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Cochlear implantation

For most children with impaired hearing, an acoustic hearing aid is the means through which they hear speech. For the few who cannot achieve speech perception in this way cochlear implantation may be necessary. Throughout the world some 10 000 or more children have had a cochlear implant, but there is considerable variation in results as regards speech perception. Researchers in Nottingham (Gerard M O'Donoghue and colleagues. *Lancet* 2000;**356**:466–8) have attempted to define the origins of this variation.

Their study included 40 children who were unable to hear speech with an acoustic hearing aid. In all of them the hearing disability dated from birth or within three years' of birth (mean age at onset, 12 months). Twenty-three were deaf from meningitis and 13 were congenitally deaf. The age at implantation ranged from 30 months to 7 years (mean 52 months). Before implantation, 14 communicated orally and 26 used a total communication approach including signing.

The children were followed up for five years after implantation and assessed using connecting discourse tracking (CDT) in which text is read out to the child and the number of words per minute repeated correctly is recorded. Performance improved gradually over the five years, the mean CDT score being 27 words/min after three years, 35 after four years, and 45 after five years. Two factors were strongly related to better CDT performance; the children were younger at implantation and had oral communication before implantation. The cause of the deafness, the number of electrodes implanted, and social class did not affect speech perception achieved.

Speech perception is not the only worthwhile outcome. Lesser achievements such as relief from auditory isolation, facilitation of lip reading, and hearing of warning sounds may be worthwhile even in the absence of speech perception. Universal neonatal hearing screening is important so that congenitally deaf children can be detected early.

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