



Audiology Update: Winter 2020

Welcome to the latest copy of this Update. The aim of this publication is to bring together a range of recently-published research and guidance that will help you make evidence based decisions.

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Full strategy

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1. Comparing the International Classification of Functioning, Disability, and Health Core Sets for Hearing Loss and Otorhinolaryngology/Audiology Intake Documentation at Mayo Clinic.

Author(s): Alfakir, Razan; van Leeuwen, Lisette M; Pronk, Marieke; Kramer, Sophia E; Zapala, David A

Source: Ear and hearing; ; vol. 40 (no. 4); p. 858-869

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 30289788

Abstract:

OBJECTIVES: The International Classification of Functioning, Disability, and Health (ICF) Core Sets for Hearing Loss (CSHL) consists of short lists of categories from the entire ICF classification that are thought to be the most relevant for describing the functioning of persons with hearing loss. A comprehensive intake that covers all factors included in the ICF CSHL holds the promise of developing a tailored treatment plan that fully complements the patient's needs. The Comprehensive CSHL contains 117 categories and serves as a guide for multiprofessional, comprehensive assessment. The Brief CSHL includes 27 of the 117 categories and represents the minimal spectrum of functioning of persons with HL for single-discipline encounters or clinical trials. The authors first sought to benchmark the extent to which Audiologist (AUD) and Otorhinolaryngologist (ORL) discipline-specific intake documentation, as well as Mayo Clinic's multidisciplinary intake documentation, captures ICF CSHL categories.

DESIGN: A retrospective study design including 168 patient records from the Department of Otorhinolaryngology/Audiology of Mayo Clinic in Jacksonville, Florida. Anonymized intake documentation forms and reports were selected from patient records filed between January 2016 and May 2017. Data were extracted from the intake documentation forms and reports and linked to ICF categories using pre-established linking rules. "Overlap," defined as the percentage of ICF CSHL categories represented in the intake documentation, was calculated across document types. In addition, extra non-ICF CSHL categories (ICF categories that are not part of the CSHL) and extra constructs (constructs that are not part of the ICF classification) found in the patient records were described.

RESULTS: The total overlap of multidisciplinary intake documentation with ICF CSHL categories was 100% for the Brief CSHL and 50% for the Comprehensive CSHL. Brief CSHL overlap for discipline-specific documentation fell short at 70% for both AUD and ORL. Important extra non-ICF CSHL categories were identified and included "sleep function" and "motor-related functions and activities," which mostly were reported in relation to tinnitus and vestibular disorders.

CONCLUSION: The multidisciplinary intake documentation of Mayo Clinic showed 100% overlap with the Brief CSHL, while important areas of nonoverlap were identified in AUD- and ORL-specific reports. The ICF CSHL provides a framework for describing each hearing-impaired individual's unique capabilities and needs in ways currently not documented by audiological and otological evaluations, potentially setting the stage for more effective individualized patient care. Efforts to further validate the ICF CSHL may require the involvement of multidisciplinary institutions with commonly shared electronic health records to adequately capture the breath of the ICF CSHL.

Database: Medline

2. Audiological benefit and subjective satisfaction of children with the ADHEAR audio processor and adhesive adapter.

Author(s): Favoreel, Amelia; Heuninck, Emilie; Mansbach, Anne-Laure

Source: International journal of pediatric otorhinolaryngology; Feb 2020; vol. 129 ; p. 109729

Publication Date: Feb 2020

Publication Type(s): Journal Article

PubMedID: 31689608

Abstract:

OBJECTIVES: The main objective of this study was to evaluate the audiological benefit of the ADHEAR system in a group of children with a uni- or bilateral conductive hearing loss (CHL) during a short-term exposure of three weeks, and to compare it to a conventional bone conduction hearing aid (BCHA) on a softband. The secondary aim was to assess the quality of life improvement and patient satisfaction with the ADHEAR system.

METHODS AND MATERIALS: The study was designed as a prospective study with repeated measures, where each subject served as his/her own control. Ten children (4-17 y/o) with a uni- or bilateral congenital or acquired CHL were included in this study. Pure tone audiometry and speech audiometry in quiet, both unaided and aided, were performed initially with the ADHEAR system and a BCHA on a softband, and after three weeks with the ADHEAR alone. Furthermore, patient satisfaction and quality of life were assessed using the SSQ12 and the ADHEAR questionnaire.

RESULTS: The mean unaided free field hearing threshold of 50 dB HL (with 95%CI between 41.7 and 57.5 dB HL) expressed in 'Bureau International d'Audiophonologie' (BIAP), improved significantly by 22 dB (13.0-29.9) with the ADHEAR and by 23 dB (13.6-32.9) with the BCHA ($p < 0.001$). Furthermore, the mean unaided speech recognition threshold (SRT) in quiet improved significantly by 19 dB (10.3-28.1) with the ADHEAR and by 21 dB (12.6-29.4) with the BCHA ($p < 0.001$). For both audiological tests, there were no significant differences between the ADHEAR and the BCHA. After three weeks of use, the mean pure tone threshold of 28 dB HL (20.0-36.5) and the mean SRT of 47 dB SPL (41.9-51.5) with the ADHEAR system were comparable and not significantly different than the outcomes during the first visit. Speech understanding in noise and in multiple streams, sound localization and sound quality were rated significantly better with the ADHEAR, compared to the ratings without the ADHEAR system ($p < 0.001$). None of the children reported skin irritations or pain.

CONCLUSIONS: The children included in our study had significantly improved hearing thresholds, speech perception in quiet and quality of life with the ADHEAR. The device can be an effective treatment method and a valuable alternative to other BCHA for children with a CHL, although the subjective experience of each child has to be taken into account. CLINICAL TRIAL REGISTRATION NUMBER NCT03327194.

Database: Medline

3. Progressive Hearing Loss in Children With Mild Bilateral Hearing Loss.

Author(s): Fitzpatrick, Elizabeth M; Nassrallah, Flora; Vos, Bénédicte; Whittingham, JoAnne; Fitzpatrick, Jessica

Source: Language, speech, and hearing services in schools; Jan 2020; vol. 51 (no. 1); p. 5-16

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31913798

Available at [Language, speech, and hearing services in schools](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: This study investigated progressive hearing loss in a cohort of children who were identified with permanent mild bilateral hearing loss.

Method: This population-based study included 207 children with permanent mild bilateral hearing loss, diagnosed and followed from 2003 to 2016 in 1 region of Canada. Clinical characteristics and initial audiologic results were collected prospectively at diagnosis, and audiologic information was updated. Changes in hearing levels between the 1st and most recent assessment were analyzed to determine progressive hearing loss. Clinical characteristics were compared between children with progressive and stable hearing loss. The association between risk indicators and progressive hearing loss was explored through logistic regression.

Results: A total of 47.4% (94 of 207) had progressive hearing loss in at least 1 ear, and 50% (47 of 94) of those experienced more than 20-dB average drop in thresholds. For these 94 children, a total of 147 ears were affected, and 116 (78.9%) ears experienced sufficient change in thresholds to be coded as a worse category of hearing loss. In the subset of 85 children with more than 5 years of audiologic follow-up, 56.4% (53/85) showed a decrease in hearing. Of the total sample of 207 children, 137 (66.2%) continued to have mild hearing loss in the better ear. There was no association between the risk factors examined (family history of hearing loss, admission to the neonatal intensive care unit, or presence of a syndrome) and progressive hearing loss.

Conclusion: This study found that almost half of children with mild bilateral hearing loss showed a decrease in hearing in at least 1 ear. One third of the children first diagnosed with mild hearing loss in the better ear now have moderate or worse hearing loss in both ears. These findings point to the importance of careful long-term monitoring of children who present with mild hearing loss.

Database: Medline

4. Evidence-Based Practices and Outcomes for Children with Mild and Unilateral Hearing Loss.

Author(s): Walker, Elizabeth A

Source: Language, speech, and hearing services in schools; Jan 2020; vol. 51 (no. 1); p. 1-4

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31913802

Available at [Language, speech, and hearing services in schools](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: This forum provides an overview of current research and clinical practice for children with mild bilateral or unilateral hearing loss. Historically, there has been ambiguity surrounding the need for intervention in this population. Our goal is to explore the literature on outcomes and treatment so that audiologists, speech-language pathologists, teachers, physicians, and families can be confident in the clinical decision-making process when working with these children. To that end, topics include (a) progression of mild hearing loss in children; (b) the impact of mild or unilateral hearing loss on language, listening, and cognitive abilities; (c) research and reviews on intervention approaches; and (d) listening effort and fatigue in unilateral hearing loss. Conclusion Uncertainty

about outcomes and treatment approaches for children with mild or unilateral hearing loss leads to inconsistent intervention and increased developmental risk. We hope that this forum will generate productive discussion among researchers and clinicians to ensure that all children with hearing loss reach their full potential.

Database: Medline

5. Isolated auditory neuropathy at birth in congenital cytomegalovirus infection.

Author(s): Natale, Fabio; De Curtis, Mario; Bizzarri, Bianca; Orlando, Maria Patrizia; Ralli, Massimo; Liuzzi, Giuseppina; Caravale, Barbara; Franco, Francesco; Gaeta, Aurelia; Giancotti, Antonella; Russo, Francesca Yoshie; Turchetta, Rosaria

Source: Italian journal of pediatrics; Jan 2020; vol. 46 (no. 1); p. 3

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31906974

Available at [Italian journal of pediatrics](#) - from BioMed Central

Available at [Italian journal of pediatrics](#) - from Europe PubMed Central - Open Access

Available at [Italian journal of pediatrics](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Italian journal of pediatrics](#) - from Unpaywall

Abstract:

BACKGROUND: Congenital cytomegalovirus (cCMV) infection is the most frequent non-genetic cause of sensorineural hearing-loss (SNHL) (i.e., hearing loss due to a cochlear and/or auditory nerve damage). It is widely accepted that SNHL at birth, when associated to cCMV symptomatic infection involving the central nervous system, benefits from antiviral therapy started in the neonatal period. Conversely, there is no consensus for antiviral treatment in congenitally infected infants diagnosed with isolated SNHL (i.e., SNHL in an otherwise asymptomatic infant) at birth. Our aim was to assess the frequency and the auditory outcome of isolated SNHL at birth due to auditory neuropathy (AN) (i.e., SNHL in a patient with normal cochlear function and auditory nerve dysfunction) in infants with cCMV infection.

METHODS: We retrospectively reviewed the clinical history of 60 infants, born at term, with cCMV asymptomatic infection, without additional risk factors for SNHL, and exhibiting bilateral "pass" otoacoustic emissions (OAE). None of them underwent antiviral therapy. Hearing thresholds were assessed by means of Auditory Brainstem Responses (ABR). AN affected children were followed up until possible normalization of the hearing thresholds or definitive diagnosis of AN. Each infant diagnosed with monolateral or bilateral AN was classified according to the worst ear threshold.

RESULTS: In our population, the first ABR was performed at a mean age of 5.00 ± 2.79 (SD) months and AN was diagnosed in 16/60 (26.67%) infants; in 4 infants the AN was defined as mild (4/4 monolateral), moderate in 11 (5/11 bilateral), and severe in 1 (bilateral). The mean age at first ABR was 3.69 ± 2.80 (SD) months in the 16 babies with AN and 5.48 ± 2.66 (SD) months in the 44 infants with normal hearing ($p = 0.007$). All AN cases spontaneously recovered a normal auditory threshold over time. The mean length of the audiological follow-up was 32.44 ± 17.58 (SD) months (range 5-60 months).

CONCLUSION: A delayed maturation of the auditory pathways should be considered when a mild/moderate isolated AN at birth is detected in cCMV infected infants. Prospective studies

conducted on larger populations, and with a longer audiological follow-up, are needed to confirm our findings.

Database: Medline

6. Predicting Speech Outcomes After Cochlear Implantation in Older Adults Using the Self-administered Gerocognitive Examination Test.

Author(s): Wazen, Jack J; Kellermeyer, Brian; Lange, Linda; Rende, Sharon; Ortega, Carmelo; Rosenberg, Seth

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Jan 2020; vol. 41 (no. 1); p. e28

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31664001

Abstract:

PURPOSE: The purpose of this study is to determine if a cognitive test, Self-administered Gerocognitive Examination (SAGE), correlates with speech recognition outcomes 1 year after cochlear implantation in adults over 65 years of age.

METHODS: Retrospective study was conducted at a single institution. Surgery was performed by two surgeons on adult patients (>65 yrs) with postlingual bilateral sensorineural hearing loss meeting clinical and audiological candidacy for unilateral cochlear implantation. Patients who performed SAGE preimplantation, and speech testing (CNC, AzBio in quiet, AzBio in noise) before and 1 year after implantation were included.

RESULTS: Forty patients with a mean age of 78 were included. The overall mean preoperative SAGE score was 17.4 (95% CI 16.2-18.7). Greater than 17 is considered normal. Data demonstrated a statistically significant linear correlation between preoperative SAGE scores with change in speech testing 1 year postoperatively: CNC-Adjusted R-squared: 0.1955, p value: 0.002508; AzBio in quiet-Adjusted R-squared: 0.1564, p value: 0.006686; AzBio in noise-Adjusted R-squared: 0.1543, p value: 0.007053. Multivariate linear regression analysis revealed that age and SAGE scores both statistically correlated with speech testing 1 year after implantation ($p=0.01$ for both). Patients who passed the SAGE (≥ 17) had statistically significant higher CNC, AzBio in quiet, and AzBio in noise scores 1 year postoperatively compared with patients with low SAGE scores (<17) despite statistically similar age means in each group.

CONCLUSION: SAGE can predict speech recognition testing 1 year after cochlear implantation in older adults over 65 years of age.

Database: Medline

7. Effect of Malnutrition on Hearing Loss in Children.

Author(s): Close, Michaela F; Mehta, Charmee H; van Swol, Josh; Dornhoffer, James R; Liu, Yuan F; Nguyen, Shaun A; McRackan, Theodore R; Meyer, Ted A

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Jan 2020; vol. 41 (no. 1); p. 52-59

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31821252

Abstract:

OBJECTIVE: To characterize the relation between protein-calorie malnutrition (PCM) and hearing loss (HL) in children.

STUDY DESIGN: Retrospective review.

SETTING: Tertiary referral hospital.

PATIENTS: Children in the Audiological and Genetic Database with a diagnosis of protein-calorie malnutrition, marasmus, and/or kwashiorkor.

INTERVENTIONS: None.

MAIN OUTCOME MEASURES: Prevalence, type, severity (4-tone pure-tone average, PTA), and progression of HL.

