Competing Information Process of Auditory and Visual Stimuli in CI Subjects: a PET Activation Study

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We examined cochlear-implant (CI) users using positron emission tomography (PET), and focused on activation of the auditory cortical areas by providing the auditory (A; speech sounds) and/or visual (V; sign language) stimuli. The CI users were pre-lingually deaf native signer and post-lingually deaf non-native signers. While they attend to A and/or V, the regional cerebral blood flow (rCBF) was measured by counting radioactivity after administration of H215O. The results were i) the auditory association areas (superior temporal gyr) was activated by V in the pre-lingually deaf subject, while A activated only the primary auditory area (Hersch gyrus) of the contralateral side; ii) when the post-lingually deaf subjects were classified into two groups by the duration of CI use (one year vs three years), the mode of activation in the auditory association area was significantly different between these two groups. In other words, competing information process of A and V stimuli was found in the short-term CI users, but it disappeared in the long-term CI users. Our results suggest that simultaneous use of sign language during rehabilitation of CI might affect the comprehension of speech sounds in the auditory cortex.
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Choosing the Right Strategy for Children

Elizabeth Tyszkiewicz

Optimising Hearing Aid Fittings of Children who also use Cochlear Implants

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An increasing number of hearing impaired children who use a cochlear implant in one ear have useable residual hearing in the opposite ear for acoustic amplification. This study investigates how hearing aids can be adjusted to work best with cochlear implants in children. All participants used a CI22 or CI24 cochlear implant programmed with SPEAK strategy, and have been fitted with multi-memory programmable hearing aids. A procedure for optimising hearing aid fittings will be presented. The speech perceptual performance, localisation performance, and functional performance in every day life situations of children using cochlear implant alone, hearing aid alone, and cochlear implant with hearing aid will be reported. Guidelines for
Author/s: Cowan, Robert C.; Clark, Graeme M.; Dowell, Richard C.; Dettman, Shani J; Barker, Elizabeth; Latus, Katie; Hollow, Rod; Blamey, Peter J.

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