

Cochlear implantation in children born prematurely: Who does well?

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Introduction

- Advancement in neonatal medicine has led to greater survival of those born prematurely.
- Several factors associated with prematurity are known risk factors for hearing loss.
- Our objective was to analyse outcome of cochlear implantation (CI) in this heterogeneous group.

Methods

- Retrospective study of the records of children implanted in the last five years at the Richard Ramsden Centre for Auditory Implants, Manchester, UK.
- Prematurity was defined as birth before 34 weeks gestation.
- Primary outcomes were speech perception and language development and were scored using Modified Categories of Auditory Performance (M-CAP) and the Manchester Spoken Language Development Scale (MSLDS) respectively.
- Compliance was considered as a secondary outcome.
- Severity of cognitive impairment was assessed according to the grading system developed by Lise Henderson (Auditory Verbal Therapist) at our centre.

No Patients	28
Mean age at CI	39 months
Bilateral CI	13
Cognitive disorder	16
Physical disorder	7
Mean time from implant to outcome assessment	44 months (range 12-59 months)

Results

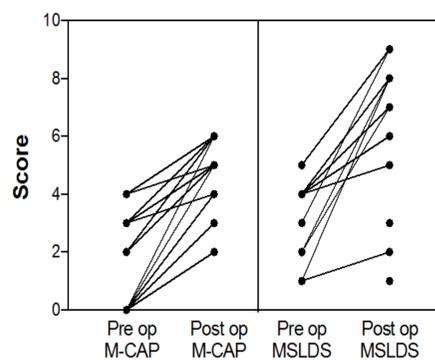
Gestation and outcome

- The Spearman's rank correlation co-efficient was 0.07 for gestation and M-CAP score, and -0.05 for gestation and MSLDS score.
- Therefore, gestation was not correlated with outcome scores in our study.

Change in M-CAP and MSLDS scores following CI

- All children's scores improved following implantation.
- The mean pre- and post-implantation scores are shown in Table 2.
- The change in scores following implantation are shown Figure 1

Mean pre- op M-CAP score	1 (range 0-4)
Mean post-op M-Cap Score	5 (range 2-6)
Mean pre-op MSLDS score	3 (range 1-5)
Mean post-op MSLDS score	6 (range 1-9)

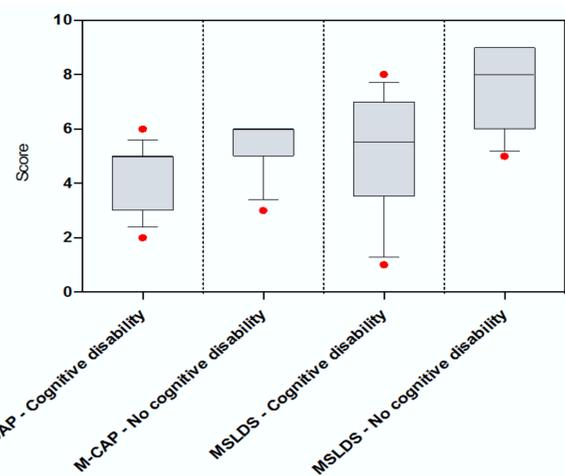


Change in M-CAP and MSLDS scores recorded before implantation and at most recent follow up.

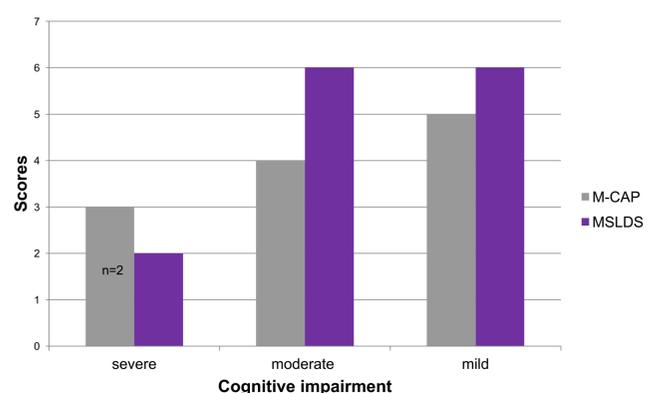
Results

Impact of cognitive impairment

- Children with a cognitive disability had a mean post-implantation M-CAP score 2 points lower than those without a cognitive disability.
- This group also had a mean MSLDS score 3 points lower than the group without a cognitive disability.



- Children with a severe impairment had lower outcome scores than those with a moderate or mild impairment. (small sample size)



Compliance

- 27/28 children used their implants.
- 19/28 children had good compliance.
- Of the children with sub-optimal compliance, 7/9 had an additional disability.
- 2/3 children included in the study who had a diagnosis of ASD had less than optimal compliance

Conclusion

- CI was a successful intervention in the majority of cases
- Cognitive impairment and subsequent ASD were negative prognostic indicators
- Possibility of greater variance in outcome should be discussed with parents pre-operatively.