RESULTS: Of 770 children with PCM, 57.8% had HL, compared to 45.5% of children without PCM ($p < 0.001$). Severely malnourished children had significantly higher odds of moderate-profound HL (aOR 2.27, 95% CI 1.47-3.43), high-frequency HL (aOR 1.82, 95% CI 1.21-2.75), and sensorineural or mixed HL (aOR 1.60, 95% CI 1.05-2.41) compared to children without PCM. Severely malnourished children had significantly worse initial (35.0 dB vs 25.0 dB, $p < 0.001$), and final median PTA (31.3 dB vs 20.0 dB, $p < 0.001$) compared to children without PCM. Additionally, HL in children who were moderately and severely malnourished was significantly less likely to improve (aOR 0.47, 95% CI 0.25-0.82 and aOR 0.4, 95% CI 0.2-0.9) when compared to those without PCM.

CONCLUSIONS: Given the greater prevalence and severity of hearing loss, children with PCM should be considered an at-risk group for poor audiological outcomes, and clinical practice should focus on early treatment and intervention for malnourished children. Routine audiological evaluation should be considered in this population.

Database: Medline

8. Clinical Factors Influencing the Trial and Purchase of Bilateral Microphones with Contralateral Routing of Signal in Patients with Asymmetric Sensorineural Hearing Loss.

Author(s): Seong, Jeon; Yang, Seung Koo; Jang, Pilkeun; Lee, Sang-Yeon; Carandang, Marge; Choi, Byung-Yoon

Source: Journal of audiology & otology; Jan 2020; vol. 24 (no. 1); p. 29-34

Publication Date: Jan 2020

Publication Type(s): Journal Article

PubMedID: 31852175

Available at [Journal of audiology & otology](#) - from Europe PubMed Central - Open Access

Available at [Journal of audiology & otology](#) - from Unpaywall

Abstract:

BACKGROUND AND OBJECTIVES: Bilateral microphones with contralateral routing of signal (BiCROS) hearing aid is an option for hearing rehabilitation in individuals with asymmetric sensorineural hearing loss (ASNHL). The clinical factors influencing the trial and purchase of BiCROS were investigated.

Subjects and METHODS: We reviewed the medical records of 78 patients with ASNHL who were recommended to use BiCROS and analyzed the demographic and audiological factors influencing the trial and purchase of BiCROS.

RESULTS: Among the 78 patients, 52 (66.7%) availed of the free BiCROS trial and 21 (26.9%) purchased BiCROS. The mean pure tone audiometry (PTA) air conduction (AC) threshold of the better- and worse-hearing ears were 44.2 ± 12.8 dB and 90.7 ± 22.5 dB HL, respectively. The decision for trial or purchase of BiCROS was not influenced by age, sex, duration of hearing loss of the worse-hearing ear, or PTA AC threshold or speech discrimination score of both ears. The first and third quartiles of the PTA AC thresholds for the better-hearing ear of BiCROS buyers were 38.75 dB and 53.75 dB HL, respectively. The counterpart values for the worse-hearing ear were 72.50 dB and 118.75 dB HL, respectively.

CONCLUSIONS: The clinical factors analyzed in this study were found to be irrelevant to the trial and purchase of BiCROS in patients with ASNHL. Nevertheless, the distribution range of the auditory thresholds of the subjects using BiCROS can be a useful basis for the counseling of patients with ASNHL and selection of candidates for BiCROS use.

Database: Medline

9. After a first prelingually deaf child, does the family learn a lesson?

Author(s): Al-Shawi, Yazeed; Aldhwaihy, Lulu Saleh; Bin Zuair, Amerah Mansour; Alfallaj, Rayan Mohammed; Almuawas, Fida

Source: Annals of Saudi medicine; 2019; vol. 39 (no. 5); p. 350-353

Publication Date: 2019

Publication Type(s): Journal Article

PubMedID: 31580711

Available at [Annals of Saudi medicine](#) - from EBSCO (MEDLINE Complete)

Available at [Annals of Saudi medicine](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Annals of Saudi medicine](#) - from Unpaywall

Abstract:

BACKGROUND: Congenital sensorineural hearing loss (SNHL) is a common disability in children. It can affect normal language development and educational achievement. Today, the time to cochlear implant is delayed for many children, which in turn delays intervention and impacts outcomes. Lack of knowledge and experience with congenital SNHL in the family are critical factors that can delay identification and intervention.

OBJECTIVES: Compare treatment seeking behavior in families for a first and second congenitally deaf child.

DESIGN: Analytical, cross-sectional using medical record data.

SETTING: Ear specialist hospital in Riyadh.

SUBJECTS AND METHODS: All patients who presented to the cochlear implant committee from March 2016 to March 2018 and met criteria were included in the study. Data on when the subjects presented to hospital and were approved for cochlear implant were retrieved from the patient files and through phone calls to the family. The age of first suspicion, audiological testing, diagnosis, hearing aid fitting, and the decision for cochlear implant were compared between the first and second child in families with multiple children with congenital SNHL.

MAIN OUTCOME MEASURES: The timing difference between the first and second deaf child in seeking treatment.

SAMPLE SIZE: 116 (58 pairs).

RESULTS: The second child was suspected to have hearing loss 13.6 months earlier than the first child and presented to the cochlear implant committee for final decision 16.7 months earlier than his\her sibling. Differences in the mean ages at suspicion of hearing loss, presentation to the hospital for audiological evaluation, hearing aid fitting, diagnosis, and decision for cochlear implant by cochlear implant committee were statistically significant ($P < .001$).

CONCLUSION: Experience and knowledge has a major effect on early identification. We need to implement educational programs for the public to increase awareness of how to recognize a deaf child and what steps to take.

LIMITATIONS: Single-centered.

CONFLICT OF INTEREST: None.

Database: Medline

10. Cochlear implant revision surgeries in children.

Author(s): Amaral, Maria Stella Arantes do; Reis, Ana Cláudia Mirândola B; Massuda, Eduardo T; Hyppolito, Miguel Angelo

Source: Brazilian journal of otorhinolaryngology; 2019; vol. 85 (no. 3); p. 290-296

Publication Date: 2019

Publication Type(s): Journal Article

PubMedID: 29496369

Available at [Brazilian journal of otorhinolaryngology](#) - from Unpaywall

Abstract:

INTRODUCTION: The surgery during which the cochlear implant internal device is implanted is not entirely free of risks and may produce problems that will require revision surgeries.

OBJECTIVE: To verify the indications for cochlear implantation revision surgery for the cochlear implant internal device, its effectiveness and its correlation with certain variables related to language and hearing.

METHODS: A retrospective study of patients under 18 years submitted to cochlear implant surgery from 2004 to 2015 in a public hospital in Brazil. Data collected were: age at the time of implantation, gender, etiology of the hearing loss, audiological and oral language characteristics of each patient before and after cochlear implant surgery and any need for surgical revision and the reason for it.

RESULTS: Two hundred and sixty-five surgeries were performed in 236 patients. Eight patients received a bilateral cochlear implant and 10 patients required revision surgery. Thirty-two surgeries were necessary for these 10 children (1 bilateral cochlear implant), of which 21 were revision surgeries. In 2 children, cochlear implant removal was necessary, without reimplantation, one with cochlear malformation due to incomplete partition type I and another due to trauma. With respect to the cause for revision surgery, of the 8 children who were successfully reimplanted, four had cochlear calcification following meningitis, one followed trauma, one exhibited a facial nerve malformation, one experienced a failure of the cochlear implant internal device and one revision surgery was necessary because the electrode was twisted.

CONCLUSION: The incidence of the cochlear implant revision surgery was 4.23%. The period following the revision surgeries revealed an improvement in the subject's hearing and language performance, indicating that these surgeries are valid in most cases.

Database: Medline

11. Rehabilitation of Severe to Profound Sensorineural Hearing Loss in Adults: Audiological Outcomes.

Author(s): Ciorba, Andrea; Guidi, Maria Paola; Skarżyński, Piotr H; Bianchini, Chiara; Rosignoli, Monica; Mazzoli, Manuela; Pelucchi, Stefano; Hatzopoulos, Stavros

Source: Ear, nose, & throat journal; Dec 2019 ; p. 145561319892461

Publication Date: Dec 2019

Publication Type(s): Journal Article

PubMedID: 31838921

Available at [Ear, nose, & throat journal](#) - from Unpaywall

Abstract:

The aim of this article is to describe the audiological patterns of 71 adult patients presenting severe to profound sensorineural hearing loss, who were rehabilitated by cochlear implants (CIs) and hearing aids. This is a retrospective study in a university setting, where the clinical records of 71 adult patients were reviewed and processed. Speech intelligibility was evaluated at one aided ear (CI) or at both aided ears (double CI or a combination of CI and hearing aid [HA]). Patients with a bilateral CI or with a bimodal hearing setup (CI and HA) performed better than those with a single CI; data from the phonetic matrices test showed that there was a statistically significant difference among patients aided by a single CI versus binaural setup (double CI or CI + HA). In particular, patients aided by a bilateral CI, or by a CI and HA, showed an improvement in the functional results of the speech tests, compared to patients using a single CI. Binaural hearing (either with a bilateral CI or bimodal) allows an improvement in the functional results at the speech tests, compared to the use of a CI only.

Database: Medline

12. Audiology Practices in the Preoperative Evaluation and Management of Adult Cochlear Implant Candidates.

Author(s): Prentiss, Sandra; Snapp, Hillary; Zwolan, Teresa

Source: JAMA otolaryngology-- head & neck surgery; Dec 2019

Publication Date: Dec 2019

Publication Type(s): Journal Article

PubMedID: 31830215

Available at [JAMA otolaryngology-- head & neck surgery](#) - from EBSCO (MEDLINE Complete)

Abstract:

Importance: Currently, no clear guidelines exist regarding clinical testing methods for identifying adult cochlear implant (CI) candidates. Indications provided by the US Food and Drug Administration, Medicare, and private insurers are ambiguous concerning test materials and the level and mode of

test presentation. This could lead to wide variability in clinical assessment and, potentially, unequal access to CIs for individuals with clinically significant hearing loss.

Objective: To examine the preoperative testing methods used by audiologists in evaluating adult CI candidates across the United States. **Design, Setting, and Participants** A survey assessing audiology practice patterns was created using a Research Electronic Data Capture system hosted at the University of Miami. A link to a survey (65 questions in multiple-choice or rank-order format) was distributed electronically along with a request for completion to members of the American Cochlear Implant Alliance and to the Institute for Cochlear Implant Training forum. Responses were collected from January 17 to June 4, 2018. Participation was limited to audiologists who evaluate adult CI candidates, and respondents who do not provide adult CI care were excluded. Collected demographic information included work setting, years of experience, and highest level of education attained.

Main Outcomes and Measures: Percentages, medians, and interquartile ranges were from aggregated responses concerning hearing aid verification methods; testing methods, materials, and practices; nonauditory factors that might affect CI candidacy; audiology practice patterns; and expanded indications for CIs.

Results: Anonymized surveys were returned by 99 respondents; because surveys were available electronically, the number of audiologists who viewed the survey but did not respond was not available. Seven respondents identified themselves as pediatric specialists and were excluded, resulting in a total of 92 surveys available for analysis (denominators vary because respondents could complete the survey without answering all questions). Seventy percent of respondents (51 of 72) were doctors of audiology, and nearly 50% (33 of 74) were employed at universities and academic centers performing more than 50 CIs per year. When assessing adult candidacy for implant, most respondents reported using test materials from the Minimum Speech Test Battery: 96% (51 of 53), using AzBio sentences in quiet; 89% (47 of 53), AzBio sentences in noise; and 100% (53 of 53), the consonant-vowel nucleus-consonant, monosyllabic words test. However, these tests were applied inconsistently, with 39 of 53 respondents (74%) reporting use of a sound pressure level scale and the other 14 (26%) a hearing level scale at various decibel levels, and with some using a single signal-to-noise ratio and others using multiple ratios for sound-in-noise tests. Respondents' definitions of the best aided listening condition for assessing implant candidates also varied widely. Among the nonauditory factors ranked most important for assessing CI candidacy were patient's level of cognition and expectations of CI; yet, few respondents reported including cognitive or psychological tests in the assessment protocol.

Conclusions and Relevance: Findings of this study reveal considerable variability in preoperative testing methods and practices across health care professionals assessing adult candidates for CI. This lack of standardization in the delivery of care may increase the risk for health care inequities, specifically in access to care for adults with clinically significant hearing loss.

Database: Medline

13. Relationship Between Domain-Specific Cognitive Function and Speech-in-Noise Performance in Older Adults: The Atherosclerosis Risk in Communities Hearing Pilot Study.

Author(s): Mamo, Sara K; Reed, Nicholas S; Sharrett, A Richey; Albert, Marilyn S; Coresh, Josef; Mosley, Thomas H; Knopman, David; Lin, Frank R; Deal, Jennifer A

Source: American journal of audiology; Dec 2019 ; p. 1-9

Publication Date: Dec 2019

Publication Type(s): Journal Article

PubMedID: 31825642

Available at [American journal of audiology](#) - from EBSCO (MEDLINE Complete)

Available at [American journal of audiology](#) - from EBSCO (Biomedical Reference Collection - Comprehensive)

Available at [American journal of audiology](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: The purpose of this study was to investigate associations between performance on a clinical speech-in-noise measure with a comprehensive neurocognitive battery of tests.

Method: A group of older adults (N = 250, M age = 77 years, age range: 67.3-89.1 years) enrolled in the Atherosclerosis Risk in Communities Neurocognitive Study took part in the hearing pilot study (2013) that included testing for audiometric thresholds and speech-in-noise performance (Quick Speech-in-Noise Test; Killion, Niquette, Gudmundsen, Revit, & Banerjee, 2004). This research study analyzed the associations between domain-specific cognitive function and speech-in-noise performance after adjusting for hearing thresholds and other demographic and cardiovascular factors.

Results: Multivariable-adjusted associations were found between all cognitive domains and speech-in-noise performance in the full sample, but the observed associations varied when participants with varying levels of moderate to moderately severe hearing loss were excluded from the analysis.

Conclusions: The findings are discussed in terms considering the cognitive status of older adults in relation to their speech-in-noise performance during audiological evaluation and implications for aural rehabilitation.

Database: Medline

14. Quantifying tinnitus suppression in cochlear implantation using tinnitus interval-limited tracking.

Author(s): Mallen, Jonathan R; Chiu, Jerlon; Marquis, Hillary; Ottochian, Amanda; Perez, Erin; Kuo, Chia-Ling; Otto, Steve; Ryan, Tessa; Roberts, Daniel S

Source: The Laryngoscope; Dec 2019

Publication Date: Dec 2019

Publication Type(s): Journal Article

PubMedID: 31800110

Available at [The Laryngoscope](#) - from Wiley Online Library

Abstract:

OBJECTIVES: Quantify the effects of cochlear implants (CI) on tinnitus suppression in patients with previous cochlear implantation using a novel audiologic sequence: Tinnitus Interval Limited Tracking (TILT).

