Oral Presentations

S5  **Speech, Language and Hearing Sciences**
April 6, 2017, 08:00am to 09:10am
Hospital das Clínicas, Instituto Central - Anfiteatro ORL - Sala 6172 - 6º Andar
April 6, 2017, 09:20am to 10:30am
Centro de Convenções Rebouças – Sala Havana

S10  **Otorhinolaryngology**
April 7, 2017, 08:00am to 09:10am and 09:20am to 10:30am
Centro de Convenções Rebouças – Sala Havana
April 7, 2017, 02:00pm to 03:20pm
Centro de Convenções Rebouças – Sala Verde

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Oral Presentations

Speech, Language and Hearing Sciences

Speech Auditory Brainstem Responses in Tuneless
Milaine Dominici Sanfins (presenter), Ingrid Gielow, Glauca Madazio, Mara Behlau, Tatiana Buratto Bordin, Francine Barbosa Honorio
Centro de Estudos da Voz – Cev, Brazil

Introduction: The auditory processing occurs properly in tuned people and improperly in tuneless people. An effective way to investigate this process is the evaluation of the speech auditory brainstem response (SABR), which allows the identification of fine-grained auditory processing.

Objectives: The aim of this study was to analyze the SABR in tuneless and tuned people.

Methods: The SABR was compared between two groups: the control group (CG) = 17 volunteers self-reported as tuned (28 to 49 years) and the experimental group (EG) = 20 volunteers self-reported as tuneless (15 to 55 years). All participants answered the Brazilian version of the Voice Symptom Scale and were submitted to a pitch-matching scanning test. The SABR was recorded at 80 SPL for speech stimuli, with the synthesized syllable /da/ provided by a computer software, using a Biologic Navigator Pro equipment. In order to compare groups (tuned and tuneless) across each wave, the ANOVA procedure was used, testing the age and gender variables as well as their interactions.

Results: Results showed better latencies for the CG when compared to the EG, with significant statistical differences for the waves A (p = 0.045), C (p = 0.002), D (p = 0.033) and F (p = 0.046). The amplitude measurements not seem to be a better parameter for the identification of changes in coding of speech sounds in the comparison between tuneless and tuned groups.

Conclusion: The SABR proved to be an objective and effective instrument to identify the sound perception changes, as well as allowing a differential diagnosis between tuned and tuneless people.

Brazilian Scale of Hearing and Language Development in Children (EDAL-1) with Cochlear Implant and Less Than Two Years of Hearing AGE
Angela Ribas (presenter), Renato Riesenberg Gabriel Martins Filho, Claudia Andriquetto Maoski Moretti, Gleide Viviani Maciel Almeida
Universidade Tuiuti do Paraná, Brazil

Introduction: Cochlear implants are currently the most effective technological resource to facilitate access for deaf people to the hearing world. Their use, especially when implanted early in children, reduces the impact of deafness on hearing as well as spoken language development.

Objective: To present the protocol called the Brazilian Scale of Hearing and Language Development.

Materials and Methods: This is a protocol developed in order to assess and record the development of hearing and language skills in young children who have undergone cochlear implantation during the first two years of hearing age. It was applied to the parents of 41 children over a period of 12 months at the cochlear implant clinic in the Pequeno Príncipe Hospital in Curitiba, Brazil. Registered were: the time taken to implement the protocol; ease of understanding the questions; numerical results obtained by the children evaluated.

Results: In general, the questions were considered easy to understand. The minimum time taken for application of the protocol was two minutes and the maximum was 11 minutes. At the end of the evaluation, it was possible to quantify the development in 100% of the cases.

Conclusion: EDAL proved an agile, quick and easy, instrument to be used in the first two years of hearing age.

Keywords: deafness, speech therapy, cochlear implantation, child.

Free Field Word Recognition Test in the Presence Of noise in Normal Hearing Adults
Angela Ribas (presenter), Gleide Viviani Maciel Almeida
Universidade Tuiuti do Paraná, Brazil

Introduction: In ideal listening situations, subjects with normal hearing can easily understand speech, as can many subjects who have a hearing loss.

Objective: To present the validation of the Word Recognition Test in a Free Field in the Presence of Noise in normal-hearing adults.

Methods: Sample consisted of 100 healthy adults over 18 years of age with normal hearing. After pure tone audiometry, a speech recognition test was applied in free field condition with monosyllables and disyllables, with standardized material in three listening situations: optimal listening condition (no noise), with a signal to noise ratio of 0 dB and a signal to noise ratio -10 dB. For these tests, an environment in calibrated free field was arranged where speech was presented to the subject being tested from two speakers located at 45°, and noise from a third speaker, located at 180°.

Results: All participants had speech audiometry results in the free field between 88% and 100% in the three listening situations.

Conclusion: Word Recognition Test in Free Field in the Presence of Noise proved to be easy to be organized and applied. The results of the test validation suggest that individuals with normal hearing should get between 88% and 100% of the stimuli correct. The test can be an important tool in measuring noise interference on the speech perception abilities.

The Influence of Stress and Depression on Oculomotor Vestibular Tests
Danielle Brandão Siqueira Tavares (presenter), Marcilio Ferreira Marques Filho
Universidade Estadual de Santa Cruz, Brazil

Introduction: The labyrinths present dizziness or vertigo, as the most common symptoms, frequently present in patients with psychiatric disorders, mainly depression, stress and anxiety. With these complaints, deterioration of the quality of life can be observed, away from work, studies, social interaction and others. It is observed in these patients a decrease in attention and concentration that suggested us to investigate the performance of these individuals in the vestibular tests that need these cognitive abilities.

