Panel Discussion 1 - Cochlear Implant in Children

FACTORS AFFECTING SPEECH PERCEPTION IN CHILDREN COCHLEAR- 22-CHANNEL COCHLEAR PROSTHESIS


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Since the implantation of the first children with the Nucleus 22-channel cochlear prosthesis in Melbourne in 1985, there have been rapid expansion world-wide in the number of children using this implant system. Longer-term experience with implanted children has led to improvements in paediatric assessment and management. Speech processing strategies have also been improved, resulting in a series of increases in speech perception benefits. Children have been able to adapt to new speech perception strategies. Open-set word and sentence perception results for a group of thirteen children evaluated over a two year period showed improved speech perception scores with use of the Speak speech processing strategy, as compared with scores using Multipeak. The increases were noted particularly in speech perception in poor signal-to-noise conditions. Analysis has shown that consonant perception was significantly increased, due to an improved place perception. Given current speech perception scores for implanted children, a question arises as to whether severely-to-profoundly deaf children currently using hearing aids would in fact benefit more from a cochlear implant. Preliminary investigation of results for children in the Melbourne and Sydney cochlear implant programs has shown that children with higher levels of preoperative residual hearing as a group score significantly on open-set word and sentence perception tests using the implant alone. In children with lower levels of residual hearing, results were variable across the group. Improved speech perception can also be achieved through more focused habilitation. An initial study evaluating perception of open-set words and sentences in background noise has shown that training in 'controlled noise' can also significantly improve speech perception results.
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