HEARING PRESERVATION USING THE COCHLEAR CI422 AND CI522 NUCLEUS IMPLANT

R.U. Verma1, L Henderson2, C Melling2, D Mawman2, M O’Driscoll2, S.K. Lloyd2, S.R. Freeman2, I.A. Bruce1,2,3

1Paediatric ENT Department, Royal Manchester Children’s Hospital, Manchester University NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UK
2Richard Ramsden Centre for Auditory Implants, Manchester University NHS Foundation Trust
3Division of Infection, Immunity and Respiratory Medicine, Faculty of Biology, Medicine and Health, University of Manchester

Introduction
The benefits of preserving residual low frequency hearing during cochlear implantation (CI) are well established. There is agreement that the physical characteristics and design of the electrode array are a central factor influencing successful hearing preservation (HP). To date, lateral wall electrodes have demonstrated the best success rates and there remains significant variation in published results. This study evaluates the efficacy of the CI422/522 electrode in CI with attempted HP.

Methods
Single centre observational study

Inclusion criteria:
• CI422 or CI522;
• pre-op measurable residual hearing 80dBHL or better at 250 and 500Hz

Exclusion criteria:
• No post-op PTA/incomplete data

Results: Demographics

14 ears in 13 patients

8x CI422, 6x CI522

Age range 3 years – 78 years (mean 33 years)

1st post-op audio (n=7)- all within 1 month

Latest post-op audio (n=9)- range 3-65 months (mean 24.7 months)

Results: Summary

Mean pre-op thresholds (n=14) at 125, 250, 500 & 1000 Hz were 45, 51, 68 & 80dBHL, respectively.

Initial post-op thresholds (n=7) were 58, 68, 85 & 102dBHL and the latest post-op thresholds (n=9) were 49, 68, 82 & 95dBHL, respectively.

Conclusion

• Initial experience of the CI422/522 electrode array suggests that success rates for hearing preservation are at least comparable to the most effective electrode arrays currently available.

• There is a clear need for electrode arrays that give consistent hearing preservation results.

• This requirement is emphasized as current candidacy criteria continue to be challenged internationally, with consideration being given to patients with increasing levels of potentially useable residual hearing.