have been proposed with the aim of improving the quality of life of individuals with disorders at the body balance. The intention of putting in place the VR using virtual reality is to recreate environmental variations of the visual stimulation, vestibular and somatosensory, in order to adjust the vestibuloocular reflex and vestibulospinal reflex, involved at the postural control and equilibrium strategies. This gives the chance to the patient to be exposed to situations of conflict in a controlled environment, reducing the visual dependency to the postural control, increasing the contribution of vestibular and somatosensory stimulation. Objective: To verify the efficiency of VR with virtual reality in an individual affected by a unilateral vestibular disorder. Method: R.A., male, 27 years-old, complains about dizziness for about five years, with sporadic crisis. He has presented tinnitus, headache and unilateral profound sensorineural hearing loss. At the vestibular assessment, it was observed unilateral hypo-reflex in absolute valor at the caloric test. R. was submitted to twelve sections, twice a week, of VR with virtual reality using BRU equipment. At the VR there were presented visual stimulation, through virtual reality glasses. The exercises environmental conditions were: standing on the floor; standing on the foam; stepping; stepping on the foam; and, at the Suisse ball. The available visual stimulation was smooth pursuit, saccadic, optokinetic bars, optokinetic tunnel, optokinetic train, vestibule-ocular reflex. The parameters were configured according to latency, duration, frequency, movement and the deepness of visual stimulation. These were adjusted according to the patients' abilities and necessities. The patient was submitted to posturography, DHI – life quality inventory – and analogical scale of dizziness (ASD) pre and post VR, considering that this results were compared in order to check an improvement of the symptoms. Results: At ASD R. scored ten prior the VR, after that the score was zero and at the DHI the total score pre VR was of 54 and after zero, suggesting an important improvement of the symptoms and quality of life. At the posturography, it was observed after the VR an increase of the stability area, and reduction of ellipse area and the sway velocity, in almost all evaluated conditions. In the audiometry after VR it was observed an improvement at the hearing threshold at the following frequencies: 250, 500, 1000 and 2000 Hz. Besides that, the patient has reported a significant improvement of the tinnitus. Conclusion: The VR with virtual reality was efficient at the rehabilitation of this patient, so that there was an improvement of the posturography, at the DHI and analogic scale post VR.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 154

POSTUROGRAPHIC FINDINGS IN BENIGN PAROXYSMAL POSITIONAL VERTIGO

Authors

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Abstract: Benign paroxysmal positional vertigo(BPPV) is a very common mechanical disorder of the inner ear in which vertigo,with concomitant nystagmus and autonomic symptoms, is precipitated by certain head movement.Treatment of patients with VPPB is based on the identification of the specific canal involved and the anatomy of the labyrinth. Although patients with BPPV primarily experience brief episodes of vertigo, this disorder is also associated with postural instability.Mostly Techniques measuring the vestibulo-ocular reflex(VOR) have been used for the evaluation of patients with BPPV. However, the vestibulospinal reflex(VSR)can also be disturbed.Purpose: To evaluate balance control with the Balance Rehabilitation Unit (BRU™) posturography in patients with benign paroxysmal positional vertigo (BPPV). Method: A cross controlled study was performed including 45 patients with BPPV, and a homogeneous control group consisting of 45 healthy individuals. Patients were submitted to a balance function evaluation by means of Balance Rehabilitation Unit (BRU™) posturography. Results: There was a significant difference ($p < 0.05$) between the mean values of oscillation speed and ellipse area in the comparison between the BPPV patients and the control group in all evaluated conditions, except for the oscillation speed in static force surface and saccadic stimulation, which has presented a tendency of significance ($p=0.060$). Conclusion: The Balance Rehabilitation Unit (BRU™) posturography enables to identify oscillation speed and ellipse area abnormalities in patients with BPPV.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 155