STUDY DESIGN: Prospective cohort study.

METHODS: Consecutive patients with tinnitus and previous cochlear implantation for profound hearing loss underwent an audiologic testing sequence called TILT. Patients rated tinnitus severity using the validated Tinnitus Handicap Inventory (THI) as well as a visual analog scale at baseline and in a variety of audiologic scenarios. Changes in tinnitus severity between scenarios allow for the isolation of the effects of masking and electrical stimulation on the reduction of tinnitus.

RESULTS: Twenty patients were enrolled, 10 of whom have tinnitus with average THI 30.2 (standard deviation 22.6). Patients had an acute decrease in tinnitus severity when their CIs were turned on, even in the absence of noise in a soundproof booth. This effect reversed once the CIs were turned off. This effect was greater in magnitude than with masking that occurred with the presentation of soft speech. Acute tinnitus severity trended toward improvement with increased level of presented speech. Degree of improvement was not correlated with THI.

CONCLUSION: Acute tinnitus suppression in patients using CIs is multifactorial. Masking plays a role; however, it cannot sufficiently account for the totality of symptom improvement experienced by CI patients. Quantifiable tinnitus suppression observed when a CI is turned on, even in the absence of audiologic stimulation, suggests that electrical stimulation is involved in the mechanism of symptom improvement in these patients.

LEVEL OF EVIDENCE: 4 Laryngoscope, 2019.

Database: Medline

15. Consensus practice parameter: audiological assessment and management of unilateral hearing loss in children.

Author(s): Bagatto, Marlene; DesGeorges, Janet; King, Alison; Kitterick, Pdraig; Lurnagaray, Diana; Lewis, Dawna; Roush, Patricia; Sladen, Douglas P; Tharpe, Anne Marie

Source: International journal of audiology; Dec 2019; vol. 58 (no. 12); p. 805-815

Publication Date: Dec 2019

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 31486692

Available at [International journal of audiology](#) - from Unpaywall

Abstract:

Objective: Provide recommendations to audiologists for the management of children with unilateral hearing loss (UHL) and for needed research that can lend further insight into important unanswered questions.

Design: An international panel of experts on children with UHL was convened following a day and a half of presentations on the same. The evidence reviewed for this parameter was gathered through web-based literature searches specifically designed for academic and health care resources, recent systematic reviews of literature, and new research presented at the conference that underwent peer review for publication by the time of this writing.

Study sample: Expert opinions and electronic databases including Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane Library, Education Resources Information Centre (ERIC), Google Scholar, PsycINFO, PubMed, ScienceDirect, and Turning Research into Practice (TRIP) Database.

Results: The resulting practice parameter requires a personalised, family-centred process: (1) routine surveillance of speech-language, psychosocial, auditory, and academic or pre-academic development; (2) medical assessments for determination of aetiology of hearing loss; (3) assessment of hearing technologies; and (4) considerations for family-centred counselling.

Conclusions: This practice parameter provides guidance to clinical audiologists on individualising the management of children with UHL. In addition, the paper concludes with recommendations for research priorities.

Database: Medline

16. Schoolchildren with unilateral or mild to moderate bilateral sensorineural hearing loss should be screened for neurodevelopmental problems.

Author(s): Stübner, Charlotte; Flynn, Traci; Gillberg, Christopher; Fernell, Elisabeth; Miniscalco, Carmela

Source: Acta paediatrica (Oslo, Norway : 1992); Nov 2019

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31769539

Available at [Acta paediatrica \(Oslo, Norway : 1992\)](#) - from Wiley Online Library

Abstract:

AIM: The aim was to assess the rate and overlap of language and other neurodevelopmental problems in children aged 9-12 years with unilateral or mild to moderate bilateral sensorineural hearing loss.

METHODS: Caregivers of 24 of the 58 eligible children, born 2004-2007, registered at the regional audiology department in Gothenburg, Sweden, with these types of hearing loss completed the Five-to-Fifteen questionnaire, a comprehensive screening instrument for neurodevelopmental problems. Of these 24 children, 21 were assessed with the Clinical Evaluation of Language Fundamentals-Fourth Edition (CELF-4). Children with scores indicating definite problem on the Five-to-Fifteen questionnaire and their parents were invited to a clinical neuropaediatric assessment.

RESULTS: Of the 24 children, 13 (54%) screened positive for definite neurodevelopmental problems. Clinical assessments confirmed the presence of at least one neurodevelopmental disorder in eight of these 24, corresponding to 33%. Seven (33%) of the 21 children participating in the CELF-4 had scores indicating a language disorder, of whom four children had a neurodevelopmental disorder according to the neuropaediatric assessment.

CONCLUSION: The results support that schoolchildren with unilateral or mild to moderate bilateral sensorineural hearing loss should undergo neurodevelopmental screening to identify possible coexisting neurodevelopmental problems or disorders.

Database: Medline

17. Challenges and Strengths of Multidisciplinary Research in Audiology: The EVOTION Example.

Author(s): Dritsakis, Giorgos; Murdin, Louisa; Kikidis, Dimitris; Saunders, Gabrielle H; Katrakazas, Panagiotis; Brdarić, Dario; Ploumidou, Katherine; Bamiou, Doris-Eva

Source: American journal of audiology; Nov 2019 ; p. 1-6

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31714794

Available at [American journal of audiology](#) - from EBSCO (MEDLINE Complete)

Available at [American journal of audiology](#) - from EBSCO (Biomedical Reference Collection - Comprehensive)

Available at [American journal of audiology](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [American journal of audiology](#) - from Unpaywall

Abstract:

Purpose: The EU-funded research project EVOTION has brought together clinical, technical, and public health experts with the aim to offer a solution for the holistic management of hearing loss. This report presents the challenges, strengths, and key take-home messages of working in this multidisciplinary consortium.

Method: Fifteen consortium members completed an online survey with 6 open-ended questions. Responses were analyzed using a thematic approach.

Results: Analysis identified 4 main themes: (a) communication, that is, cross-disciplinary communication difficulties but also range of expertise; (b) opportunities, that is, innovation, learning, and collaborations; (c) technology, that is, technical requirements and data collection and management issues; and (d) local constraints, that is, institutional limitations, resources, and planning.

Conclusions: Although the challenges reported differed by country and specialty, there was consensus about the value, expertise, and opportunities of the project. It is recommended that in future similar multidisciplinary projects in audiology, researchers establish a common language and assess technical requirements and local constraints prior to initiating research activities.

Database: Medline

18. Using Visual Supports to Facilitate Audiological Testing for Children With Autism Spectrum Disorder.

Author(s): McTee, Haley M; Mood, Deborah; Fredrickson, Tammy; Thrasher, Amy; Bonino, Angela Yarnell

Source: American journal of audiology; Nov 2019 ; p. 1-11

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31689370

Available at [American journal of audiology](#) - from EBSCO (MEDLINE Complete)

Available at [American journal of audiology](#) - from EBSCO (Biomedical Reference Collection - Comprehensive)

Available at [American journal of audiology](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: One in 59 children is diagnosed with autism spectrum disorder (ASD). Due to overlapping symptoms between hearing loss and ASD, children who are suspected of having ASD require an audiological evaluation to determine their hearing status for the purpose of differential diagnosis. The purpose of this article is twofold: (a) to increase audiologists' knowledge of ASD by discussing the challenges associated with testing and interpreting clinical data for children with ASD or suspected ASD and (b) to provide visual supports that can be used to facilitate audiological assessment.

Method: Eight children (ages 4-12 years) were recruited as video model participants. Videos were filmed using scripts that used concise and concrete language while portraying common clinical procedures. Using the video models, corresponding visual schedules were also created.

Conclusion: Although obtaining reliable hearing data from children with ASD is challenging, incorporating visual supports may facilitate testing. Video models and visual schedules have been created and made freely available for download online under a Creative Commons License (Creative Commons-Attribution-NonCommercial-ShareAlike 4.0 International License). Incorporating visual supports during clinical testing has the potential to reduce the child's and family's stress, as well as to increase the probability of obtaining a reliable and comprehensive audiological evaluation. Future research is warranted to determine the effectiveness and feasibility of implementing these tools in audiology clinics.

Supplemental Material: <https://doi.org/10.23641/asha.10086434>.

Database: Medline

19. Auditory and Vestibular Side Effects of FDA-Approved Drugs for Diabetes.

Author(s): DiSogra, Robert M; Meece, Jerry

Source: Seminars in hearing; Nov 2019; vol. 40 (no. 4); p. 315-326

Publication Date: Nov 2019

Publication Type(s): Journal Article Review

PubMedID: 31602095

Abstract:

As of September 10, 2019, there were 75 medications (oral/injectable/inhalants) approved by the U.S. Food and Drug Administration for diabetes management: 1 inhalant, 21 oral combinations, 22 injectable, and 31 oral medications (not in combination with any other diabetes drug). This article isolates the auditory and vestibular side effects of those drugs as reported by the drug's manufacturer as well as those side effects that could interfere with a balance assessment. Twenty of the 75 approved medications (26%) could have an auditory-related side effect. Hearing loss and tinnitus are not on the list. Only two, or just 3%, have vertigo and spinning as reported side effects (one each). More than 50% of the drugs will have some effect on a balance assessment. Audiologists who evaluate a patient with diabetes (PWD) are presented with symptoms that could be related to their diabetes medication. Although the manufacturer might report a side effect as rare or as a percentage from their clinical trials subjects, not all PWD will experience these adverse events. Auditory and vestibular side effects do not dominate the diabetes drug side effect list, but, rather, the most reported side effects could impact a balance assessment. The lists that appear in Appendices A and B should serve as a guide for all professionals involved in managing the PWD (i.e., audiologists, otolaryngologists, diabetes educators, pharmacists, optometrists, dentists, etc.). The list also serves as a counseling tool if a communication problem emerges during the progression of the diabetes.

Database: Medline

20. Tinnitus and Cognition: Linked?

Author(s): Majhi, Sudhir Kumar; Khandelwal, Kirti; Shrivastava, Manohar Kant

Source: Indian journal of otolaryngology and head and neck surgery : official publication of the Association of Otolaryngologists of India; Nov 2019; vol. 71 ; p. 1426-1430

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31750189

Abstract:

Tinnitus is conscious auditory perception without corresponding external stimuli resulting from neuronal activity along auditory pathway either in peripheral or central auditory system. The exact origin, pathophysiologic pathway and its treatment is still under exploration. The main risk factor is hearing loss, but can occur in patients with normal hearing. Auditory brainstem response test helps to objectify this subjective complaint and aid in locating its origin. P300 is late latency auditory evoked potential, objective marker of cognitive potential. The purpose of our study was to ascertain any significant difference in P300 latency and amplitude values in cases of sensorineural hearing loss with tinnitus when compared to controls (normal hearing subjects) and also to find any correlation between severity of tinnitus and cognition. This was a case control study conducted at the department of ENT at Safdarjung Hospital, New Delhi between September 2016 to March 2018. The study comprised of one hundred and six patients, out of which fifty five patients were having sensorineural hearing loss with tinnitus and fifty one patients were normal hearing subjects. General medical and audiological history and examination was done. Significant increase in P300 latency and decrease in P300 amplitude was found in sensorineural hearing loss with tinnitus cases on comparing with controls. The similar pattern of P300 values was observed on increasing severity of tinnitus and degree of hearing loss. Hence, results revealed the role of cognition and involvement of central auditory pathway in tinnitus generation.

Database: Medline

21. A Comparative Study of the Efficacy of Fat Plug Myringoplasty and Conventional Myringoplasty in Chronic Suppurative Otitis Media with Small Central Perforation.

Author(s): Dhanapala, N; Ramya, B; Sudarshan Reddy, L

Source: Indian journal of otolaryngology and head and neck surgery : official publication of the Association of Otolaryngologists of India; Nov 2019; vol. 71 ; p. 1197-1201

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31750150

Abstract: Chronic Otitis Media (COM) is a major cause of acquired hearing impairment especially in developing countries. Persistent perforations occur either due to improper treatment of recurrent otitis media or infected traumatic perforation. Myringoplasty, repair of the Tympanic membrane using autologous temporalis fascia, is the standard procedure for COM. Other graft materials commonly used include tragal perichondrium, tragal cartilage and adipose tissue. This prospective study aims to compare the surgical and audiological outcome of fat plug myringoplasty [FPM] and conventional myringoplasty using temporalis fascia [CM-TF] in COM with small dry central perforation. A total of 60 patients of COM with small dry central perforation, aged 16-60 years, during the study period of October 2013 to August 2015 were divided into two groups of 30 cases each. The first group underwent FPM while the second group underwent CM-TF. The graft uptake and hearing outcome [pre operative and 3 months post operative PTA] were assessed. The surgical outcome of FPM with graft uptake of 86.7% was comparable to CM-TF with a graft uptake of 90%.

The mean post operative hearing gain in FPM was 3.43 ± 2.81 dB which correlated well with that of CM-TF with 3.85 ± 3.05 dB. The duration of hospital stay and operative time was significantly lower in FPM group. FPM can be safely performed in cases with dry, small central perforations of the tympanic membrane with outcomes comparable to CM-TF.

Database: Medline

22. Cochlear implant outcomes in the elderly: a uni- and multivariate analyses of prognostic factors.

Author(s): Favaretto, Niccolò; Marioni, Gino; Brotto, Davide; Sorrentino, Flavia; Gheller, Flavia; Castiglione, Alessandro; Montino, Silvia; Giacomelli, Luciano; Trevisi, Patrizia; Martini, Alessandro; Bovo, Roberto

Source: European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Nov 2019; vol. 276 (no. 11); p. 3089-3094

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 31463602

Abstract:

PURPOSE: To assess preoperative features that could predict the audiological outcome after cochlear implantation in the elderly, in terms of pure tone audiometry, speech audiometry, and speech perception performance.

METHODS: All available records of patients with cochlear implants aged 65 or more at the time of their implantation at our Institution were reviewed (50 patients, mean age 70.76 ± 4.03 years), recording preoperative clinical features. Pure tone audiometry, speech audiometry, and speech perception performance 1 year after cochlear implant activation and fitting were used as outcome measures.

RESULTS: No statistically significant association emerged between clinical features and pure tone audiometry. On univariate analysis, progressive sensorineural hearing loss of unknown origin was associated with a better outcome in terms of speech audiometry and speech perception performance ($p = 0.035$ and $p = 0.033$, respectively). On multivariate analysis, progressive sensorineural hearing loss retained its independent prognostic significance in terms of speech perception performance ($p = 0.042$). The discriminatory power of a two-variable panel (age and etiology of hearing loss) featured an AUC (ROC) of 0.738 (an acceptable discriminatory power according to the Hosmer-Lemeshow scale).

