

ABSTRACT

Title: “Electrophysiology and Auditory Performance of Children with Profound Sensorineural Hearing loss after Cochlear Implant Surgery”

Introduction: Cochlear implantation is a powerful tool to gain hearing ability and to achieve age appropriate communication skills in children with severe to profound sensorineural hearing loss.

Objective: To compare the intraoperative and postoperative telemetry of the children with Cochlear implants and to assess the auditory performance of children with sensorineural hearing loss after surgery.

Methodology: A prospective study was done involving 63 children operated for cochlear implant at Upgraded Institute of Otorhinolaryngology, Madras Medical College, Chennai. Intraoperative and postoperative electrode impedance as well as telemetry measurements were done. CAP score was used to assess the auditory performance preoperatively and at follow up.

Results: Majority (41.3%) of the children was in 13 – 24 months age group and 57% were males. Around 45% of children reached CAP score of 3 by 6 months, 38% achieved 4 and 14.3% reached score of 5 by 12 months with a significant increase in follow up. Surgery before 3 years of age had a significant relationship with performance. The electrode impedance and telemetry measurements were found to be predictors of device function.

Conclusion: Our results show that, early implantation leads to better auditory performance compared to implantation at later ages. Electrode impedance and telemetry measures provide valuable information regarding the output and response of the auditory system.

Key words: Cochlear implant, children, early implantation, CAP score, telemetry, impedance.