COCHLEAR IMPLANTS Tinnitus

After 3 months of hearing aid use, there were significant improvements in tinnitus, which were sustained at 6 months of use. The impact of tDCS and hearing aid use on tinnitus was assessed using questionnaires (primary measure: Tinnitus Functional Index) and minimum masking level measurement.

There was a significant reduction in the overall Tinnitus Functional Index score with time, F(2, 37) = 11.9, P = .0001, for both the groups. Similar patterns were seen for secondary measures. TDCS appeared to have a positive effect on minimum masking levels but not questionnaire responses. After 3 months of hearing aid use, there were significant improvements in tinnitus, which were sustained at 6 months of use. The hearing aid effects appeared independent of tDCS. Further investigations of tDCS or other neuromodulators priming the auditory system for sound therapy based tinnitus treatments are warranted.


Objective: To verify if a mismatch negativity (MMN) paradigm based on speech syllables can differentiate between good and poorer cochlear implant (CI) users on a speech recognition task. Twenty adults with a CI and 11 normal hearing adults participated in the study. Based on a speech recognition test, ten CI users were classified as good performers and ten as poor performers. We measured the MMN with /da/ as the standard stimulus and /ba/ and /ga/ as the deviants. Separate analyses were conducted on the amplitude and latency of the MMN. A MMN was evoked by both deviant stimuli in all normal hearing participants and in well performing CI users, with similar amplitudes for both groups. However, the amplitude of the MMN was significantly reduced for the poorer CI users compared to the normal hearing group and the good CI users. The latency was longer for both groups of cochlear implant users. A bivariate correlation showed a significant positive correlation between the speech recognition score and the amplitude of the MMN. The MMN can distinguish between CI users who...
have good versus poor speech recognition as assessed with conventional tasks. Our findings suggest that the MMN can be used to assess speech recognition proficiency in CI users who cannot be tested with regular speech recognition tasks, like infants and other non-verbal populations.


- Data indicate that 1 in 6 adolescents has high-frequency hearing loss, which is typically noise related and preventable. Parental participation improves the success of adolescent behavioural interventions, yet little is known about parental perspectives regarding adolescent noise-induced hearing loss. OBJECTIVE: To perform a survey to determine parental knowledge of adolescent hearing loss and willingness to promote hearing conservation to discern information that is critical to design adolescent hearing loss prevention programs. DESIGN, SETTING, AND PARTICIPANTS: A cross-sectional, Internet-based survey of a nationally representative online sample of parents of 13- to 17-year-olds. INTERVENTIONS: A survey conducted with the C.S. Mott Children's Hospital National Poll on Children's Health, a recurring online survey. MAIN OUTCOMES AND MEASURES: Parental knowledge of adolescent hearing loss and willingness to promote hearing conservation.

RESULTS: Of 716 eligible respondents, 96.3% of parents reported that their adolescent was slightly or not at all at risk of hearing problems from excessive noise, and 69.0% had not spoken with their adolescent about noise exposure, mainly because of the perceived low risk. Nonetheless, to protect their adolescents' hearing, more than 65.0% of parents are either willing or very willing to consider limiting time listening to music, limiting access to excessively noisy situations, or insisting on the use of hearing protection (earplugs or earmuffs). Higher parental education increased the odds of promoting hearing-protective strategies. Parents were less likely to insist on hearing protection for older adolescents. Parents who understood that both volume and time of exposure affect hearing damage were more likely to have discussed hearing loss with their adolescent (odds ratio [OR], 1.98; 95% CI, 1.29-3.03). The odds of discussing hearing loss were also increased for those who were willing or very willing to limit time listening to music (OR, 1.88; 95% CI, 1.19-2.28) and to insist on hearing protection (OR, 1.92; 95% CI, 1.15-3.18) compared with parents who were very unwilling, unwilling, or neutral. CONCLUSIONS AND RELEVANCE: Despite the rising prevalence of acquired adolescent hearing loss, few parents believe their adolescent is at risk. Those with higher education are more willing to promote hearing conservation, especially with younger adolescents. To create effective hearing conservation programs, parents need better education on this subject as well as effective and acceptable strategies to prevent adolescent noise exposure.


- This study examined self-perceived occlusion and physical comfort ratings by hearing aid users with receiver-in-the-ear (RITE) hearing aids using different sizes of domes. Twenty-one older adults with hearing impairment were fitted with bilateral RITE hearing aids and tested with three dome conditions (open, plus, and power domes) and one control condition (participants' own aids). Participants ranked self-perceived occlusion across dome size conditions as well as across recorded and own voice conditions. Participants also ranked their level of physical comfort across dome sizes. Self-perceived occlusion increased as dome size increased, with open domes and participants' own aids resulting in the least amount of occlusion. While this effect was demonstrated in both recorded and own voice conditions, the effect of dome size was greatest in the own voice test conditions. Perceived physical comfort decreased as dome size increased. Self-perceived occlusion was greatest for power domes, although average level of occlusion did not exceed moderate occlusion on the rating scale. Perceived physical comfort was highest with the open dome and participants' own aids. Plus and power domes were respectively ranked as more uncomfortable than open domes.


- Objective: To estimate bone-conduction stimulus level corrections by testing the auditory brainstorm response (ABR) of normally-hearing newborns. The stimuli used were low frequency tone pips calibrated to reference levels derived from ISO 389 values. Design: Tone pips were presented via supra-aural earphones and a B71 Radioear bone vibrator at 0.5 or 1 kHz. ABR thresholds from both transducers were compared at each frequency. Study sample: twenty-seven newborn hearing screening referrals (33 ears) who passed an ABR discharge criterion at 4 kHz. Results: Median air- and bone-conduction ABR threshold differences were 30 dB at 0.5 kHz and 20 dB at 1 kHz. Conclusion: The 0.5 kHz data from this study and previous studies were compared. Previous studies suggested lower figures for the bone-conduction stimulus level correction. Likely sources of this discrepancy are discussed. The average 0.5 kHz bone-conduction correction value for infants < 3 months old is about 28 dB. The correction for 1 kHz is 20 dB. We recommend that calibration reference levels used in this study be adopted and that appropriate corrections be applied to bone conduction ABR thresholds in infants < 3 months old before calculation of any air-bone gap and subsequent clinical interpretation.