CONCLUSIONS: A progressive sensorineural hearing loss of unknown origin was associated with a better outcome in terms of speech perception in the elderly in our case study. Further features that can predict audiological outcome achievable with cochlear implants in the elderly are desirable to perform adequate counselling and rehabilitation programs.

Database: Medline

23. Rehabilitation for disabling hearing loss: evaluating the need relative to provision of hearing aids in the public health care system.

Author(s): Hlayisi, Vera-Genevey; Ramma, Lebogang

Source: Disability and rehabilitation; Nov 2019; vol. 41 (no. 22); p. 2704-2707

Publication Date: Nov 2019

Publication Type(s): Journal Article

PubMedID: 29779397

Abstract:

Purpose: To determine the demand relative to supply of hearing rehabilitation through hearing aids for those with disabling hearing loss in a public health care setting in South Africa.

Methods: Retrospective cross-sectional survey of medical records of all patients were seen at a public hospital (Polokwane Provincial Academic) during 2012-2014, was conducted. Audiological data from 3894 medical folders were accessed and reviewed; thereafter, results were analyzed using descriptive statistics.

Results: Of the 3894 medical folders reviewed, two-third (62%, n = 2402) were diagnosed with hearing loss, mostly bilaterally (81%). More than 30% of all patients diagnosed with hearing loss were ≤10 years old. Sensorineural (permanent) hearing loss was diagnosed most often (38%, n = 913) and 74% (n = 1778) of hearing losses diagnosed were of moderate or worse severity (i.e., disabling loss). Hearing aids were fitted to only 15% (n = 272) of those diagnosed with disabling hearing loss and most hearing aid fittings were to low-income adult patients (≥25 years old) with more severe-profound hearing losses.

Conclusions: This study showed that the need for hearing aids to provide hearing rehabilitation far exceeds the supply. Therefore, a multi-pronged approach that includes increased budget allocation and exploring low-cost interventions for developing countries to meet the demand for hearing aids. Furthermore, study highlighted a high prevalence of hearing loss in those younger than 10 years of age, and thus highlights the need for early intervention as well as intensifying efforts to reduce preventable causes of hearing loss. Implications for Rehabilitation Audiologists need to advocate for an increase in budget allocation for hearing rehabilitation devices. Study indicates need to explore low-cost hearing devices/rehabilitation interventions for developing countries. Health professionals should consider preventative measures to reduce prevalence of preventable hearing loss.

Database: Medline

24. Assessment of occupational noise-related hearing impairment among dental health personnel.

Author(s): Al-Omouh, Salah A; Abdul-Baqi, Khader J; Zuriekat, Margaret; Alsoleihat, Firas; Elmanaseer, Wijdan R; Jamani, Kifah D

Source: Journal of occupational health; Oct 2019

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31674128

Available at [Journal of occupational health](#) - from Europe PubMed Central - Open Access

Available at [Journal of occupational health](#) - from Unpaywall

Abstract:

OBJECTIVES: The purpose of the study was to examine hearing thresholds among dental personnel. The secondary aim was to evaluate sound levels among dental equipment that dental personnel are exposed to.

METHODS: Two hundred forty-four dentists, dental technicians, dental assistants, and dental students participated. Sixty-two participated as a control group. Audiological thresholds for the test groups were compared to the control group. All participants were from Jordan University Hospital. Participants completed a questionnaire in addition to their audiometric testing. Otoscopy, tympanometry, and pure tone audiometry were included in their assessment. Three-factor ANOVA and t tests were utilized to assess the statistical differences of hearing thresholds among the groups and between the two ears. Pearson correlation test was used to assess the effect of age, experience, and duration of exposure on the degree of hearing loss in the test groups for both ears.

RESULTS: The authors reported statistically significant differences among hearing thresholds between the control group and others. Left hearing thresholds were noted to be significantly poorer in the left versus right ear at 1000, 2000, 4000, and 8000 Hz in dental assistants. The authors also reported a significant relationship between the degree of hearing impairment among dental assistants and the daily duration of exposure to dental occupational noise, followed by age.

CONCLUSION: Hearing impairment was higher among dental professionals than the control group and especially among dental assistants and technicians. The authors recommended screening guidelines and adapting hearing protection methods for dental professionals and particularly for dental assistants and technicians.

Database: Medline

25. Meeting the Best Practice for Hearing Aid Verification in Children: Challenges and Future Directions.

Author(s): Amri, Nur Azyani; Quar, Tian Kar; Chong, Foong Yen

Source: American journal of audiology; Oct 2019 ; p. 1-18

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31600460

Available at [American journal of audiology](#) - from EBSCO (MEDLINE Complete)

Available at [American journal of audiology](#) - from EBSCO (Biomedical Reference Collection - Comprehensive)

Available at [American journal of audiology](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: This study examined the current pediatric amplification practice with an emphasis on hearing aid verification using probe microphone measurement (PMM), among audiologists in Klang Valley, Malaysia. Frequency of practice, access to PMM system, practiced protocols, barriers, and perception toward the benefits of PMM were identified through a survey.

Method: A questionnaire was distributed to and filled in by the audiologists who provided pediatric amplification service in Klang Valley, Malaysia. One hundred eight (N = 108) audiologists, composed of 90.3% women and 9.7% men (age range: 23-48 years), participated in the survey.

Results: PMM was not a clinical routine practiced by a majority of the audiologists, despite its recognition as the best clinical practice that should be incorporated into protocols for fitting hearing aids in children. Variations in practice existed warranting further steps to improve the current practice for children with hearing impairment. The lack of access to PMM equipment was 1 major barrier for the audiologists to practice real-ear verification. Practitioners' characteristics such as time

constraints, low confidence, and knowledge levels were also identified as barriers that impede the uptake of the evidence-based practice.

Conclusions: The implementation of PMM in clinical practice remains a challenge to the audiology profession. A knowledge-transfer approach that takes into consideration the barriers and involves effective collaboration or engagement between the knowledge providers and potential stakeholders is required to promote the clinical application of evidence-based best practice.

Database: Medline

26. Progressive Dominant Hearing Loss (Autosomal Dominant Deafness-41) and P2RX2 Gene Mutations: A Phenotype-Genotype Study.

Author(s): Liu, Xue Zhong; Yan, Denise; Mittal, Rahul; Ballard, Megan E; Feng, Yong

Source: The Laryngoscope; Oct 2019

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31593348

Available at [The Laryngoscope](#) - from Wiley Online Library

Abstract:

OBJECTIVES/HYPOTHESIS: P2RX2 encoding P2X purinoreceptor 2 has been identified as the gene responsible for autosomal dominant deafness-41 (DFNA41) as well as mediating vulnerability to noise-induced hearing loss (NIHL). The objective of this study was to investigate the audiological and molecular characteristics of P2RX2-related deafness, with emphasis on its role in NIHL by determining the audiological characteristics of a previously reported six-generation DFNA41 family with a 10-year follow-up. We have also summarized phenotype-genotype correlations of P2RX2-related deafness in human and mouse models.

STUDY DESIGN: We describe clinical longitudinal follow-up in the DFNA41 family with P2RX2 (p.Val60Leu) mutation and perform a systematic literature search in PubMed and poster presentations on meeting/conference websites to identify current insights into P2RX2-mediated NIHL.

METHODS: Clinical and physical examinations of the family members were performed, and audiograms were obtained to assess the hearing thresholds. Clinical follow-up features in this DFNA41 family are presented along with correlation analyses of phenotype-genotype in all reported families with P2RX2-related deafness.

RESULTS: Progressive hearing impairment was confirmed by history and by audiological follow-up testing in all the patients. The onset of hearing loss was between age 25 and 35 years. All affected subjects had bilateral sensorineural hearing loss involving all frequencies with some significant gender differences.

CONCLUSIONS: Our study and the review of the literature suggest that P2RX2 plays a crucial role in predisposition to noise-induced and age-related hearing loss. A better knowledge about the P2RX2-associated genetic variants can help in developing novel therapeutic strategies.

LEVEL OF EVIDENCE: 2b Laryngoscope, 2019.

Database: Medline

27. Endoscopic-Assisted Cochlear Implantation in Children with Malformed Ears.

Author(s): Carner, Marco; Sacchetto, Andrea; Bianconi, Luca; Soloperto, Davide; Sacchetto, Luca; Presutti, Livio; Marchioni, Daniele

Source: Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery; Oct 2019; vol. 161 (no. 4); p. 688-693

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31159704

Abstract:

OBJECTIVE: Complex middle and inner ear malformations are considered an important limitation for cochlear implant (CI) with traditional microscopic techniques. The aim of the present study is to describe the results of the endoscopic-assisted CI procedure in children with malformed ears.

STUDY DESIGN: Case series with chart review of consecutive patients.

SETTING: Two tertiary referral centers: University Hospital of Verona and University Hospital of Modena, Italy.

SUBJECTS AND METHODS: In total, 25 children underwent endoscopic-assisted cochlear implantation between January 2013 and January 2018. The audiologic and neuroradiologic assessment showed profound hearing loss and malformation of the middle and inner ear in all children. A complete review of anatomic features, surgical results, and audiologic outcomes was performed. The surgical technique is described step-by-step, and the outcomes are detailed.

RESULTS: All patients (mean age, 3.6 years; range, 2.8-9 years) underwent a transattical/endoscopic-assisted CI procedure. All children showed varying degrees of auditory benefit, as measured by routine audiometry, speech perception tests, and Categories of Auditory Performance scores (mean, 6). No immediate or late postoperative complications were noted.

CONCLUSION: The endoscopic-assisted approach proved to be successful in cochlear implantation. The direct visualization and magnification allow (1) exploration of the tympanic cavity; (2) confirmation of all anatomic features, with strict control of the course of the facial nerve, round window area, and inner ear; and (3) performance of the cochleostomy with adequate insertion of the array.

Database: Medline

28. Measuring psychological inflexibility in adult and child hearing loss.

Author(s): Ong, Clarissa W; Whicker, John J; Muñoz, Karen; Twohig, Michael P

Source: International journal of audiology; Oct 2019; vol. 58 (no. 10); p. 643-650

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31271067

Available at [International journal of audiology](#) - from Unpaywall

Abstract:

Objective: Hearing loss is a chronic condition that impacts functioning among individuals with hearing loss and caregivers of children with hearing loss. Even though treatments for hearing loss can alleviate functional impairment, psychological factors like psychological inflexibility may

interfere with treatment engagement and adherence, undermining the benefits of treatment. Measuring psychological inflexibility may inform care providers' case conceptualisation, improving the quality and precision of audiological interventions. Thus, this study aimed to develop and validate measures of psychological inflexibility in hearing loss for adults and caregivers of children with hearing loss.

Design: Participants were invited to complete an online survey.

Study samples: Our sample comprised adults with hearing loss (N = 264) and primary caregivers of children with hearing loss (N = 275).

Results: The final versions of Acceptance and Action Questionnaire-Adult Hearing Loss (AAQ-AHL) and Acceptance and Action Questionnaire-Management of Child Hearing Loss (AAQ-MCHL) showed good to excellent internal reliability and concurrent and discriminant validity.

Conclusion: Although the AAQ-AHL and AAQ-MCHL showed acceptable psychometric properties, more tests are needed to further validate these measures and verify their utility in research and clinical settings.

Database: Medline

29. Comparison of the prevalence and features of inner ear malformations in congenital unilateral and bilateral hearing loss.

Author(s): Masuda, Sawako; Usui, Satoko

Source: International journal of pediatric otorhinolaryngology; Oct 2019; vol. 125 ; p. 92-97

Publication Date: Oct 2019

Publication Type(s): Journal Article

PubMedID: 31276892

Abstract:

OBJECTIVES: The aim of the study was to clarify differences in the prevalence and features of bony malformations in inner ear between congenital unilateral sensorineural hearing loss (USNHL) and congenital bilateral sensorineural hearing loss (BSNHL).

METHODS: We conducted a retrospective study of 378 consecutive infants referred from routine newborn hearing screening in the past 18 years. Clinical background, audiological data, and temporal bone computed tomography (CT) findings were analyzed. The prevalence of malformations between USNHL and BSNHL groups were compared using the Chi-square test.

RESULTS: The proportion of family history of hearing loss was significantly higher in infants with BSNHL than in those with USNHL (26/107 [24.3%] vs. 4/105 [3.7%]; $p = 0.0001$). Temporal bone CT scanning revealed significantly a higher prevalence of inner ear malformations in infants with USNHL than in those with BSNHL (93/109 [85.3%] vs. 4/107 [3.7%]; $p < 0.0001$). The most frequent anomaly in USNHL was cochlear nerve canal stenosis (69.7%), followed by cochlear malformations (20.2%), and narrow internal auditory canal (17.4%). Four infants with BSNHL accompanied by inner ear anomaly had complications such as Down's syndrome, developmental delay, or epilepsy.

CONCLUSIONS: The prevalence of bony malformations in inner ear and/or IAC was markedly higher in infants with congenital USNHL than in infants with BSNHL. Temporal bone CT scanning may help to clarify the etiology of congenital hearing loss, especially in USNHL.

Database: Medline

30. A Comparison of Surgical Auditory Nerve Response and Speech Outcomes in Patients with Post-meningitic Deafness and Without Cochlear Osteogenesis Who Underwent Cochlear Implantation.

Author(s): Alshaikh, Mohammed; Alahmadi, Asmaa; Albedry, Mohammed; Alharbi, Abdulmajeed; Alenzi, Saad; Almahyawi, Rawan; Mansouri, NoorJehan; Albaqeyah, Mohammad; Alamri, Abdullah; Alharbi, Amani A; Aldajani, Ahmad

Source: Cureus; Sep 2019; vol. 11 (no. 9); p. e5650

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31700752

Available at [Cureus](#) - from Europe PubMed Central - Open Access

Available at [Cureus](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Cureus](#) - from Unpaywall

Abstract:

Objective: Patients with post-meningitis deafness remain challenging candidates for cochlear implantation (CI) which can be difficult due to fibrosis or ossification of the inner ear, and their outcomes remain doubtful. We assessed the surgical and audiological outcomes of CI in patients with profound sensorineural hearing loss caused by meningitis and compared those outcomes to patients without cochlear ossification.

Methods: This retrospective cross-sectional study was carried out at King Fahad General Hospital, Jeddah, Saudi Arabia. Among 246 patients who underwent cochlear implantation, 13 patients with post-meningitic deafness were identified (Group 1). A matched control group, including patients with deafness due to other causes who did not have cochlea osteogenesis, was selected (Group 2). For all patients, data were collected from medical records, including surgical and audiological outcomes.

Results: Sclerosis of the cochlea was high in Group 1 (46.2%). There were no postoperative surgical complications in either group. Responses of the auditory nerve action potential obtained through auditory response telemetry (ART) or the neural response telemetry (NRT) were recorded. There was no significant difference between the two groups regarding the intraoperative and the postoperative ART or NRT at selected electrodes representing the entire cochlea. Likewise, no significant difference regarding the speech recognition test (SRT) was detected.