Objectives: Evaluate the influence of stress and depression on the performance of oculomotor vestibular tests in individuals with labyrinthine disease.

Methods: 10 labyrinthine patients less mental disorders, 10 labyrinthine patients presenting stress and 10 labyrinthine patients presenting depression were submitted to the vectornystagmography, in the period from September to November 2016. We analyzed performance in calibration, pendular tracking, saccadic movements, optokinetic nystagmus.

Results: When analyzing the performance of oculomotor tests, we found changes mainly in latency and pre-
Oral Presentations - Speech, Language and Hearing Sciences

Use of Questionnaire as Monitoring Tool of Auditory Training in Children with History of Otitis Media
Caroline Donadon (presenter), Leticia Reis Borges, Milaine Dominici Sanfins, Maria Francisca Coellos dos Santos, Paloma Andreza Peixoto de Oliveira
Universidade Estadual de Campinas, Brazil

Introduction: There are different types of instruments that assist in the monitoring of auditory training programs. Questionnaires are an important monitoring tool in this process.

Objective: To compare the scores of Scale of Auditory Behaviors questionnaire and responses of auditory processing tests in pre and post auditory and visual training.

Method: 30 children aged from 8 to 14 years, underwent a bilateral myringotomy in the first five years of age, they were evaluated and divided into two groups: auditory training (Group 1) and visual training (Group 2). Both groups had air conduction threshold below 20 dBHL for octaves from 250 to 8000 Hz, ‘A’ type tympanogram with presence of ipsi and contralateral acoustic reflexes bilaterally.

Results: We observed a significant statistically difference in Group 1 results for Dichotic Digits [RE: 0.007 - LE: 0.004], Pitch Pattern Sequence - Humming [RE: 0.002 - LE: 0.001] and Verbal [RE: 0.000 - LE: 0.000], Gaps in Noise [RE: 0.001 - LE: 0.001], Synthetic Sentence Identification with Ipsilateral Competing [RE: 0.004 - LE: 0.001] and total questionnaire score (p=0.003). No significant statistically difference were found comparing pre and post visual training results considering the performance of the children in the behavioral tests and in the Scale of Auditory Behaviors questionnaire.

Conclusion: The analysis of the results showed that Scale of Auditory Behaviors questionnaire is an accurate tool for monitoring the rehabiliation of the central auditory system for and auditory and visual stimulation.

Keywords: auditory processing, questionnaires, auditory training, visual training, otitis media.

Subjective Visual Vertical in Children with and without Diagnosis of Language Disturbance
Adriana Marques da Silva (presenter), Tais Ciboto, Maristela Mian Ferreira, Camila da Silva Santos, Daniela Mascarenhas Lopes Fante
Faculdades Metropolitanas Unidos, Brazil

Introduction: the perception of verticality contributes to human balance and is essential for the development of language. Children with oral language changes and/or writing may have vestibular disorders leading to changes in the perception of verticality. The bucket test evaluates the perception of verticality by Subjective Visual Vertical, a measurement of the angular deviation from a central point that has been used to diagnose vestibular disorders.

Objective: to correlate the Subjective Visual Vertical (VVS) in children with and without oral and/or written language.

Methods: quantitative study conducted in a private school and a clinic-school in São Paulo with 30 children, with age ranging from 07 to 11 years, which were divided into a control group and experimental group. The experimental group was composed of children with oral language change and/or writing and the control group for children with no history or complaints about language changes.

Results: the mean deviations of the VVS for the experimental group was 2.8 and for the control group was 2.1%. Statistically significant difference was observed between the values of the angular deviation in the experimental and control groups (p = 0.01867).

Conclusion: Children with and without oral and/or written language differ in assessing the subjective visual vertical.

Keywords: vestibular function; language disorders; vertigo; children; schoolchildren.

Development of Central Auditory Function in Infants and Children
Leticia Sampaio de Oliveira (presenter), Ana Claudia Frizzo, Anna Caroline Silva de Oliveira
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Introduction: Auditory function involves auditory discrimination and noise comprehension skills, important in the critical period of maturation and plasticity of Central Auditory Nervous System for the overall development of the child. Cortical auditory evoked potential with speech stimulus gives us important information about the functioning and maturation of the central auditory pathway.

Objective: To study the development of auditory function in infants and children based on the analysis of Cortical Auditory Evoked Potential measures.

Method: Fifteen children aged 3 months to 8 years of both genders participated in the study, 10 without hearing complaints (G1) and 5 with recurrent episodes of hearing infections (G2). The exam was investigated using the speech/ba/-/da/ with random stimulus at a 20% proportion of non-standard stimuli of a total of 100 stimuli, identifying and analyzing the complex P1-N1-P2-P3.

Results: For G1 the mean latency values were: RIGHT EAR P1 = 90.14ms; N1 = 125.53ms; P2 = 217.67ms; N2 = 257.22ms. For G2 group, mean values of latency were: RIGHT EAR P1 = 110.09ms; N1 = 147.57ms; P2 = 220.61ms; N2 = 237.10ms; LEFT EAR P1 = 90.14ms; N1 = 125.53ms; P2 = 217.67ms; N2 = 257.22ms. For G1 group, the mean values of latency were: RIGHT EAR P1 = 110.09ms; N1 = 147.57ms; P2 = 220.61ms; N2 = 237.10ms; LEFT EAR P1 = 87.71ms; N1 = 118.25ms; P2 = 211.94ms; N2 = 255.66ms. P1 measurement was the best morphology measure for all ages with 100% detectability. There was no statistical difference between groups G1 and G2.