CORRELATION BETWEEN BODY BALANCE AND QUALITY OF LIFE OF ELDERLY PEOPLE SUBMITTED TO VESTIBULAR REHABILITATION

Authors

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Abstract: Introduction: Aging impairs the ability of the central nervous system to perform the vestibular, visual and proprioceptive processing, and it is responsible for maintaining the body balance and decreases the ability of adaptive changes in reflexes. These degenerative processes are responsible for the occurrence of dizziness and imbalance in the geriatric population. Falls are the most dangerous consequence of imbalance and difficulty in walking, followed by fractures, leaving the elderly bedridden and it is the cause of 70% of accidental deaths in people over 75 years. A method of treatment of balance disorders would be Vestibular Rehabilitation (VR), which is a therapeutic process that aims to achieve central compensation. For this, we use physical exercises specific and repetitive, allowing new patterns of vestibular stimulation and in future, be carried out automatically, restoring the body balance and improving the quality of life of patients. The Dizziness Handicap Inventory (DHI) is an instrument composed by 25 questions that assesses the interference of dizziness on the functional, physical and emotional aspects on quality of life. Purpose: Correlate body balance with the quality of life of elderly people submitted to VR. Methods: Is a retrospective study of 27 elderly patients submitted to VR at Otorhinolaryngology Department of Clinics Hospital of São Paulo University, treated between January 2008 to November 2009. The DHI was applied to 27 patients on two occasions, before and after VR. The evaluation of clinical response to treatment will be performed by a visual analog scale: remission (100% of improvement), partial improvement (50% to 90%), no improvement (less than 50%). Results: There were analyzed a total of 27 subjects, in the range of 62 to 92 years old, of female (85,5%) and male (14,8%) gender. Of these subjects, 11,1% had non-rotatory dizziness plus imbalance, 22,2% vertigo plus imbalance, 37,1% imbalance, 22,2% non-rotatory dizziness, and 7,4% had vertigo. In relation to duration of symptoms, 7,4% reported dizziness for less than one year, 62,9% between one and five years, 25,9% between six and 10 years, and 3,8% for more than 10 years. Concerning the diagnosis hypothesis, 22,2% has dizziness of metabolic origin plus syndrome of the elderly imbalance, 14,8% has syndrome of the elderly imbalance, and 63,0% others. Treatment lasted on average 3 months and 51,9% of the subjects had remission of dizziness, and 48,1% had partial improvement. Before VR we observed an average score of 17,5 on functional aspect of DHI, a score of 16,3 on physical aspect, 14,8 on emotional aspect, and a total score of 49,2 on DHI. After VR we observed an average score of 2,3 on functional aspect, a score of 2,3 on physical aspect, 2,6 on emotional aspect, and a total score of 7,4 on DHI. Conclusion: There were significant improves on average scores of DHI in all aspects (functional, physical and emotional), suggesting that the elderly people responded well to the treatment of VR, with remission of dizziness or significant improvement in body balance resulting on a better quality of life.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 156