Conclusions: Cochlear implantation is a safe procedure without surgical complications in post-meningitis patients. Furthermore, early CI in children was associated with favorable outcomes in terms of preservation of the auditory nerve response, restoration of speech discrimination, and recognition to levels comparable to patients with deafness due to other causes. Early audiological assessment in meningitis patients is recommended to identify hearing loss and eventually to offer CI.

Database: Medline

31. Chronic Conductive Hearing Loss Is Associated With Speech Intelligibility Deficits in Patients With Normal Bone Conduction Thresholds.

Author(s): Okada, Masahiro; Welling, D Bradley; Liberman, M Charles; Maison, Stéphane F

Source: Ear and hearing; Sep 2019

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31490800

Abstract:

OBJECTIVES: The main objective of this study is to determine whether chronic sound deprivation leads to poorer speech discrimination in humans.

DESIGN: We reviewed the audiologic profile of 240 patients presenting normal and symmetrical bone conduction thresholds bilaterally, associated with either an acute or chronic unilateral conductive hearing loss of different etiologies.

RESULTS: Patients with chronic conductive impairment and a moderate, to moderately severe, hearing loss had lower speech recognition scores on the side of the pathology when compared with the healthy side. The degree of impairment was significantly correlated with the speech recognition performance, particularly in patients with a congenital malformation. Speech recognition scores were not significantly altered when the conductive impairment was acute or mild.

CONCLUSIONS: This retrospective study shows that chronic conductive hearing loss was associated with speech intelligibility deficits in patients with normal bone conduction thresholds. These results are as predicted by a recent animal study showing that prolonged, adult-onset conductive hearing loss causes cochlear synaptopathy.

Database: Medline

32. Computational analysis based on audioprofiles: A new possibility for patient stratification in office-based otology.

Author(s): Weininger, Oren; Warnecke, Athanasia; Lesinski-Schiedat, Anke; Lenarz, Thomas; Stolle, Stefan

Source: Audiology research; Sep 2019; vol. 9 (no. 2); p. 230

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31728177

Available at [Audiology research](#) - from Europe PubMed Central - Open Access

Available at [Audiology research](#) - from Unpaywall

Abstract: Genetic contribution to progressive hearing loss in adults is underestimated. Established machine learning-based software could offer a rapid supportive tool to stratify patients with progressive hearing loss. A retrospective longitudinal analysis of 141 adult patients presenting with hearing loss was performed. Hearing threshold was measured at least twice 18 months or more apart. Based on the baseline audiogram, hearing thresholds and age were uploaded to AudioGene v4® (Center for Bioinformatics and Computational Biology at The University of Iowa City, IA, USA) to predict the underlying genetic cause of hearing loss and the likely progression of hearing loss. The progression of hearing loss was validated by comparison with the most recent audiogram data of the patients. The most frequently predicted loci were DFNA2B, DFNA9 and DFNA2A. The frequency of loci/genes predicted by AudioGene remains consistent when using the initial or the final audiogram of the patients. In conclusion, machine learning-based software analysis of clinical data might be a useful tool to identify patients at risk for having autosomal dominant hearing loss. With this approach, patients with suspected progressive hearing loss could be subjected to close audiological followup, genetic testing and improved patient counselling.

Database: Medline

33. Hearing Improvement Following Middle Cranial Fossa Floor Defect Repair Utilizing a Modified Middle Fossa Approach and Reconstructive Techniques.

Author(s): Alwan, Mostafa; Ibbett, Imogen; Pullar, Michael; Lai, Leon T; Gordon, Michael

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Sep 2019; vol. 40 (no. 8); p. 1034-1039

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31348129

Abstract:

BACKGROUND: Few studies report hearing preservation following middle cranial fossa (MCF) floor defect repair.

OBJECTIVE: To investigate audiological outcomes following MCF floor defect repair using a modified MCF suprapetrous approach.

STUDY DESIGN: Retrospective cohort.

SETTING: Tertiary referral center.

PATIENTS: Eleven patients, with MCF floor defects.

INTERVENTIONS: MCF floor defect surgical repairs with either fascia or fascia and bone graft.

MAIN OUTCOME MEASURED: Hearing outcomes.

RESULTS: Eleven patients (two men) aged 34 to 82 years (median, 62 yrs) were identified. All patients were operated on by the same two senior surgeons (M.P. and M.G.). One patient with conductive hearing loss (based on tuning fork test) was excluded from the analysis due to missing preoperative audiogram data. All patients had middle fossa plate defects leading to cerebrospinal fluid (CSF) otorrhoea, rhinorrhoea, or meningitis. Nine patients had retrieval of herniated contents from the defect. Five patients had repair with temporalis fascia and split calvarial bone graft, and six patients had repair with fascia only. Follow up audiogram was performed at a mean 7.5 months (range, 0.5-24 mo). There was no recurrent CSF leak during the follow up period. The 10 patients (90.9%, 95% confidence interval [CI] 60.1-100.6) who had complete audiological data sets demonstrated a mean improvement of 18.86 dB (range, -7.5 to 33.75 dB) in hearing postoperatively. One of these patients acquired a 7.5 dB reduction in postoperative hearing due to post-procedural middle ear effusion which subsequently resolved. Hearing improvement following fascial graft alone versus fascial graft with bone was 12.5 and 26.5 dB, respectively ($p < 0.01$).

CONCLUSION: Middle fossa craniotomy with or without retrieval of herniated contents and floor reconstruction with fascia and bone is associated with improved hearing. Clinical efficacy of this technique, however, can be only fully established when a statistically meaningful number of cases have been performed.

Database: Medline

34. Association of asymptomatic otitis media with effusion in patients with adenoid hypertrophy.

Author(s): Bhat, Vadisha; Paraekulam Mani, Ivan; Aroor, Rajeshwary; Saldanha, Marina; Goutham, M K; Pratap, Deepika

Source: Journal of otology; Sep 2019; vol. 14 (no. 3); p. 106-110

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31467508

Available at [Journal of otology](#) - from Unpaywall

Abstract:

Objective: Clinical symptoms of otitis media with effusion are rarely brought forward to the guardians of young children who the disease is most prevalent in. This often leads to poor scholastic performances and difficult social interactions. The objective of this study was to identify asymptomatic cases of otitis media with effusion present in individuals with adenoid hypertrophy.

Material and Methods: In a cross sectional study advocated in Justice K.S.Hegde Hospital, Karnataka India we evaluated one hundred patients above the age of three from August 2016 to December 2017. Candidates who presented with an adenoid nasopharyngeal ratio of more than 0.5 were selected for the study. Individuals who complained of otological symptoms were not considered for the study. Patients cleared of other pathological otological conditions were underwent audiological evaluation with pure tone audiometry and tympanometry for evaluating the middle ear status and hearing loss.

Results: The study showed a total of 36% of patients evaluated presented with asymptomatic otitis media with effusion. In candidates who presented with a bilateral B tympanogram, 40% had significant conductive hearing loss of more than 25dB.

Conclusion: An objective test such as impedance audiometry in all patients with adenoid hypertrophy would aid in the diagnosis of fluid in the middle ear, so that timely intervention can be done and possible complications be averted.

Database: Medline

35. Hearing impairment among chronic kidney disease patients on haemodialysis at a tertiary hospital in Ghana.

Author(s): Boateng, Joseph O; Boafu, Neal; Osafo, Charlotte; Anim-Sampong, Samuel

Source: Ghana medical journal; Sep 2019; vol. 53 (no. 3); p. 197-203

Publication Date: Sep 2019

Publication Type(s): Journal Article

PubMedID: 31741491

Available at [Ghana medical journal](#) - from Europe PubMed Central - Open Access

Available at [Ghana medical journal](#) - from Unpaywall

Abstract:

Background: Chronic kidney disease is a major public health challenge, globally. Inadequate excretion of metabolic waste products by the kidneys results in circulation of these toxic materials in the body. This can cause damage to tissues and organ systems including the auditory system which can lead to hearing loss.

Aim: The study was aimed at determining the prevalence, degrees and types of hearing impairment among Chronic kidney disease patients on haemodialysis in Ghana.

Methods: A case-control study involving 50 Chronic Kidney disease patients and 50 age and gender-matched control group was carried out at the Korle Bu Teaching Hospital (KBTH). A structured questionnaire was administered to obtain basic socio-demographic data and case history of the participants. Audiological assessment was performed using a test battery comprising otoscopy, tympanometry and pure tone audiometry in a soundproof booth.

Results: Higher hearing thresholds were recorded across all the frequencies tested among the case group than the control group ($p < 0.05$) in both ears. Only sensorineural hearing loss was identified among the cases. The prevalence of hearing loss was 32% among the case group and 12% among the control group. No significant association was observed between hearing loss and duration of Chronic kidney disease ($p = 0.16$), gender of Chronic kidney disease patient and hearing loss ($p = 0.88$), and duration of Chronic kidney disease and degree of hearing loss ($p=0.31$).

Conclusion: Our study showed that Chronic Kidney disease patients on haemodialysis are at higher risk of experiencing hearing loss.

Funding: None declared.

Database: Medline

36. Perrault syndrome with neurological features in a compound heterozygote for two TWNK mutations: overlap of TWNK-related recessive disorders.

Author(s): Domínguez-Ruiz, María; García-Martínez, Alberto; Corral-Juan, Marc; Pérez-Álvarez, Ángel I; Plasencia, Ana M; Villamar, Manuela; Moreno-Pelayo, Miguel A; Matilla-Dueñas, Antoni; Menéndez-González, Manuel; Del Castillo, Ignacio

Source: Journal of translational medicine; Aug 2019; vol. 17 (no. 1); p. 290

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 31455392

Available at [Journal of translational medicine](#) - from BioMed Central

Available at [Journal of translational medicine](#) - from Europe PubMed Central - Open Access

Available at [Journal of translational medicine](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Journal of translational medicine](#) - from Unpaywall

Abstract:

BACKGROUND: Perrault syndrome is a rare autosomal recessive disorder that is characterized by the association of sensorineural hearing impairment and ovarian dysgenesis in females, whereas males have only hearing impairment. In some cases, patients present with a diversity of neurological signs. To date, mutations in six genes are known to cause Perrault syndrome, but they do not explain all clinically-diagnosed cases. In addition, the number of reported cases and the spectra of mutations are still small to establish conclusive genotype-phenotype correlations.

METHODS: Affected siblings from family SH19, who presented with features that were suggestive of Perrault syndrome, were subjected to audiological, neurological and gynecological examination. The genetic study included genotyping and haplotype analysis for microsatellite markers close to the genes involved in Perrault syndrome, whole-exome sequencing, and Sanger sequencing of the coding region of the TWNK gene.

RESULTS: Three siblings from family SH19 shared similar clinical features: childhood-onset bilateral sensorineural hearing impairment, which progressed to profound deafness in the second decade of life; neurological signs (spinocerebellar ataxia, polyneuropathy), with onset in the fourth decade of life in the two females and at age 20 years in the male; gonadal dysfunction with early cessation of menses in the two females. The genetic study revealed two compound heterozygous pathogenic mutations in the TWNK gene in the three affected subjects: c.85C>T (p.Arg29*), previously reported in a case of hepatocerebral syndrome; and a novel missense mutation, c.1886C>T (p.Ser629Phe). Mutations segregated in the family according to an autosomal recessive inheritance pattern.

CONCLUSIONS: Our results further illustrate the utility of genetic testing as a tool to confirm a tentative clinical diagnosis of Perrault syndrome. Studies on genotype-phenotype correlation from the hitherto reported cases indicate that patients with Perrault syndrome caused by TWNK mutations will manifest neurological signs in adulthood. Molecular and clinical characterization of novel cases of recessive disorders caused by TWNK mutations is strongly needed to get further insight into the genotype-phenotype correlations of a phenotypic continuum encompassing Perrault syndrome, infantile-onset spinocerebellar ataxia, and hepatocerebral syndrome.

Database: Medline

37. Quantifying the Range of Signal Modification in Clinically Fit Hearing Aids.

Author(s): Rallapalli, Varsha; Anderson, Melinda; Kates, James; Balmert, Lauren; Sirow, Lynn; Arehart, Kathryn; Souza, Pamela

Source: Ear and hearing; Aug 2019

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 31408045

Abstract:

OBJECTIVES: Hearing aids provide various signal processing techniques with a range of parameters to improve the listening experience for a hearing-impaired individual. In previous studies, we reported significant differences in signal modification for mild versus strong signal processing in commercially available hearing aids. In this study, the authors extend this work to clinically prescribed hearing aid fittings based on best-practice guidelines. The goals of this project are to determine the range of cumulative signal modification in clinically fit hearing aids across manufacturers and technology levels and the effects of listening conditions including signal to noise ratio (SNR) and presentation level on these signal modifications.

DESIGN: We identified a subset of hearing aids that were representative of a typical clinical setting. Deidentified hearing aid fitting data were obtained from three audiology clinics for adult hearing aid users with sensorineural hearing loss for a range of hearing sensitivities. Matching laboratory hearing aids were programmed with the deidentified fitting data. Output from these hearing aids was recorded at four SNRs and three presentation levels. The resulting signal modification was quantified using the cepstral correlation component of the Hearing Aid Speech Quality Index which measures the speech envelope changes in the context of a model of the listener's hearing loss. These metric values represent the hearing aid processed signal as it is heard by the hearing aid user. Audiometric information was used to determine the nature of any possible association with the distribution of signal modification in these clinically fit hearing aids.

RESULTS: In general, signal modification increased as SNR decreased and presentation level increased. Differences across manufacturers were significant such that the effect of presentation

level varied differently at each SNR, for each manufacturer. This result suggests that there may be variations across manufacturers in processing various listening conditions. There was no significant effect of technology level. There was a small effect of pure-tone average on signal modification for one manufacturer, but no effect of audiogram slope. Finally, there was a broad range of measured signal modification for a given hearing loss, for the same manufacturer and listening condition.

CONCLUSIONS: The signal modification values in this study are representative of commonly fit hearing aids in clinics today. The results of this study provide insights into how the range of signal modifications obtained in real clinical fittings compares with a previous study. Future studies will focus on the behavioral implications of signal modifications in clinically fit hearing aids.

Database: Medline

38. Objective and subjective results of the Bonebridge transcutaneous active direct-drive bone conduction hearing implant.

Author(s): Alzhrani, Farid

Source: Saudi medical journal; Aug 2019; vol. 40 (no. 8); p. 797-801

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 31423516

Available at [Saudi medical journal](#) - from Europe PubMed Central - Open Access

Available at [Saudi medical journal](#) - from EBSCO (MEDLINE Complete)

Available at [Saudi medical journal](#) - from Unpaywall

Abstract:

OBJECTIVES: To investigate the effectiveness of a bone-anchored hearing implant system (Bonebridge implant technology) as a rehabilitation treatment for individuals with conductive or mixed hearing losses.

