

Audiological Outcomes of Cochlear Implantation in Ramathibodi Hospital

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Objective: To evaluate the outcomes of the patients at 1-year post cochlear implantation emphasized on audiological outcomes.
Materials and Method: Retrospective study of hearing response follow in three, six, and 12 months of 143 ears undergoing cochlear implantation between 1995 and 2009. Only 77 ears were found to have the completed data for analysis. Deaf patients were categorized into five groups in which they were operated by four different cochlear implant devices. The two parameters used to evaluate the outcomes included the aided response (AR), assessing the hearing threshold of cochlear implant user, and the Categories of Auditory Performance (CAP) which assess their auditory receptive abilities.

Results: Demographic data showed male: female ratio was 4:3. Age ranged from 2 to 68 years. Although the aided hearing threshold among five groups of deafness showed improvement without statistical difference, the auditory ability showed significance higher score in post-lingual than pre-lingual deaf patients ($p < 0.05$). Patients with aural communication prior to surgery also showed higher auditory ability than those without aural communication ($p < 0.05$). The outcomes of CAP were analyzed among patients operated with different cochlear implant devices. Users with Pulsar CI 100 Opus 2, HiRes 90K Auria, and HiRes 90 K Harmony showed better auditory ability than with Combi 40+ Tempo+. Both mean scores of AR and CAP were higher at six and 12 months than at three months. At 12 months the scores were higher than at six months ($p < 0.05$).

Conclusions: Cochlear implant surgery resulted in good hearing, however the improvement of speech understanding need more time to practice. Patients using cochlear implant at 12 months showed more improvement of hearing and performance than those using for less than 12 months.

Keywords: Cochlear implant, Audiological outcome, Aided response, Categories of auditory performance

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Cochlear implantation is safe and effective for treatment of profound deaf in adults and children. It increases the likelihood of children to remain in mainstream education and seems to improve academic performance^(1,2). In the previous report⁽³⁾, we described the results of the cochlear implantation emphasized on the clinical and surgical outcomes. The present study will report the audiological outcomes at 1-year post cochlear implantation between groups of deafness

and between different cochlear implant devices in Ramathibodi Hospital.

Material and Method

This was a retrospective review of hearing response of 143 ears operated with cochlear implantation in Ramathibodi Hospital between 1995 and 2009. Since the hearing outcomes should be assessed in continuum of three, six, and 12 months, only 77 ears were found to have the completed data but large enough for statistical analysis. The present study was approved by the committee on human rights related to research involving human subjects at Faculty of Medicine Ramathibodi Hospital, Mahidol University.

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