Conclusion: The measurements allowed the investigation of the development of central auditory function in infants and children.

Keywords: Child Development, Hearing, P300.

Long Latency Auditory Evoked Potential: Monitoring of Speech-Language Intervention in Schoolchildren with Dyslexia
Dayse Mayara Oliveira Ferreira (presenter), Simone Aparecida Capellini, Leticia Sampaio de Oliveira, Brena Elisa Lucas, Yara Bagali Alcantara, Ana Claudia Frizzo
Universidade Estadual Paulista Júlio de Mesquita Filho – Unesp, Brazil

Introduction: Long latency auditory evoked potentials are relevant electrophysiological responses in audiological assessments for providing objective and quantitative data on the functionality of central auditory structures; and are useful in monitoring therapeutic intervention.

Objective: To analyze and compare results before and after speech intervention.

Method: Ten dyslexic children aged 7 years and 11 months participated in the study. The measurement was
performed with tone burst sound stimulus at 70dB NA, which differed in frequency (1000Hz-standard and 2000Hz-non-standard), presented randomly, in an oddball paradigm. The procedure was performed before and after intervention. For intervention, the training of phonological and metalinguistic skills of consciousness of word, syllables, phonemes, rhyme and alliteration were performed.

**Results:** The mean latency values for pre-therapy dyslexic children were: RIGHT EAR P1 = 113.40ms; N1 = 136.31ms; P2 = 187.62ms; N2 = 214.69ms; P3 = 341.69ms; LEFT EAR: P1 = 91.77ms; N1 = 137.58ms; P2 = 180.41ms; N2 = 219.29ms; P3 = 336.49ms. And post-therapy were: RIGHT EAR P1 = 107.47ms; N1 = 131.10ms; P2 = 183.15ms; N2 = 238.03ms; P3 = 341.09ms; LEFT EAR: P1 = 92.89ms; N1 = 123.08ms; P2 = 167.02ms; N2 = 195.43ms; P3 = 320.27ms. There was no statistical difference between pre and post-therapy evaluations. The morphology of the N2-P3 wave complex was more stable in the post-training evaluation.

**Conclusion:** In this study, latency of long latency auditory evoked potential components was not an appropriate pre-and post-intervention evaluation instrument for monitoring the therapeutic intervention.

**Keywords:** event-related potentials, P300, intervention, dyslexia.

**Cochlear Implant in Kearns-Sayre Syndrome**

Letícia Sampaio de Oliveira (presenter), Eduardo Boaventura Oliveira, Kátia de Freitas Alvarénga, Karina Costa Broscó Mendes Unesp Marilia, Brazil

**Introduction:** Hearing loss may be related to several factors, among them is hearing loss due to certain genetic syndromes. The Kearns-Sayre syndrome is characterized by mutations in mitochondrial DNA, which is responsible for the production of energy (adenosine triphosphate), which is of utmost importance for the development of structures requiring this energy, as the cochlea.

**Objective:** To describe the medical evaluation results, the audiological diagnosis and intervention of two twin sisters, diagnosed with Kearns-Sayre syndrome and hearing loss.

**Resumed Report:** This case was accompanied at the hospital since 2000, due to the progressive characteristic of hearing loss found by audiological tests, and the findings in cases related to the syndrome. The intervention with the hearing aids has become a great facilitator to good oral communication for case 1, who happened to have the diagnosis of bilateral profound hearing loss. So after discussions in clinical meetings, the team opted for the indication of cochlear implants for this patient (case 1), achieving good results. Since her twin sister (case 2) has had good results with hearing aids, the patient (case 2) will continue the audiologic follow up, to enable the verification of the developments in the case and the discussion of a new approach if necessary.

**Conclusion:** Patients suspected or diagnosed with Kearns-Sayre syndrome should seek audiological diagnosis, since it may be a possible progressive hearing loss, which requires rehabilitation with the use of hearing devices.

**Keywords:** hearing loss, cochlear implantation, diseases in twins.

**Auditory Training: Scale of Auditory Behavioral Questionnaire and Behavioral Evaluation in Children with History of Otitis Media**

Caroline Donadon (presenter), Ingrid Gielow, Milaine Dominici Sanfins, Maria Francisca Coelha dos Santos, Leticia Reis Borges, Paloma Andreza Peixoto de Oliveira, Diana Melissa Faria Universidade Estadual de Campinas (Unicamp), Centro de Estudos da Voz (Cev), Brazil

**Introduction:** Otitis media is a prevalent disease that can cause harmful effects in children development as auditory processing disorder. The questionnaires are tools that can show behavioral changes resulting from auditory training programs.

**Objective:** To analyze the effect of auditory training in children with a history of otitis media considering auditory processing behavioral tests and the responses of the Scale of Auditory Behaviors questionnaire.

**Methods:** 16 children with history of otitis media (8-14 years) with normal hearing (<20dBHL for 250-8000Hz, tympanogram type A). The auditory processing was assessed by following tests: Dichotic Digits, Pitch Pattern Sequence - Humming and Verbal, Gaps in Noise and Synthetic Sentence Identification with Ipsilateral Competing. Besides that, it was performed The Scale of Auditory Behaviors questionnaire in pre and post auditory training conditions.