Methods: This is a retrospective cohort study. Twelve implanted ears with conductive or mixed hearing losses were implanted with this device at a tertiary university hospital between 2012 and 2016. Audiological tests included pure tone air conduction (AC) and bone conduction (BC) measurements and unaided and aided sound-field thresholds. To evaluate the speech intelligibility in a quiet environment, the speech discrimination score (SDS) was tested using Arabic monosyllabic words, and the speech reception threshold (SRT) was measured using Arabic disyllabic words spoken in front of them. The subjective sound quality was assessed with the Hearing Implant Sound Quality Index (HISQUI).

Results: In comparison with the unaided condition, there was a significant improvement in the aided thresholds, SDS, and SRT. Comparing the aided and unaided thresholds, the average AC threshold improved with an average functional gain of 40 ± 6.3 dB. The unaided SRT improved from 72.5 dB hearing levels (HL)(median) to 27.5 dB HL (median) when aided, and patients performed 71% better, on average, based on the SDS with the help of the device. The HISQUI questionnaire revealed high satisfaction with the device sound quality.

Conclusion: Patients with conductive and mixed hearing loss substantially benefit from the Bonebridge active transcutaneous BC hearing implant.

Database: Medline

39. A Comparative Study of a Novel Adhesive Bone Conduction Device and Conventional Treatment Options for Conductive Hearing Loss.

Author(s): Skarzynski, Piotr H; Ratuszniak, Anna; Osinska, Kamila; Koziel, Magdalena; Krol, Bartlomiej; Cywka, Katarzyna B; Skarzynski, Henryk

Source: Otology & neurotology : official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology; Aug 2019; vol. 40 (no. 7); p. 858-864

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 31295197

Available at [Otology & neurotology : official publication of the American Otological Society, American Neurotology Society \[and\] European Academy of Otology and Neurotology](#) - from Unpaywall

Abstract:

OBJECTIVE: To compare the audiological performance with the novel adhesive bone conduction hearing device (ADHEAR) to that with a passive bone conduction (BC) implant and to that with a bone conduction device (BCD) on a softband.

STUDY DESIGN: Prospective study in an acute setting, single-subject repeated measure in three situations: unaided, with conventional BCDs (passive implant or on softband), and with the ADHEAR.

SETTING: Tertiary referral center.

PATIENTS: Ten subjects with conductive hearing loss were evaluated with the ADHEAR. Five of these were users of a passive BC implant (Baha Attract with Baha4); five received a BCD (Baha4) on a softband for test purposes.

INTERVENTION: Use of non-invasive adhesive bone conduction system for the treatment of conductive hearing loss.

MAIN OUTCOME MEASURES: Air and bone conduction thresholds, sound field thresholds, word recognition scores in quiet, and speech recognition thresholds in quiet and noise were assessed.

RESULTS: Users of the passive BC implant received comparable hearing benefit with the ADHEAR. The mean aided thresholds in sound field measurements and speech understanding in quiet and noise were similar, when subjects were evaluated either with the ADHEAR or the passive BC implant. The audiological outcomes for the non-implanted group were also comparable between the ADHEAR and the BCD on softband.

CONCLUSIONS: Based on our initial data, the ADHEAR seems to be a suitable alternative for patients who need a hearing solution for conductive hearing loss but for medical reasons cannot or do not want to undergo surgery for a passive BC implant.

Database: Medline

40. Clinical Practice Guideline: Sudden Hearing Loss (Update).

Author(s): Chandrasekhar, Sujana S; Tsai Do, Betty S; Schwartz, Seth R; Bontempo, Laura J; Faucett, Erynne A; Finestone, Sandra A; Hollingsworth, Deena B; Kelley, David M; Kmucha, Steven T; Moonis, Gul; Poling, Gayla L; Roberts, J Kirk; Stachler, Robert J; Zeitler, Daniel M; Corrigan, Maureen D; Nnacheta, Lorraine C; Satterfield, Lisa

Source: Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery; Aug 2019; vol. 161 (no. 1)

Publication Date: Aug 2019

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 31369359

Available at [Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery](#) - from Unpaywall

Abstract:

OBJECTIVE: Sudden hearing loss is a frightening symptom that often prompts an urgent or emergent visit to a health care provider. It is frequently but not universally accompanied by tinnitus and/or vertigo. Sudden sensorineural hearing loss affects 5 to 27 per 100,000 people annually, with about 66,000 new cases per year in the United States. This guideline update provides evidence-based recommendations for the diagnosis, management, and follow-up of patients who present with sudden hearing loss. It focuses on sudden sensorineural hearing loss in adult patients aged ≥ 18 years and primarily on those with idiopathic sudden sensorineural hearing loss. Prompt recognition and management of sudden sensorineural hearing loss may improve hearing recovery and patient quality of life. The guideline update is intended for all clinicians who diagnose or manage adult patients who present with sudden hearing loss.

PURPOSE: The purpose of this guideline update is to provide clinicians with evidence-based recommendations in evaluating patients with sudden hearing loss and sudden sensorineural hearing loss, with particular emphasis on managing idiopathic sudden sensorineural hearing loss. The guideline update group recognized that patients enter the health care system with sudden hearing loss as a nonspecific primary complaint. Therefore, the initial recommendations of this guideline update address distinguishing sensorineural hearing loss from conductive hearing loss at the time of presentation with hearing loss. They also clarify the need to identify rare, nonidiopathic sudden sensorineural hearing loss to help separate those patients from those with idiopathic sudden sensorineural hearing loss, who are the target population for the therapeutic interventions that make up the bulk of the guideline update. By focusing on opportunities for quality improvement, this guideline should improve diagnostic accuracy, facilitate prompt intervention, decrease variations in management, reduce unnecessary tests and imaging procedures, and improve hearing and rehabilitative outcomes for affected patients.

METHODS: Consistent with the American Academy of Otolaryngology-Head and Neck Surgery Foundation's "Clinical Practice Guideline Development Manual, Third Edition" (Rosenfeld et al. Otolaryngol Head Neck Surg. 2013;148[1]:S1-S55), the guideline update group was convened with representation from the disciplines of otolaryngology-head and neck surgery, otology, neurotology, family medicine, audiology, emergency medicine, neurology, radiology, advanced practice nursing, and consumer advocacy. A systematic review of the literature was performed, and the prior clinical practice guideline on sudden hearing loss was reviewed in detail. Key Action Statements (KASs) were updated with new literature, and evidence profiles were brought up to the current standard. Research needs identified in the original clinical practice guideline and data addressing them were reviewed. Current research needs were identified and delineated.

RESULTS: The guideline update group made strong recommendations for the following: (KAS 1) Clinicians should distinguish sensorineural hearing loss from conductive hearing loss when a patient first presents with sudden hearing loss. (KAS 7) Clinicians should educate patients with sudden sensorineural hearing loss about the natural history of the condition, the benefits and risks of medical interventions, and the limitations of existing evidence regarding efficacy. (KAS 13) Clinicians should counsel patients with sudden sensorineural hearing loss who have residual hearing loss

and/or tinnitus about the possible benefits of audiologic rehabilitation and other supportive measures. These strong recommendations were modified from the initial clinical practice guideline for clarity and timing of intervention. The guideline update group made strong recommendations against the following: (KAS 3) Clinicians should not order routine computed tomography of the head in the initial evaluation of a patient with presumptive sudden sensorineural hearing loss. (KAS 5) Clinicians should not obtain routine laboratory tests in patients with sudden sensorineural hearing loss. (KAS 11) Clinicians should not routinely prescribe antivirals, thrombolytics, vasodilators, or vasoactive substances to patients with sudden sensorineural hearing loss. The guideline update group made recommendations for the following: (KAS 2) Clinicians should assess patients with presumptive sudden sensorineural hearing loss through history and physical examination for bilateral sudden hearing loss, recurrent episodes of sudden hearing loss, and/or focal neurologic findings. (KAS 4) In patients with sudden hearing loss, clinicians should obtain, or refer to a clinician who can obtain, audiometry as soon as possible (within 14 days of symptom onset) to confirm the diagnosis of sudden sensorineural hearing loss. (KAS 6) Clinicians should evaluate patients with sudden sensorineural hearing loss for retrocochlear pathology by obtaining magnetic resonance imaging or auditory brainstem response. (KAS 10) Clinicians should offer, or refer to a clinician who can offer, intratympanic steroid therapy when patients have incomplete recovery from sudden sensorineural hearing loss 2 to 6 weeks after onset of symptoms. (KAS 12) Clinicians should obtain follow-up audiometric evaluation for patients with sudden sensorineural hearing loss at the conclusion of treatment and within 6 months of completion of treatment. These recommendations were clarified in terms of timing of intervention and audiometry and method of retrocochlear workup. The guideline update group offered the following KASs as options: (KAS 8) Clinicians may offer corticosteroids as initial therapy to patients with sudden sensorineural hearing loss within 2 weeks of symptom onset. (KAS 9a) Clinicians may offer, or refer to a clinician who can offer, hyperbaric oxygen therapy combined with steroid therapy within 2 weeks of onset of sudden sensorineural hearing loss. (KAS 9b) Clinicians may offer, or refer to a clinician who can offer, hyperbaric oxygen therapy combined with steroid therapy as salvage therapy within 1 month of onset of sudden sensorineural hearing loss.

DIFFERENCES FROM PRIOR GUIDELINE: Incorporation of new evidence profiles to include quality improvement opportunities, confidence in the evidence, and differences of opinion Included 10 clinical practice guidelines, 29 new systematic reviews, and 36 new randomized controlled trials Highlights the urgency of evaluation and initiation of treatment, if treatment is offered, by emphasizing the time from symptom occurrence Clarification of terminology by changing potentially unclear statements; use of the term sudden sensorineural hearing loss to mean idiopathic sudden sensorineural hearing loss to emphasize that >90% of sudden sensorineural hearing loss is idiopathic sudden sensorineural hearing loss and to avoid confusion in nomenclature for the reader Changes to the KASs from the original guideline: KAS 1-When a patient first presents with sudden hearing loss, conductive hearing loss should be distinguished from sensorineural. KAS 2-The utility of history and physical examination when assessing for modifying factors is emphasized. KAS 3-The word "routine" is added to clarify that this statement addresses nontargeted head computerized tomography scan that is often ordered in the emergency room setting for patients presenting with sudden hearing loss. It does not refer to targeted scans, such as temporal bone computerized tomography scan, to assess for temporal bone pathology. KAS 4-The importance of audiometric confirmation of hearing status as soon as possible and within 14 days of symptom onset is emphasized. KAS 5-New studies were added to confirm the lack of benefit of nontargeted laboratory testing in sudden sensorineural hearing loss. KAS 6-Audiometric follow-up is excluded as a reasonable workup for retrocochlear

Database: Medline

41. Clinical Practice Guideline: Sudden Hearing Loss (Update) Executive Summary.

Author(s): Chandrasekhar, Sujana S; Tsai Do, Betty S; Schwartz, Seth R; Bontempo, Laura J; Faucett, Erynne A; Finestone, Sandra A; Hollingsworth, Deena B; Kelley, David M; Kmucha, Steven T; Moonis, Gul; Poling, Gayla L; Roberts, J Kirk; Stachler, Robert J; Zeitler, Daniel M; Corrigan, Maureen D; Nnacheta, Lorraine C; Satterfield, Lisa; Monjur, Taskin M

Source: Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery; Aug 2019; vol. 161 (no. 2); p. 195-210

Publication Date: Aug 2019

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 31369349

Available at [Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery](#) - from Unpaywall

Abstract:

OBJECTIVE: Sudden hearing loss is a frightening symptom that often prompts an urgent or emergent visit to a health care provider. It is frequently, but not universally, accompanied by tinnitus and/or vertigo. Sudden sensorineural hearing loss affects 5 to 27 per 100,000 people annually, with about 66,000 new cases per year in the United States. This guideline update provides evidence-based recommendations for the diagnosis, management, and follow-up of patients who present with sudden hearing loss. It focuses on sudden sensorineural hearing loss in adult patients aged 18 and over and primarily on those with idiopathic sudden sensorineural hearing loss. Prompt recognition and management of sudden sensorineural hearing loss may improve hearing recovery and patient quality of life. The guideline update is intended for all clinicians who diagnose or manage adult patients who present with sudden hearing loss.

PURPOSE: The purpose of this guideline update is to provide clinicians with evidence-based recommendations in evaluating patients with sudden hearing loss and sudden sensorineural hearing loss, with particular emphasis on managing idiopathic sudden sensorineural hearing loss. The guideline update group recognized that patients enter the health care system with sudden hearing loss as a nonspecific primary complaint. Therefore, the initial recommendations of this guideline update address distinguishing sensorineural hearing loss from conductive hearing loss at the time of presentation with hearing loss. They also clarify the need to identify rare, nonidiopathic sudden sensorineural hearing loss to help separate those patients from those with idiopathic sudden sensorineural hearing loss, who are the target population for the therapeutic interventions that make up the bulk of the guideline update. By focusing on opportunities for quality improvement, this guideline should improve diagnostic accuracy, facilitate prompt intervention, decrease variations in management, reduce unnecessary tests and imaging procedures, and improve hearing and rehabilitative outcomes for affected patients.

METHODS: Consistent with the American Academy of Otolaryngology-Head and Neck Surgery Foundation's Clinical Practice Guideline Development Manual, Third Edition, the guideline update group was convened with representation from the disciplines of otolaryngology-head and neck surgery, otology, neurotology, family medicine, audiology, emergency medicine, neurology, radiology, advanced practice nursing, and consumer advocacy. A systematic review of the literature was performed, and the prior clinical practice guideline on sudden hearing loss was reviewed in detail. Key action statements (KASs) were updated with new literature, and evidence profiles were brought up to the current standard. Research needs identified in the original clinical practice guideline and data addressing them were reviewed. Current research needs were identified and delineated.

