

Hearing levels and speech perception prior to cochlear implantation – are they predictive of outcomes for adult implant users?

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As the speech perception results obtained for adults using multichannel cochlear implants have improved, people with a wider range of hearing losses are now considering implantation. In the mid-1980s, most adults undergoing cochlear implantation had little or no residual hearing. This made selection and counseling relatively straightforward as any level of hearing obtained through use of the cochlear implant could be considered as a benefit in such cases. Most patients evaluated for implantation today have some degree of useful residual hearing, and may be reliant on this hearing to varying degrees in their everyday life. In essence, they have something to lose if their postoperative performance is poor. In counseling these patients, it would be most helpful to have reliable predictors of postoperative performance. A number of factors such as duration of profound hearing loss, congenital profound hearing loss, and certain aetiologies (eg, head injury) have shown significant links with outcomes in previous studies. Such studies, however, have failed to identify a significant relationship between preoperative hearing levels and speech perception outcomes. In order to address this issue in more depth, an unselected group of 60 adult cochlear implant patients were assessed for speech perception performance at 2 weeks, 4 weeks, 3 months and 6 months post-implant. All patients used the Nucleus 22 or Nucleus 24 prosthesis and the SPEAK signal processing scheme. Data were also collected for these subjects for preoperative audiometric levels for each ear, aided audiometric thresholds for each ear, and speech perception results using hearing aids. Data related to the hearing history for the implanted and non-implanted ear were also collected including the duration of profound deafness, where applicable, and details of hearing aid use. Analysis of results indicated a significant relationship between postoperative implant performance and preoperative speech perception results, and confirmed previous findings that audiometric data has limited predictive value. These results will be discussed in more detail.



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