**Results:** Comparing the pre and post intervention results, we observed statistically significant values for the tests: Dichotic Digits (RE: 0.007 - LE: 0.004), Pitch Pattern Sequence A6: Humming (RE: 0.002 - LE: 0.001) and Verbal (RE: 0.000 - LE: 0.000), Gaps in Noise (RE: 0.001 - LE: 0.001), Synthetic Sentence Identification with Ipsilateral Competing (RE: 0.004 - LE: 0.001). The questionnaires presented p-value <0.05 for questions related with hearing in noise (p = 0.001), hearing floating (p = 0.002), distraction (p = 0.049), short attention span (p = 0.011), inattention (p = 0.026) and final score (p = 0.003).

**Conclusions:** The results suggest that Scale of Auditory Behaviors questionnaire is an accurate tool for monitoring the rehabilitation of the central auditory system.

**Keywords:** otitis media, auditory processing disorder, auditory training.

**Analysis of the Responses of Three Different Hearing Screening Methods**

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**Introduction:** Individual’s quality of life is directly related to the development of his abilities, in which deafness is an interference factor in this process. In this context, neonatal hearing screening is the main instrument for prior identification of hearing losses, mainly through performing of otoacoustic emissions and brainstem auditory evoked potential.

**Objective:** To compare responses obtained by Auditory potential in the automatic and conventional mode and through transient and distortion product emissions in healthy adults without hearing loss.

**Method:** Fifteen healthy subjects, aged between 18 and 30 years, with hearing thresholds within the normal range participated in the study. It was used to record of the automatic potential the Accuscreen ABR Madsen, for conventional Biological Navigator Pro and of the Bio-logic Navigator emissions through the Scout OAE Software.

**Results:** Waves I, III and V was present with latency according to Normality at 80, 45 and 35 dBnHL in the conventional potential. In the automatic the pass rate was 100% in both ears. The minimum thresholds obtained by potentials showed a high relation between the measurements (Qui-Square test p = 0.00). In the emissions, was observed a 100% pass rate for distortion product speech frequencies in both ears and a high failure rate in the 4KHZ frequency in the transient.

**Conclusion:** The minimum threshold for hearing screening was obtained in both potentials. In the emissions there was a greater defect number in the frequency of 4KHZ in...
both ears for the transient when compared to the distortion product.

**Keywords:** hearing screening, otoacoustic emissions, auditory evoked potentials.

**Automated ABR in Neonatal Hearing Screening: which Stimulus to Use?**
Daniela Polo Camargo da Silva (presenter), Georgia Espindola Ribeiro, Jair Cortez Montovani
Faculdade de Medicina de Botucatu, Brazil

**Introduction:** The Automated Auditory Brainstem Response (AABR) is considered an effective and sensitive technique for neonatal hearing screening. Most of the time the stimulus used is click, however studies show that this type of stimulus requires much more time to reach the base and top of the cochlea. The use of the CE-Chirp® stimulus has been an alternative to promote simultaneous neuronal activation, causing stimulation of the entire region of the cochlea.

**Objective:** Compare the results of the AABR using two different types of stimuli.

**Methods:** This is a cross-sectional study carried out over a period of six months. 33 infants with an average age of three months were enrolled in the study. All of them have done otoacoustic emission before with “pass” or “refer” results and some of them had risk indicators for hearing loss. AABR was initially performed with the CE-Chirp® stimulus, followed by the AABR with the click stimulus.

**Results:** 25 infants had risk indicators for hearing loss. 31 infants (94%) presented normal results in both ears with AABR and 27 (82%) presented normal results in both ears with AABR click stimulus.

**Conclusion:** The study showed that not always the results were correspondent and the majority showed abnormal results when click stimulus was used. Therefore, it is suggested the use of the AABR with click stimulus on the neonatal hearing screening to reduce the number of false negatives.

**Keywords:** infant, hearing loss, electrophysiology.

**Comparison of the Results of Hearing Screening by Automated-ABR with the Conventional ABR**
Daniela Polo Camargo da Silva (presenter), Jair Cortez Montovani, Georgia Espindola Ribeiro
Faculdade de Medicina de Botucatu, Brazil

**Introduction:** The application of the CE-Chirp® stimulus has been one of the proposals for universal neonatal hearing screening, but its results must be reliable and compatible with existing techniques.

**Objective:** The results obtained in the automated auditory brainstem response (AABR) with the results obtained in conventional ABR were compared.

**Methods:** This is a cross-sectional study carried out over a period of six months. 41 infants born in a public hospital in São Paulo state with an average age of three months were enrolled in the study. AABR with the CE-Chirp® stimulus was initially performed, followed by the conventional ABR for comparison.

**Results:** 23 infants (56%) were males and 18 (44%) were females, 31 presented risk indicators for hearing loss. 38 (92%) presented normal results in both ears while three (7%) presented altered results in the AABR, 33 (80%) infants presented normal results in both ears while eight (19%) presented altered results in the conventional ABR. Therefore, five infants had a satisfactory result in AABR, but they had some degree of hearing loss identified by conventional ABR.

**Conclusion:** False-negative rates were observed in the AABR. Although this technique is strongly recommended in infants at risk for hearing loss and in those who failed in the screening by otoacoustic emissions, our results suggest the need for assessments in the sensitivity of AABR equipment currently in use.