RESULTS: The guideline update group made strong recommendations for the following: clinicians should distinguish sensorineural hearing loss from conductive hearing loss when a patient first presents with sudden hearing loss (KAS 1); clinicians should educate patients with sudden sensorineural hearing loss about the natural history of the condition, the benefits and risks of medical interventions, and the limitations of existing evidence regarding efficacy (KAS 7); and clinicians should counsel patients with sudden sensorineural hearing loss who have residual hearing loss and/or tinnitus about the possible benefits of audiological rehabilitation and other supportive measures (KAS 13). These strong recommendations were modified from the initial clinical practice guideline for clarity and timing of intervention. The guideline update group made strong recommendation against the following: clinicians should not order routine computed tomography of the head in the initial evaluation of a patient with presumptive sudden sensorineural hearing loss (KAS 3); clinicians should not obtain routine laboratory tests in patients with sudden sensorineural hearing loss (KAS 5); and clinicians should not routinely prescribe antivirals, thrombolytics, vasodilators, or vasoactive substances to patients with sudden sensorineural hearing loss (KAS 11). The guideline update group made recommendations for the following: clinicians should assess patients with presumptive sudden sensorineural hearing loss through history and physical examination for bilateral sudden hearing loss, recurrent episodes of sudden hearing loss, and/or focal neurologic findings (KAS 2); in patients with sudden hearing loss, clinicians should obtain, or refer to a clinician who can obtain, audiometry as soon as possible (within 14 days of symptom onset) to confirm the diagnosis of sudden sensorineural hearing loss (KAS 4); clinicians should evaluate patients with sudden sensorineural hearing loss for retrocochlear pathology by obtaining a magnetic resonance imaging or auditory brainstem response (KAS 6); clinicians should offer, or refer to a clinician who can offer, intratympanic steroid therapy when patients have incomplete recovery from sudden sensorineural hearing loss 2 to 6 weeks after onset of symptoms (KAS 10); and clinicians should obtain follow-up audiometric evaluation for patients with sudden sensorineural hearing loss at the conclusion of treatment and within 6 months of completion of treatment (KAS 12). These recommendations were clarified in terms of timing of intervention and audiometry, as well as method of retrocochlear workup. The guideline update group offered the following KASs as options: clinicians may offer corticosteroids as initial therapy to patients with sudden sensorineural hearing loss within 2 weeks of symptom onset (KAS 8); clinicians may offer, or refer to a clinician who can offer, hyperbaric oxygen therapy combined with steroid therapy within 2 weeks of onset of sudden sensorineural hearing loss (KAS 9a); and clinicians may offer, or refer to a clinician who can offer, hyperbaric oxygen therapy combined with steroid therapy as salvage therapy within 1 month of onset of sudden sensorineural hearing loss (KAS 9b).

DIFFERENCES FROM PRIOR GUIDELINE: Incorporation of new evidence profiles to include quality improvement opportunities, confidence in the evidence, and differences of opinion Included 10 clinical practice guidelines, 29 new systematic reviews, and 36 new randomized controlled trials Highlights the urgency of evaluation and initiation of treatment, if treatment is offered, by emphasizing the time from symptom occurrence Clarification of terminology by changing potentially unclear statements; use of the term sudden sensorineural hearing loss to mean idiopathic sudden sensorineural hearing loss to emphasize that over 90% of sudden sensorineural hearing loss is idiopathic sudden sensorineural hearing loss and to avoid confusion in nomenclature for the reader Changes to the key action statements (KASs) from the original guideline: KAS 1: When a patient first presents with sudden hearing loss, conductive hearing loss should be distinguished from sensorineural. KAS 2: The utility of history and physical examination when assessing for modifying factors is emphasized. KAS 3: The word routine is added to clarify that this statement addresses a nontargeted head computed tomography scan that is often ordered in the emergency room setting for patients presenting with sudden hearing loss. It does not refer to targeted scans such as a temporal bone computed tomography scan to assess for temporal bone pathology. KAS 4: The

importance of audiometric confirmation of hearing status as soon as possible and within 14 days of symptom onset is emphasized. KAS 5: New studies were added to confirm the lack of benefit of nontargeted laboratory testing in sudden sensorineural hearing loss. KAS 6: Audiometric follow-up is excluded as a reasonable workup for retrocochlear pathology.

Database: Medline

42. Newborn hearing screening at the Neonatal Intensive Care Unit and Auditory Brainstem Maturation in preterm infants.

Author(s): Ciorba, Andrea; Hatzopoulos, Stavros; Corazzi, Virginia; Cogliandolo, Cristina; Aimoni, Claudia; Bianchini, Chiara; Stomeo, Francesco; Pelucchi, Stefano

Source: International journal of pediatric otorhinolaryngology; Aug 2019; vol. 123 ; p. 110-115

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 31096068

Abstract:

OBJECTIVES: Aim of this study is to report and discuss the results of 4 years of Newborn hearing screening (NHS) program at the Neonatal Intensive Care Unit (NICU), particularly evaluating the clinical ABR results.

METHODS: Retrospective study. NHS data from NICU newborns, admitted for ≥ 5 days, in the period from January 1st, 2013 and December 31st, 2016, were retrieved and analyzed. NHS results were classified as following: (i) "pass" when both ears for both the a-TEOAE (automated Transient-Evoked Otoacoustic Emissions) and the a-ABR (automated Auditory Brainstem Response) protocol resulted as "pass"; (ii) "fail" when one ear, at either one of the two performed tests resulted as "fail"; (iii) "missing" when the newborns were not tested with both protocols. All "fail" and "missing" newborns were retested (with both tests): in the case of a second "fail" result, a clinical ABR was performed within a period of 3 months.

RESULTS: A total of 1191 newborns were screened. From those, 1044/1191 resulted as "pass", 108/1191 as "fail", and 39/1191 as "missing". During the re-testing of these 147 newborns, 43 were assigned as "missing", 63 were assigned as "pass" (showing bilaterally a wave V identifiable within 30 dB nHL) and 25 failed the retest and/or did not present an identifiable wave V within 30 dB nHL. Among the 147 retested infants, we identified a group of 16 subjects who resulted as NHS "refer" and who, during the audiological follow-up, showed either: (i) a unilateral or bilateral wave V identifiable over 30 dB nHL, at the first clinical ABR assessment; or (ii) a bilateral wave V identifiable within 30 dB nHL, in a following clinical ABR test during the first year of life. These 16 subjects were defined to have an 'Auditory Brainstem Maturation' issue.

CONCLUSIONS: A possible "maturation" of the ABR response (and therefore of the auditory pathway) has been hypothesised in 16 out of 1191 infants (1.3%). A delay of the auditory pathway maturation in preterm babies compared to term newborns has already been suggested in the literature. A possible delay of the NHS retest could be considered, in selected cases, with significant savings in economic resources and parental anxiety.

Database: Medline

43. Predictors of hearing loss self-management in older adults.

Author(s): Convery, Elizabeth; Hickson, Louise; Meyer, Carly; Keidser, Gitte

Source: Disability and rehabilitation; Aug 2019; vol. 41 (no. 17); p. 2026-2035

Publication Date: Aug 2019

Publication Type(s): Journal Article

PubMedID: 29587551

Abstract:

Purpose: To determine the factor structure of a clinical tool for the assessment of hearing loss self-management, and to identify predictors of the total score on the assessment and the extracted factor scores.

Materials and methods: Hearing loss self-management assessments were conducted with 62 older adults. The factor structure of the assessment was determined by exploratory factor analysis. Multiple linear regression analyses identified significant contributors to the total score and to each of the extracted factors.

Results: Three factors were identified, each representing a distinct domain of hearing loss self-management: Actions, Psychosocial Behaviours, and Knowledge. The most common significant predictor was hearing health care experience, which predicted self-management overall and in the Actions and Knowledge domains. Health literacy predicted hearing loss self-management overall and in the Psychosocial Behaviours domain. Actions were additionally predicted by hearing aid self-efficacy and gender, Psychosocial Behaviours by health locus of control, and Knowledge by age.

Conclusions: The results of the factor analysis suggested that hearing loss self-management is a multidimensional construct. Each domain of hearing loss self-management was influenced by different contextual factors. Subsequent interventions to improve hearing loss self-management should therefore be domain-specific and tailored to relevant contextual factors.

Implications for rehabilitation: Hearing loss is a chronic health condition that requires on-going self-management of its effects on everyday life. Hearing loss self-management is multidimensional and encompasses the domains of Actions, Psychosocial Behaviours, and Knowledge. Different contextual factors influence each hearing loss self-management domain, including previous experience receiving hearing health care services, health literacy, hearing aid self-efficacy, health locus of control, age, and gender. Audiological rehabilitation programs should thus ensure that interventions to improve hearing loss self-management are domain- and context-specific.

Database: Medline

44. Analysis of mutations in the FOXI1 and KCNJ10 genes in infants with a single-allele SLC26A4 mutation.

Author(s): Zhao, Xuelei; Cheng, Xiaohua; Huang, Lihui; Wang, Xianlei; Wen, Cheng; Wang, Xueyao; Zhao, Liping

Source: Bioscience trends; Jul 2019; vol. 13 (no. 3); p. 261-266

Publication Date: Jul 2019

Publication Type(s): Journal Article

PubMedID: 31243244

Available at [Bioscience trends](#) - from EBSCO (MEDLINE Complete)

Available at [Bioscience trends](#) - from Unpaywall

Abstract:

The current study investigated how the FOXI1 and KCNJ10 genes were affected in infants with a single-allele mutation in the SLC26A4 gene, and it determined the audiological phenotypes of infants with double heterozygous mutations (DHMs) in the three genes. Subjects were 562 infants with a single-allele SLC26A4 mutation detected during neonatal deafness genetic screening; the infants were seen as outpatients by Otology at Beijing Tongren Hospital. All subjects underwent SLC26A4 sequencing. Twenty infants had a second-allele variant while the remaining 542 had an SLC26A4 single-allele mutation. Infants also underwent FOXI1 and KCNJ10 sequencing. All patients with double heterozygous mutations in the aforementioned genes underwent an audiological evaluation and a limited imaging study; variants and audiological phenotypes were analyzed. Of 562 patients, 20 had SLC26A4 bi-allelic mutations; 8 carried single mutations in both SLC26A4 and KCNJ10. No pathogenic mutations in the FOXI1 gene were found. Four missense mutations in KCNJ10 were detected, including c.812G>A, c.800A>G, c.53G>A, and c.1042C>T. Eight individuals with a DHMs all passed universal newborn hearing screening, and all were found to have normal hearing. These data suggest that individuals with an SLC26A4 single-allele mutation, combined with FOXI1 or KCNJ10 gene mutations, do not suffer hearing loss during infancy, though this finding is worthy of further follow-up and in-depth discussion.

Database: Medline

45. Diagnostic accuracy of non-specialist versus specialist health workers in diagnosing hearing loss and ear disease in Malawi.

Author(s): Bright, Tess; Mulwafu, Wakisa; Phiri, Mwanaisha; Ensink, Robbert J H; Smith, Andrew; Yip, Jennifer; Mactaggart, Islay; Polack, Sarah

Source: Tropical medicine & international health : TM & IH; Jul 2019; vol. 24 (no. 7); p. 817-828

Publication Date: Jul 2019

Publication Type(s): Journal Article

PubMedID: 31001894

Available at [Tropical medicine & international health : TM & IH](#) - from Wiley Online Library

Available at [Tropical medicine & international health : TM & IH](#) - from Unpaywall

Abstract:

OBJECTIVE: To determine whether a non-specialist health worker can accurately undertake audiometry and otoscopy, the essential clinical examinations in a survey of hearing loss, instead of a highly skilled specialist (i.e. ENT or audiologist).

METHODS: A clinic-based diagnostic accuracy study was conducted in Malawi. Consecutively sampled participants ≥ 18 years had their hearing tested using a validated tablet-based audiometer (hearTest) by an audiologist (gold standard), an audiology officer, a nurse and a community health worker (CHW). Otoscopy for diagnosis of ear pathologies was conducted by an ENT specialist (gold standard), an ENT clinical officer, a CHW, an ENT nurse and a general nurse. Sensitivity, specificity and kappa (κ) were calculated. 80% sensitivity, 70% specificity and kappa of 0.6 were considered adequate.

RESULTS: Six hundred and seventeen participants were included. High sensitivity (>90%) and specificity (>85%) in detecting bilateral hearing loss was obtained by all non-specialists. For otoscopy, sensitivity and specificity were >80% for all non-specialists in diagnosing any pathology except for the ENT nurse. Agreement in diagnoses for the ENT clinical officer was good ($\kappa = 0.7$) in both ears. For other assessors, moderate agreement was found ($\kappa = 0.5$).

CONCLUSION: A non-specialist can be trained to accurately assess hearing using mobile-based audiometry. However, accurate diagnosis of ear conditions requires at least an ENT clinical officer (or equivalent). Conducting surveys of hearing loss with non-specialists could lower costs and increase data collection, particularly in low- and middle-income countries, where ENT specialists are scarce.

Database: Medline

46. Symptoms, Audiometric and Vestibular Laboratory Findings, and Imaging in a Concurrent Superior Canal Dehiscence Syndrome and Vestibular Schwannoma: A Case Report.

Author(s): Garrison, Doug; Barth, Laura; Kaylie, David; Riska, Kristal

Source: Journal of the American Academy of Audiology; Jul 2019

Publication Date: Jul 2019

Publication Type(s): Case Reports

PubMedID: 31267955

Abstract:

BACKGROUND: Dizziness is a common complaint that can arise from multiple systems in the body. Objective vestibular tests are used to understand the underlying function of the vestibular system and whether or not it may be contributing to the dizziness symptoms experienced by the patient. Even when comprehensive case history is consistent with an otologic etiology, audiometric and vestibular tests are ordered to objectively characterize inner ear function to help further refine the differential diagnoses and aid in guiding treatment options. Few reports in the literature describe audiometric and vestibular results in patients with multiple concurrent otologic etiologies.

PURPOSE: This case provides a description of audiometric, vestibular, and imaging results in a case of concurrent bilateral superior canal dehiscence, right-sided vestibular schwannoma, and right-sided posterior canal benign paroxysmal positional vertigo. The patient's symptoms and laboratory findings are described in detail and, where appropriate, highlight challenges that may arise in interpretation.

RESEARCH DESIGN: A case report.

RESULTS: The patient presented for evaluation of dizziness, asymmetric hearing loss, and autophony. Comprehensive audiometric evaluation shows asymmetric sensorineural hearing loss and an air-bone gap at 250 Hz in the right ear. Vestibular evaluation shows right caloric asymmetry along with abnormal cervical vestibular- and ocular vestibular-evoked myogenic potentials, with the left ear showing results consistent with the third-window pathology.

CONCLUSIONS: Comprehensive assessment of symptoms and critical thinking while performing testing are necessary when examining multiple concurrent otologic etiologies in a patient. Knowledge of anticipated test results and physiology may help the audiologist to synthesize results and make appropriate clinical recommendations as part of the multidisciplinary team.

Database: Medline

47. A new adhesive bone conduction hearing system effectively treats conductive hearing loss in children.

Author(s): Neumann, Katrin; Thomas, Jan Peter; Voelter, Christiane; Dazert, Stefan

Source: International journal of pediatric otorhinolaryngology; Jul 2019; vol. 122 ; p. 117-125

Publication Date: Jul 2019

Publication Type(s): Comparative Study Journal Article

PubMedID: 31004837

Abstract:

OBJECTIVES: Bone conduction hearing devices integrated in softbands (BCDSs) are frequently not well accepted by children with conductive hearing loss due to pressure on the head, sweating, or cosmetic stigma. A non-surgical hearing system (ADHEAR) uses a new bone conduction concept consisting of an audio processor connected to an adhesive adapter fixed behind the ear. This study is the first to evaluate the audiological and clinical outcome of this novel system, comparing it with conventional BCDSs in a short- and mid-term follow-up in children under 10 years of age.