THE CONTRIBUTION OF THE DYNAMIC POSTUROGRAPHY "FOAM LASER" IN THE BALANCE BODY ASSESSMENT

Authors

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Abstract: Introduction: The body balance depends on the integrity of three systems: visual, proprioceptive and vestibular. Changes in the maintenance of the balance can cause symptoms such as: vertigo, dizziness and imbalance. Being the dizziness the most frequent symptom, affecting both sexes. In presence of these symptoms is essential the achievement of the examinations for the balance assessment, making the diagnosis and the treatment. As well as the Vectoelectronystagmography, the Dynamic Posturography "Foam-Laser" is an important instrument for clinical otoneurological, being this one a reliable and low cost technique to the achievement of the Sensorial Organization Test (SOT). The test assesses the anteroposterior sway under six conditions: SOT I (opened eyes, fixed surface), SOT II (closed eyes, fixed surface), SOT III (opened eyes, fixed surface and mobile viewing booth), SOT IV (opened eyes, moving surface), SOT V (closed eyes, moving surface) and SOT VI (opened eyes, moving surface and mobile viewing booth). Purpose To verify the contribution of the dynamic posturography "Foam Laser" in the balance body assessment. Methodology The participants were the patients enrolled in the neurotology clinic of the University Hospital of Santa Maria - RS, from March to November 2009. The complaint of dizziness, as well as the achievement of all assessments were the criteria for inclusion in this study. Thirty two patients were evaluated between 15 and 76 years old, with the mean age of 49.3 years, being 6 male patients and 26 female patients. According to the procedures performed, initially the patients were undergone to an anamnesis, subsequently the assessment of Dynamic Posturography "Foam-Laser" and electronystagmography. Results: In the analysis of the results of electronystagmography it was verified that in 26 patients (81.25%) the vestibular exam was unchanged, but, on the other hand, in 6 patients (18.75%) were found some changes in the exam, being the Dysfunction Peripheral Vestibular Deficit Right Compensated currently the most prevalent (66.67%). The most affected genre was the female one (66.67%). When we use the Dynamic Posturography "Foam-Laser" in the balance assessment and analyze the average of the tests we found the following results: 1 patient (3.12%) had a mean above the expected and 31 patients (96.88%) the average was below expectations. If we analyze the sensorial guidelines tests separately, we can notice that in the SOT I, SOT II

and SOT III, no patient had values above the waiting, in the SOT IV, 30 patients (93.75%) had values lower than expected, in the SOT V were 23 patients (71.87%) and the SOT VI were 19 patients (59.37%) lower than expected. Conclusion: We could observe due to this research that the Dynamic Posturography is an appropriate and efficient instrument for the diagnosis and treatment of balance disorders, especially when these changes are not found in conventional tests. However, it is important to emphasize that this should not be the only instrument in the diagnosis of vestibular diseases, being necessary to analyze their data with those ones obtained by means of electronystagmography, because these procedures are complementary, once the Dynamic Posturography analyzes the vestibulospinal reflex and electronystagmography considers the vestibulo-ocular reflex.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 157

POSTURAGRAPHS FOUND IN SCHOOLCHILDREN FROM 8 TO 12YEARS OLD: PRELIMINARY STUDY.

Authors

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Abstract: PURPOSE The present Work aims at evaluating the corporal balance of schoolchildren in the age group from 8 to 12 years old in order to identify precociously believable damages brought by alteration in the corporal in socio – environmental and academic aspects. METHODOLOGY The research was accomplished with normal students in a public school in the city of Santa Maria, RS. The sample was composed by 147 schoolchildren in the age group from 8 to 12years old. The instrument used to the evaluation of corporal balance was the dynamic posturagrapy. To the statistic analysis two variables were used: age and gender. The sample was divided into two age groups , 8 – 9 years old and 10 – 12 years old , and it was used the Kruskal Wallis Test to accomplish the comparisons between the variables. RESULTS Concerning to variable gender, it was found difference statistically significant in the Sensorial Organization Test V (SOT V) and in the sensorial analysis of vestibular system, both the found only in the group age of 10 – 12 years old. Concerning to variable age, it was verified difference statically significant only in the scores of corporal balance (except SOT I). CONCLUSION The corporal balance in schoolchildren improves with the advance of chronological age, independently of gender. From 10 years old on , the schoolchildren of feminine gender show improved vestibular function when compared to children of masculine gender.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 158