**Keywords:** infants, hearing loss, electrophysiology.

**Dichotic Hearing in Elderly Hearing aid Users who Choose to use a Single-Ear Device**
Angela Ribas (presenter), Nicoli Mafra, Jair Marques, Carla Mottecy, Renata Silvestre, Lorena Kozlowski
Universidade Tuiuti do Paraná, Brazil

**Introduction:** Elderly individuals with bilateral hearing loss often do not use hearing aids in both ears. Because of this, dichotic tests to assess hearing in this group may help identify peculiar degenerative processes of aging and hearing aid selection.

**Objective:** To evaluate dichotic hearing for a group of elderly hearing aid users who did not adapt to using binaural devices and to verify the correlation between ear dominance and the side chosen to use the device.

**Methods:** A cross-sectional descriptive study involving 30 subjects from 60 to 81 years old, of both genders, with an indication for bilateral hearing aids for over 6 months, but using only a single device. Medical history, pure tone audiometry, and dichotic listening tests were all completed.

**Results:** All subjects (100%) of the sample failed the dichotic digit test; 94% of the sample preferred to use the device in one ear because bilateral use bothered them and affected speech understanding. In 6%, the concern was aesthetics. In the dichotic digit test, there was significant predominance of the right ear over the left, and there was a significant correlation between the dominant side with the ear chosen by the participant for use of the hearing aid.

**Conclusion:** In elderly subjects with bilateral hearing loss who have chosen to use only one hearing aid, there is dominance of the right ear over the left in dichotic listening tasks. There is a correlation between the dominant ear and the ear chosen for hearing aid fitting.

**Auditory Brainstem Response in Term and Preterm Infants with Neonatal Complications: The Importance of the Sequential Evaluation**
Daniela Polo Camargo da Silva (presenter), Priscila Lopez, Jair Cortez Montovani
Faculdade de Medicina de Botucatu, Brazil

**Introduction:** Literature data are not conclusive as to the influence of neonatal complications in the maturational process of the auditory system observed by auditory brainstem response (ABR) in infants at term and preterm.

**Objectives:** Check the real influence of the neonatal complications in infants by the sequential auditory evaluation.

**Methods:** Historical cohort study in a tertiary referral center. A total of 114 neonates met inclusion criteria: treatment at the Universal Neonatal Hearing Screening Program of the local hospital; at least one risk indicator for hearing loss; presence in both evaluations (the first one after hospital discharge from the neonatal unit and the second one at 6 months old); all latencies in ABR and transient otoacoustic emissions present in both ears.

**Results:** The complications that most influenced the ABR findings were Apgar scores less than 6 at 5 minutes, gestational age, intensive care unit stay, peri-intraventricular hemorrhage, and mechanical ventilation.
**Conclusion:** Sequential auditory evaluation is necessary in premature and term newborns with risk indicators for hearing loss to correctly identify injuries in the auditory pathway.

**Auditory Processing Assessment in Children with Attention Deficit Hyperactivity Disorder: An Open Study Examining Methylphenidate Effects**

Bianca Pinheiro Lanzetta-Valdo (presenter), Giselle Alves de Oliveira, Jane Tagarro Correa Ferreira, Ester Miyuki Nakamura Palacios

**Introduction:** Children with Attention Deficit Hyperactivity Disorder can present Auditory Processing (AP) Disorder.

**Objective:** The study examined the AP in ADHD children compared with non-ADHD children, and before and after 3 and 6 months of methylphenidate (MPH) treatment in ADHD children.

**Methods:** Drug-naive children diagnosed with ADHD combined subtype aging between 7 and 11 years, coming from public and private outpatient service or public and private school, and age-gender-matched non-ADHD children, participated in an open, non-randomized study from February 2013 to December 2013. They were submitted to a behavioral battery of AP tests comprising Speech with white Noise, Dichotic Digits (DD), and Pitch Pattern Sequence (PPS) and were compared with non-ADHD children. They were followed for 3 and 6 months of MPH treatment (0.5 mg/kg/day).

**Results:** ADHD children presented larger number of errors in DD ($p < 0.01$), and less correct responses in the PPS ($p < 0.0001$) and in the SN ($p < 0.05$) tests when compared with non-ADHD children. The treatment with MPH, especially along 6 months, significantly decreased the mean errors in the DD ($p < 0.01$) and increased the correct response in the PPS ($p < 0.001$) and SN ($p < 0.01$) tests when compared with the performance before MPH treatment.

**Conclusions:** ADHD children show inefficient AP in selected behavioral auditory battery suggesting impaired auditory closure, binaural integration, and temporal ordering. Treatment with MPH gradually improved these deficiencies and completely reversed them by reaching a performance similar to non-ADHD children at 6 months of treatment.

**Vibrotactile Biofeedback System and Bilateral Vestibular Loss: Pilot Study**

Lilian Felipe (presenter), Herman Kingma

Bilateral Vestibular Loss (BVL) main complaints are oscillopsia and imbalance. BVL has a strong negative impact on physical function and social interaction, decreasing quality of life. Vestibular Rehabilitation therapy is currently the mainstay in the treatment for these patients. However, rehabilitation therapy has shown to be less effective with patients with bilateral vestibular loss. There is no evidence of an effective treatment for patients with bilateral vestibulopathy. There is a clear need for a therapeutic solution. In this pilot study, subjects with BVL used the Vibrotactile Biofeedback System (VBS). A significant improvement in quality of life of these subjects was observed. Efforts toward the development of VBS were justified. This method could be crucial for some patients’ quality of life.
Oral Presentations

Otorhinolaryngology

Evaluation of the impact of tinnitus on the quality of life of patients of the age group of 40 - 60 years
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Introduction: Hearing loss affects people’s quality of life. If we consider that hearing loss is the triggering factor, the positive correlation with tinnitus can be justified, since damage or degeneration of the inner ear and the vestibulocochlear nerve can be the cause of tinnitus.