METHODS: The ADHEAR was compared to a BCDS in 10 children with conductive hearing loss (age: 0.7-9.7 years). Aided and unaided pure tone/behavioral observational audiometry and, if applicable, speech audiometry in quiet and noise were performed initially with both devices and after 8 weeks with the ADHEAR alone. The subjective hearing gain and usage of the new hearing system, as well as patients' and parents' satisfaction were assessed using questionnaires.

RESULTS: The functional gain with the ADHEAR averaged over 0.5, 1, 2, and 4 kHz exceeded that of the conventional BCDS ($35.6 \text{ dB} \pm 15.1$ vs. $29.9 \text{ dB} \pm 14.6$, $p = .001$, $n = 9$ ears). Speech perception in quiet and noise ($n = 8$) improved in the aided situation similarly for both hearing devices. The parents of 8 of 10 children evaluated the ADHEAR system as being useful. Minor wearing problems occurred occasionally. Eight children continued using the ADHEAR after the study, one received an active middle ear implant and one continued to use a BCDS.

CONCLUSION: The ADHEAR system is a promising solution for children with conductive hearing loss or chronically draining ears.

Database: Medline

48. Is one of these two techniques: CO2 laser versus microdrill assisted stapedotomy results in better post-operative hearing outcome?

Author(s): Altamami, Nasser M; Huyghues des Etages, Gunther; Fieux, Maxime; Coudert, Aurélie; Hermann, Ruben; Zaouche, Sandra; Truy, Eric; Tringali, Stéphane

Source: European archives of oto-rhino-laryngology : official journal of the European Federation of Oto-Rhino-Laryngological Societies (EUFOS) : affiliated with the German Society for Oto-Rhino-Laryngology - Head and Neck Surgery; Jul 2019; vol. 276 (no. 7); p. 1907-1913

Publication Date: Jul 2019

Publication Type(s): Journal Article

PubMedID: 30949824

Abstract:

OBJECTIVE: To evaluate hearing results and outcome using two different surgical techniques (microdrill and CO2 Laser fenestration) in the treatment of conductive hearing loss in patients with otosclerosis.

STUDY DESIGN: Retrospective audiometric database and chart review from January 2005 until December 2016.

SETTING: Two tertiary referral hospitals

MATERIALS AND METHODS: Seven-hundred forty-two primary stapedotomy have been reviewed retrospectively in two referral hospitals. This multicenter study compared 424 patients operated for otosclerosis with microdrill technique and 318 patients operated with CO2 laser assisted stapedotomy. Preoperative and postoperative audiological assessment (following the recommendations of the Committee on Hearing and Equilibrium) were compared between the two groups at least 6 weeks and at 1 year or more. Measure of overclosure and hearing damage have been analyzed and compared between the groups.

RESULTS: There were no statistically significant differences in demographic data between the two groups and no statistically significant difference in hearing outcome between the two groups. CO2 Laser with 0.4 piston showed slightly better results to close the air-bone gap postoperatively to ≤ 10 dB (84% as compared with the 80% of patients operated with microdrill technique). Patients operated with microdrill technique and 0.6 piston have less damage to hearing at 4 kHz.

CONCLUSION: The use of CO2 laser seems associated with better postoperative air-bone gap closure. However, it carries more risk of hearing damage at 4 kHz at it is the case for the microdrill at 1 kHz. In general, postoperative hearing outcome using these two surgical techniques is comparable.

Database: Medline

49. Assessing and managing concurrent hearing, vision and cognitive impairments in older people: an international perspective from healthcare professionals.

Author(s): Leroi, Iracema; Himmelsbach, Ines; Wolski, Lucas; Littlejohn, Jenna; Jury, Francine; Parker, Angela; Charalambous, Anna Pavlina; Dawes, Piers; Constantinidou, Fofi; Thodi, Chrissy; (SENSE-Cog Expert Reference Group)

Source: Age and ageing; Jul 2019; vol. 48 (no. 4); p. 580-587

Publication Date: Jul 2019

Publication Type(s): Journal Article

PubMedID: 30608511

Available at [Age and ageing](#) - from Unpaywall

Abstract:

BACKGROUND: there is a significant gap in the understanding, assessment and management of people with dementia and concurrent hearing and vision impairments.

OBJECTIVE: from the perspective of professionals in dementia, hearing and vision care, we aimed to: (1) explore the perceptions of gaps in assessment and service provision in ageing-related hearing, vision and cognitive impairment; (2) consider potential solutions regarding this overlap and (3) ascertain the attitudes, awareness and practice, with a view to implementing change.

METHODS: our two-part investigation with hearing, vision, and dementia care professionals involved: (1) an in-depth, interdisciplinary, international Expert Reference Group (ERG; n = 17) and (2) a wide-scale knowledge, attitudes and practice survey (n = 653). The ERG involved consensus discussions around prototypic clinical vignettes drawn from a memory centre, an audiology clinic, and an optometry clinic, analysed using an applied content approach.

RESULTS: the ERG revealed several gaps in assessment and service provision, including a lack of validated assessment tools for concurrent impairments, poor interdisciplinary communication and care pathways, and a lack of evidence-based interventions. Consensus centred on the need for flexible, individualised, patient-centred solutions, using an interdisciplinary approach. The survey

data validated these findings, highlighting the need for clear guidelines for assessing and managing concurrent impairments.

CONCLUSIONS: this is the first international study exploring professionals' views of the assessment and care of individuals with age-related hearing, vision and hearing impairment. The findings will inform the adaptation of assessments, the development of supportive interventions, and the new provision of services.

Database: Medline

50. Audiological evaluation of infants using mother's voice.

Author(s): Saito, Osamu; Nishimura, Tadashi; Morimoto, Chihiro; Otsuka, Shintaro; Uratani, Yuka; Matsunaga, Yasuko; Hosoi, Hiroshi; Kitahara, Tadashi

Source: International journal of pediatric otorhinolaryngology; Jun 2019; vol. 121 ; p. 81-87

Publication Date: Jun 2019

Publication Type(s): Journal Article

PubMedID: 30877980

Abstract:

OBJECTIVES: Hearing loss is a serious problem in infants and children because it may interfere with the development of typical speech, verbal language, and auditory and communication skills. By measuring hearing ability (thresholds) as early as possible, even as early as during infancy, effective treatment can be administered. These treatments may significantly reduce the handicap associated with hearing loss. However, at times during behavioral auditory tests, observers cannot determine whether or not an accurate threshold was obtained. To support the use of infant audiometry for accurate diagnosis, audiologic behavioral responses may be obtained by selecting stimuli that interest infants, e.g., their mothers' voices.

METHODS: We evaluated 30 infants who were presented to our hospital for behavioral auditory assessment in 2016. The infants' ages ranged from 4 months to 3 years and 6 months. The mean age was 1 year and 10 months \pm 10 months (\pm standard deviation). The infants' hearing thresholds for their mothers' voices and warble tones at 250-4000 Hz were measured. Auditory brainstem response (ABR) had already been evaluated in 24 infants. Relationships between mother's voice and warble tone or ABR thresholds as well as responses to the initial stimuli and stimuli at the threshold were investigated. These responses were classified into four grades (no response, uncertain response, possible positive response, and positive response), and the response to mother's voice and warble tone were subsequently compared.

RESULTS: Mother's voice thresholds significantly correlated with all warble tone thresholds. In the relationship between the mother's voice threshold and average hearing levels of 500, 1000, and 2000 Hz, two infants were outliers. In these infants, the average hearing levels were relatively higher than the mother's voice thresholds. Judging from their ABR thresholds, the mother's voice thresholds were valid and the average hearing levels were worse than their original assessed hearing ability. The responses to mothers' voices were more distinct than those to warble tones, both for initial stimuli presentation and the determined threshold.

CONCLUSIONS: Audiologic behavioral responses to mothers' voices were clearer than those for warble tones. Evaluations that use the mother's voice threshold are useful for estimating hearing levels in infants.

Database: Medline

51. Considering Age-Related Hearing Loss in Neuropsychological Practice: Findings from a Feasibility Study.

Author(s): Dupuis, Kate; Yusupov, Iris; Vandermorris, Susan; Murphy, Kelly L; Rewilak, Dmytro; Stokes, Kathryn A; Reed, Marilyn

Source: Canadian journal on aging = La revue canadienne du vieillissement; Jun 2019; vol. 38 (no. 2); p. 245-252

Publication Date: Jun 2019

Publication Type(s): Journal Article

PubMedID: 30522534

Available at [Canadian journal on aging = La revue canadienne du vieillissement](#) - from Unpaywall

Abstract:

Hearing loss is highly prevalent in older adults and can pose challenges for neuropsychologists, as assessment and intervention procedures often involve orally presented information which must be accurately heard. This project examined the hearing status of 20 clients (mean age = 71 years) in a hospital-based outpatient neuropsychology clinic, and explored whether information about hearing loss informed neuropsychologists' clinical practice. A research assistant administered a brief hearing screening test to each participant. Four treating neuropsychologists were asked to comment on their client's hearing status before and after being shown their client's hearing screen test results. Screening revealed that the majority of participants had at least mild hearing loss, and that the neuropsychologists were relatively accurate (60%) at estimating their clients' hearing status. Neuropsychologists used information about a client's hearing status to make recommendations that clients pursue audiologic services, and to educate clients and family members about hearing loss and communication.

Database: Medline

52. Perceived Gaps in Genetics Training Among Audiologists and Speech-Language Pathologists: Lessons From a National Survey.

Author(s): Peter, Beate; Dougherty, Michael J; Reed, E Kate; Edelman, Emily; Hanson, Karen

Source: American journal of speech-language pathology; May 2019; vol. 28 (no. 2); p. 408-423

Publication Date: May 2019

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 31091132

Available at [American journal of speech-language pathology](#) - from ProQuest (Health Research Premium) - NHS Version

Abstract:

Purpose: The aim of this study was to assess knowledge, self-rated confidence, and perceived relevance of genetics in the clinical practice of audiologists and speech-language pathologists (SLPs) toward a better understanding of the need for genetics education, given that genetics plays a growing role in the diagnosis of hearing impairment and communication disorders.

Method: A survey consisting of 8 demographic items and 16 content questions was returned by 233 audiologists and 283 SLPs. Knowledge of applied genetics was queried with clinical scenarios in a

multiple-choice format. Self-assessment of clinical confidence and perceived relevance of genetics in one's field was queried with questions and statements rated on 5-point Likert scales. The benefit of additional training in genetics was rated with a yes/no question, and if answered with yes, suggested topics were entered.

Results: A large significant gap between confidence in one's own genetics skills and the perceived relevance of genetics was evident, regardless of professional group. Over one third of the audiologists and over two thirds of the SLPs indicated low or somewhat low confidence in their own ability to implement principles of genetics, whereas over two thirds of both groups agreed that genetics is relevant for their field. Regardless of group, confidence scores were significantly and positively associated with relevance scores. Over 80% of respondents in both groups indicated that they would benefit from additional training in genetics. Most commonly suggested topics included genetic causes, general information about genetics, and making referrals.

Conclusion: Both audiologists and SLPs felt that genetics is relevant for their fields and that additional training in genetics would be beneficial. Future studies should evaluate the effect of genetics training on patient outcomes and the need for incorporating genetics more extensively into audiology and speech-language pathology training programs.

Database: Medline

53. Mesenchymal stem cells for sensorineural hearing loss: protocol for a systematic review of preclinical studies.

Author(s): Chorath, Kevin T; Willis, Matthew J; Morton-Gonzaba, Nicolas; Humann, Walter J; Moreira, Alvaro

Source: Systematic reviews; May 2019; vol. 8 (no. 1); p. 126

Publication Date: May 2019

Publication Type(s): Research Support, Non-u.s. Gov't Research Support, N.i.h., Extramural Journal Article

PubMedID: 31128597

Available at [Systematic reviews](#) - from BioMed Central

Available at [Systematic reviews](#) - from Europe PubMed Central - Open Access

Available at [Systematic reviews](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Systematic reviews](#) - from Unpaywall

Abstract:

BACKGROUND: Sensorineural hearing loss (SNHL) is the most common form of hearing impairment and is characterized by a loss of receptor hair cells and/or spiral ganglion neurons. Regenerative stem cell therapy could potentially restore normal hearing and slow the progression of hearing loss in patients. Preclinical animal studies have demonstrated that mesenchymal stem cells (MSCs) could be a promising new therapy for this condition. These findings have prompted investigators to begin human clinical trials to assess the safety and efficacy of MSCs for the treatment of SNHL. The objective of the proposed systematic review is to examine the efficacy of MSCs as a therapy for SNHL in animal models.

METHODS: We will include preclinical animal studies of SNHL in which MSCs are administered, and outcomes are compared against MSC-naïve controls. The primary outcome will include audiologic tests that are routinely used in experimental studies of hearing loss, such as auditory brainstem response (ABR) and distortion product otoacoustic emissions testing (DPOAE). Secondary outcomes

will include histology, microscopy, gene protein expression, and behavioral responses of animals. Electronic searches of MEDLINE via PubMed, Scopus, ScienceDirect, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) will be performed. Search results will be screened independently and in duplicate. Data from eligible studies will be extracted, pooled, and analyzed using random effects models. Risk of bias and publication bias will be assessed using the Systematic Review Center for Laboratory Animal Experimentation (SYRCLE) risk of bias tool and Funnel Plots/Egger's regression tests, respectively.

DISCUSSION: This systematic review will provide a summary of the efficacy of MSC therapy in animal models of SNHL, utilizing functional hearing assessment as a primary outcome. Findings from this review are important because they can elucidate research gaps that should be addressed in future preclinical studies and in turn can be translated into clinical studies.

SYSTEMATIC REVIEW REGISTRATION: CAMARADES (<http://www.dcn.ed.ac.uk/camarades/>).

Database: Medline

NICE Updates:

Round up of guidance and advice (I've included those due to be published before the next Update in July but not thereafter)

For the full range of Guidance please see: <https://www.nice.org.uk/guidance/conditions-and-diseases/ear--nose-and-throat-conditions>

Balloon dilation for chronic eustachian tube dysfunction

NICE Interventional procedures guidance [IPG665]

Published date: December 2019

<https://www.nice.org.uk/guidance/ipg665>

Implant insertion for prominent ears

NICE Interventional procedures guidance [IPG660]

Published date: September 2019

<https://www.nice.org.uk/guidance/ipg660>

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