OTONEUROLOGICAL EVALUATION IN ACUTE LYMPHOBLASTIC LEUKEMIA: A CASE REPORT

Authors

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Abstract: Introduction: Cancer is a relatively common disease in the pediatric population, is represented by more than 200 different diseases, with multiple natural causes, with different forms of treatment and that can affect any tissue, organ or body system. The acute lymphoblastic leukemia (ALL) is the most common type of childhood cancer, representing about one third of all malignancies of the child. Treatment can be for a long time, and combination therapy with various cytotoxic drugs have increased the cure rate in children with ALL in more than 80% of cases. Objective: To evaluate the vestibulocochlear symptoms in a child with ALL. Methods: We evaluated a patient diagnosed with ALL, aged 12 years, male. We performed the following procedures: anamnesis, otorhinolaryngological, audiological, auditory processing and vestibular assessments. Results: a) the main complaints were weakness during the treatment period, without hearing loss, tinnitus and dizziness, b) audiometry showed normal hearing thresholds c) the impedance presented tympanometric curve type A with acoustic reflex present bilaterally d) assessment of auditory processing (Staggered Spondaic Word, Random Gap Detection Test and Pitch pattern sequence) showed normal results, and) in the VENG, the result was normal vestibular exam. In a re-evaluation after 6 months of treatment changes were observed in tests of central auditory processing (Word and Staggered Spondaic Random Gap Detection Test). Conclusion: Treatment with chemotherapy may induce changes of the central auditory processing. Thus, this test should be performed routinely in children with ALL.

POSTER SESSION II - DATE: 31/3/2010 TIME: 8H00 - 18H00 - PANEL 159

OTONEUROLOGICAL EVALUATION ON SPINOCEREBELLAR ATAXIA: A CASE REPORT.

Authors

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Abstract: Introduction: Ataxia can be classified into: (a) cerebellar - when there is involvement of the cerebellum and its afferent and efferent projections; (b) sensory - when there is change in the way of proprioceptive sensitivity; (c) frontal - when there is involvement of frontal lobe (cerebellar-frontal projections); and (d) vestibular - caused by labyrinthine dysfunction. The spinocerebellar ataxias have an incidence of 1 to 5 cases per 100,000 inhabitants. Its main clinical manifestations are ataxia when walking and appendicular ataxia (dysmetria, dysidiadocokinesia, intention tremor), dysarthria, nystagmus, deafness (in some cases), ophthalmoplegia, dysphagia, pyramidal syndrome, lower motor neuron, cognitive dysfunction, epilepsy, disturbances visual and movement disorders. The spinocerebellar ataxias can be classified according to the genetic inheritance: (a) autosomal recessive hereditary ataxias; (b) autosomal dominant hereditary ataxias; (c) hereditary ataxias linked to chromosome "X"; and (d) mitochondrial hereditary ataxias. The identification of a patient with the disease can be quite difficult due to the multiplicity of clinical presentations and associations of various neurological signs and symptoms that may occur in the course of the disease. Objective: To verify the vestibulocochlear aspects in a patient with spinocerebellar ataxia. Methodology: We evaluated a patient, male, 42-year-old, with spinocerebellar ataxia type 3 (Machado Joseph), and were performed the following procedures: anamnesis, otorhinolaryngological, audiological, immittance, auditory evoked brainstem , auditory processing and vestibular evaluation. Results: (a) the clinical complaints were referred: hearing loss, tinnitus, imbalance, ataxia when walking and severe headache; (b) audiometry hearing thresholds within normal limits in the left ear and decreased hearing in the frequency of 250 Hz in right ear; (c) the impedance presented tympanometric curve type "As" in the right ear and "A" in the left ear, with the acoustic reflex present bilaterally; (d) the auditory evoked brainstem in the right ear had absolute latencies I and V characteristics and III increased, and the interpeak I-III. In the left ear absolute latencies III and V increased and interpeak IV; (e) the assessment of auditory processing, the test showed normal Staggered Spondaic Word (SSW) and the Random Gap Detection Test and change in temporal resolution; (f) in the VENG, had no response in search of pre-rotatory nystagmus and bilateral labyrinthine hypofunction. Conclusion: There is change in various tests that make up the diagnosis otoneurological emphasizing the importance and sensitivity of these tests in spinocerebellar ataxia type 3

The content of the abstracts is an author responsibility.

Company/Institution	Booth N°
ISA - International Society of Audiology	
ABA - Academia Brasileira de Audiologia	
ADVANCED BIONICS	9
ARGOSY	5
AUDIBEL APARELHOS AUDITIVOS	01; 02
AUDIX APARELHOS AUDITIVOS	4
BOOKTOY	16
CENTRO AUDITIVO TELEX	32
CFFa	28A
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