Objectives: To evaluate the impact on the quality of life of people with ages 40 to 60 years who present tinnitus. Evaluate if there is a higher prevalence in relation to gender.

Methods: This is an individual, analytical, observational, cross-sectional, uncontrolled study. The study was carried out in the city of Pouso Alegre, MG, at the Samuel Libânio Clinical Hospital, in the 40-60 age group. Made with 93 people randomly selected. An anamnesis was made and sent to the otology and a threshold tonal audiometry. The data were organized and tabulated in the Microsoft Excel 2013 program and analyzed using the SPSS 18 software.

Results: The Chi-square test, shows that there was statistical significance in the variables alcoholic beverage (p = 0.016) and chronic disease (p = 0.021). It was possible to correlate the tinnitus symptom and hearing loss in workers from noisy places who did not use or used ear protectors.

Conclusion: It is concluded that the tinnitus symptom, when comparing the variables gender with the use of alcoholic beverage with the presence of chronic diseases, is more prevalent. The use of the ear protector in noisy environments is associated with complaints of hearing loss and tinnitus.

Keywords: tinnitus, age group, quality of life.

Revision Cochlear Implant Surgery in Children
Maria Stella Arantes do Amaral (presenter), Eduardo Tanaka Massuda, Fernando Massa Correia, Miguel Angelo Hypolito, Camila de Giacomo Carneiro Barros, Ana Cláudia Mirândola Barbosa Reis
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Introduction: The Cochlear Implant (CI) surgery is not entirely (completely) free of risks and may present problems that will require revision surgeries.

Objective: To verify the efficacy, risks, and indications to revision the CI surgery and to identify the clinical, audiological, and device-related characteristics that predict outcome.

Method: A retrospective study of patients under 18 years undergoing to CI from 2004 to 2015, in a Brazilian public hospital. Data collected to age at the time of implantation, sex, etiology of deafness, duration of hearing loss, audiological and oral language characteristics of each patient in the pre and postoperative CI, if there was a need for surgical revision and its reasons.

Results: Two hundred and sixty surgeries were performed in 236 patients. Seven patients with bilateral CI and 10 required surgery revision. Twenty-seven surgeries were necessary for these 10 children (1 performed bilateral CI), 16 of which were revision surgeries. In 2 children, removal of the CI was necessary, without reimplantation (one with cochlear malformation, probably incomplete type I partition and another due to trauma). Regarding the etiology of the 8 children who remained with CI, 4 had cochlear calcification after meningitis followed by trauma (1), malformation of the facial nerve (1), failure of the CI internal device (1) and a revision surgery was necessary to a child due to twisting (Splice) of the electrode bundle.

Conclusion: The revision of the CI surgery is not frequent, and the patient must be informed of this possibility.

Use of Magnetic Resonance Imaging to Evaluate the Functionality of the Auditory Cortex in Patients with Central Auditory Processing Disorders
Mariana Maldonado Loch (presenter), Fabiana Gonçalez D’Ottaviano
Otorhinus Clinica Médica, Brazil

Introduction: Functional magnetic resonance imaging has emerged as a new diagnostic tool to detect abnormalities in the central auditory system which may be related to cognitive dysfunction. This technique is based on changes in blood oxygenation level detected in the capillaries of brain tissue. According to “brain activation”, a local chemical change is observed, and consequently, an image is formed at this point, allowing brain mapping during the exam.

Objectives: A systematic review was made in order to elucidate the use and the clinical applicability of functional magnetic resonance in patients with central auditory processing disorders.

Data Synthesis: Functional magnetic resonance imaging is a useful tool to map brain activity in evincing topographic diagnosis of neural alteration in response to auditory-cognitive tests. Although it doesn’t allow numerical response and there isn’t a known pattern of normality, it can differ active from inactive neural response areas. It is also possible to observe an inter-hemispheric interaction, responsible for attention, initiative and generation of emotions. The mentioned technique can be applied in adults as well as in children, but needs attention and collaboration of the patient, once movement or fatigue can disturb the analysis.

Conclusion: Although it is a new technique, functional magnetic resonance has been shown to be a safe and useful auxiliary diagnostic tool for detecting changes in auditory processing.

Superior Semicircular Canal Dehiscence Syndrome: a Literature Review
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Introduction: Superior Semicircular Canal Dehiscence Syndrome is a rare disease, mainly characterized by auditory and vestibular symptoms induced by intense sound stimuli or by changes in intracranial or middle ear pressure, due to a dehiscence of the bony layer that covers the superior semicircular canal.

Objective: To perform a literature review about this syndrome, highlighting its main clinical characteristics, diagnosis and therapeutic options.

Data Synthesis: The prevalence of this condition is 0.7% in the general population and its etiopathogenesis is still unknown. However, it is believed that the defect could occur during the development of the bony layer that covers the semicircular canal, followed by a head injury or a sudden increase in intracranial pressure, leading to the rupture of
Differential Diagnosis between Migraine Associated with Auditory-Vestibular Dysfunction and Ménière’s Syndrome: A Systematic Review

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Introduction: Migraine associated with Auditory-vestibular Dysfunction or Vestibular Migraine (MV) and Ménière’s Syndrome (SM) have similar clinic and it is confused to differentiate one by another, often being a challenge to have a differential diagnosis between these entities.

