

identifying hearing loss. Evidence-based research into current child health programs are made.

Speech Perception in Implanted Children: Influence of Preoperative Residual Hearing on Outcomes

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Since the first child was implanted with the Nucleus 22-channel cochlear prosthesis in Melbourne in 1985, several thousand children world-wide have now benefited from this technology. More effective paediatric assessment and management procedures have now been developed, allowing cochlear implants to be offered to children under the age of 2 years. Improvements in speech processing strategy have also been implemented in the Nucleus implant system, resulting in increased mean speech perception benefits for implanted adults. Although a range of performance on formal measures of hearing, speech or language has been reported for children using implants, results from the first decade of implant experience consistently show that significant benefits are available to children receiving their implant at an early age. Reported speech perception results for implanted children show that a considerable proportion (60%) of paediatric patients in the Melbourne and Sydney clinics are able to understand some open-set speech using electrical stimulation alone. These results, and the upward trend of mean speech perception benefits shown for postlinguistically deafened adults have raised questions as to whether severely, or severely-to-profoundly deaf children currently using hearing aids would in fact benefit more from a cochlear implant. To investigate the potential influence of the degree of preoperative residual hearing on postoperative speech perception, results for all implanted children in the Melbourne and Sydney cochlear implant programs were analysed. Results showed that as a group, children with higher levels of preoperative residual hearing were consistently more likely to achieve open-set speech perception benefits. Potential factors in this finding could be higher levels of ganglion cell survival or greater patterning of the auditory pathways using conventional hearing aids prior to implantation. Conversely, children with the least preoperative residual hearing were less predictable, with some children achieving open-set perception, and others showing more limited closed-set benefits to perception. For these children, it is likely that preoperative residual hearing is of less significance than other factors in outcomes.



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