Objectives: To present a systematic review on the differential diagnosis between Migraine associated with Auditory-vestibular Dysfunction and Ménière’s Syndrome.

Data Synthesis: Migraine is one of the most frequent types of headache in the population. It is characterized by a vascular syndrome caused by vasoconstriction and vasodilation of the intracranial arteries. Many patients with migraine present vestibular symptoms, with migraine-type headache with episodes of dizziness, even vertigo, aural fullness, auditory symptoms, tinnitus, and movement intolerance, which persist for hours, days or weeks, characterizing MV. MS begins between 20 and 60 years, it is usually unilateral and it is characterized by recurrent vertigo crises lasting at least 20 minutes up to 24 hours, associated with tinnitus, atarial fullness and hearing fluctuation, and may be accompanied by nausea and vomiting. In the studies performed, no typical pattern appears in the vestibular tests to determine the diagnosis of MV. The differentiation between MS and MV will occur through a detailed anamnesis, the analysis of the classification criteria of the MV and progressive hearing loss, being this the best method of differentiation.

Conclusion: Vestibular Migraine has clinical characteristics very similar to MS, VM should be included among causes of vertigo and also be part of the differential diagnosis list of conduction hearing loss, especially in cases of preserved acoustic reflexes.

Keywords: superior canal dehiscence, vertigo, hearing loss.

Usher Syndrome: A Systematic Review

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Introduction: Usher syndrome is an autosomal recessive disease characterized by sensorineural hearing loss and pigmentary retinitis. There is an association of inherited sensorineural deficiencies with total or partial hearing loss and progressive reduction of vision due to degeneration of retinal photoreceptor cells, termed retinitis pigmentosa.

Objectives: To present a systematic review of Usher Syndrome over the last ten years.

Data Synthesis: Usher syndrome is a rare condition, with an incidence of 3/100,000 people and leads to deaf-blindness, being the most common cause in adults. Among patients with retinitis pigmentosa, it is the most common cause, present in 6-10%. It was classified by Merin and colleagues into four types, according to the age of onset of the deficiencies and their severity. I is characterized by severe and congenital loss of hearing, absence of vestibular function and appearance of retinitis pigmentosa in the first decade of life; II presents moderate congenital loss of hearing, preserved vestibular function and onset of pigmentary retinitis in the second decade of life; III presents late progressive hearing loss, vestibular ataxia, onset of pigmentary retinitis at puberty, and may have psychosis; IV, the rarest, with severe hearing loss, retinitis pigmentosa and mental retardation. Early diagnosis is essential for the otopathic therapeutic plan, which may include auditory protection with audiologic rehabilitation.

Conclusion: As a rare condition with different presentations, it can have a delayed diagnosis, compromising the patient’s early therapy, thus influencing his quality of life.

Keywords: hearing loss; Usher syndromes; deaf-blind disorders.

Heat Shock Response in Noise Induced Hearing Loss

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Introduction: The 72 kDa heat shock protein (HSP72) had cochlear cytoprotective and anti-inflammatoryary roles in inner ear during noise stressful challenges. On the other hand, in the extracellular milieu these proteins participate as pro-inflammatory signal.

Objectives: We argue whether noise induced hearing loss (NIHL) model promotes both intracellular (iHSP72) and extracellular (eHSP72) heat shock response.

Methods: Female Wistar rats, 90 days old, were randomly divided in Control (CON, n = 6) and NIHL group (n = 10). Auditory Brainstem Response (ABR) was evaluated before and 14 days after noise exposure (124 dB NPS for 2 h). Cochlea and plasma samples were collected to iHSP72 and eHSP72 by AMP’s® HSP70 high sensitivity ELISA kit (Analysis by Student T test).

Results: The noise exposition induced an increase in auditory threshold in NIHL group (Control = 18.3 ± 4.1 vs NIHL = 58.0 ± 9.7 dB, P < 0.0001). NIHL group showed increased levels in both iHSP72 and eHSP72 (iHSP72: Control = 4.44 ± 1.99 vs NIHL = 6.86 ± 0.94 ng/ml, P = 0.018. eHSP72: Control = 0.18 ± 0.02 vs NIHL = 4.07 ± 4.27 ng/ml, P = 0.036).

Conclusion: Our data indicates that cochlear damage induced by noise exposition is accompanied by local and systemic heat shock response. Thus, plasma levels of 72 kDa heat shock proteins can be used as biomarker of cochlear stress condition after noise exposure.

Keywords: HSP72, heat shock protein, NIHL, noise exposure.
Vestibular Neuritis: A Systemic Review
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Introduction: Vestibular neuritis (VN) is a clinical condition characterized by the sudden loss of vestibular activity. This loss is caused by inflammation of the vestibular nerve and it does not cause any cochlear symptoms (deafness/tinnitus). The diagnosis can be difficult due to the several differential diagnostic possibilities for giddiness, such as use of some drugs, benign paroxysmal positional vertigo, Ménière disease, cerebellar infarction, schwannoma vestibular, generalized anxiety disorder and other conditions.

Objectives: Discuss a simple clinical approach for general physicians/family doctors to diagnose vestibular neuritis, based on the literature findings.

Data Synthesis: The etiology of VN is believed to be a viral infection. It was hypothesized to be associated with upper respiratory tract infection (URTI) and the most common viruses were influenza, Epstein-Bar, parainfluenza, herpes simplex, cytomegalovirus and others. The vertigo is sudden, rotatory and worsen with any head movement. Nausea, vomiting, pale skin and cold sweating showed to be frequent. Visual symptoms, nystagmus, illusion of movement, postural problems must be investigated because of the close relation to VN.

Conclusion: The diagnosis of VN is essentially clinical and if the physician does not suspect it, it may lead to expensive costs of complementary exams (from a simple Blood count to a nuclear magnetic resonance). A detailed anamnesis seeking for recent URTI symptoms with physical evaluation focusing on neurologic and otorhinolaryngologic semiology should be done. The physician must discard other possible diseases and start the treatment; if the symptoms vanish, the diagnosis is confirmed.

Keywords: vestibular neuritis, viral infection, vertigo.

Association between General Adaptation Syndrome and Dizziness in Otoneurological Patients
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Introduction: Many patients who feel dizzy complain of sadness, anxiety, stress, and emotional trauma, significantly reducing their quality of life. The endocrine reaction of the body to the stressor dizziness/vertigo causes patients to become susceptible to so-called adaptive diseases and various health problems, as they experience different stages of stress: alertness, resistance, almost exhaustion and exhaustion.

Objective: This primary, transversal, descriptive and uncontrolled study aimed to verify the interrelationships between stress and labyrinths.

Methods: Were evaluated 264 patients of both sexes, in the region of Itabuna / BA, aged 18 years or older, with dizziness/vertigo and tinnitus, associated or not. Patients with cognitive difficulties to fill self-report questionnaires and/or with extra-labyrinthine dizziness were excluded from the sample. The results were obtained through univariate analysis.

Results: The concomitance of stress to the complaint of dizziness was verified in 200 patients (75.8%), being 39% in the resistance stage, 3% in the almost exhaustion stage and 58% in the exhaust stage. The main physical symptoms reported by the patients were problems with memory (61.7%); constant physical exhaustion (58.3%); muscular tension (55.3%); excessive fatigue (54.6%) and insomnia (53.4%). The main psychological symptoms were daily anxiety/anguish (66.3%); emotional hypersensitivity (58.3%); constant thinking about one subject (53.4%); excessive irritability (51.1%); apathy, Depression or prolonged rabies (43.2%).

Conclusion: There was a significant association between dizziness/vertigo, stress and precipitation of specific symptoms of common mental disorders.

Auditory Evolution of Patients Submitted in Tympanoplasty Type I in One Tertiary Service with Residency in Otorhinolaryngology
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Introduction: Conductive hearing loss due to simple chronic otitis media can bring great suffering to the patient. Myringoplasty is the surgical technique which aim to restore hearing function by closing the air-bone gap and is widely used in hospitals that have residency in otolaryngology.

Objective: Demonstrate the hearing outcome of patients who underwent type I tympanoplasty in a otolaryngology residency service in the period of January 2006 to June 2014.

Methods: The study was conducted by a retrospective review of medical records of all patients with simple chronic otitis media who underwent tympanoplasty or myringoplasty type1 surgery in Hospital Servidor Público Municipal from January 2006 to June 2014. The audiometric profile was evaluated by determining the air-bone gap pre and postoperatively.

Results: We observed a success rate of surgery in 67% of patients who underwent myringoplasty. There was demonstrated hearing improvement and the reduction of the air-bone gap.

Conclusion: The surgical success with the incorporation of the graft and closure of the membrane was 67% and the improvement in audio quality in these patients was significant.

Keywords: tympanoplasty, hearing improvement, tertiary hospital.

Superior Semicircular Canal Dehiscence Syndrome without Vestibular Symptoms
Emidio Oliveira Teixeira (presenter), Marconi Teixeira Fonseca

Introduction: Superior semicircular canal dehiscence syndrome is mainly characterized by vestibular symptoms induced by intense sound stimuli or pressure changes, which occur because of dehiscence of the bony layer covering the superior semicircular canal.

Case Report: Here, we report a case of the syndrome with pulsatile tinnitus and ear fullness, in the absence of vestibular symptoms.

Discussion: Signs and symptoms of the syndrome are rarely obvious, leading to the requirement for a minimum workup to rule out or make diagnosis more probable and thus avoid misconduct.
**Mastoid Obliteration with Autologous Bone in Mastoidectomy Canal Wall Down Surgery: A Literature Overview**

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**Introduction:** The objectives of mastoidectomy in cholesteatoma are a disease-free and dry ear, the prevention of recurrent disease, and the maintenance of hearing or the possibility to reconstruct an affected hearing mechanism. Canal wall down mastoidectomy has been traditionally used to achieve those goals with greater or lesser degrees of success. However, canal wall down is an aggressive approach, as it involves creating an open cavity and changing the anatomy and physiology of the middle ear and mastoid. A canal wall up technique eliminates the need to destroy the middle ear and mastoid, but is associated with a higher rate of residual cholesteatoma. The obliteration technics arise as an effort to avoid the disadvantages of both techniques.

**Objectives:** Evaluate the effectiveness of the mastoid obliteration with autologous bone in mastoidectomy surgery with canal wall down for chronic otitis, with or without cholesteatoma.

**Data Synthesis:** We analyzed nine studies of case series comprehending similar surgery techniques on 1017 total cases of operated ears in both adults and children, with at least 12 months follow-up.

**Conclusion:** Mastoid Obliteration with autologous bone has been utilized for many years to present date, and it seems to be safe, low-cost, with low recurrence rates - similar to traditional canal wall down procedures and with greater water resistance and quality of life improvements.