**REVIEW OF OUTCOMES OF CHILDREN WITH DESIGNATED ADDITIONAL NEEDS RECEIVING COCHLEAR IMPLANTATION**

**Aim**

Retrospective review of the outcomes of children with additional needs receiving cochlear implantation (CI) at the Yorkshire Auditory Implant Service

**Methods**

270 children who received cochlear implants at YAIS between 2007 and 2017 were evaluated. From prospectively collected data 49 of these children were classified as having additional needs (AN+ve). Meaningful Auditory Information Scale (MAIS), Meaningful Use of Speech Scale (MUSS), Listening Progress score (LIP), Categories of Auditory Performance (CAP) and Speech Intelligibility Rating (SIR) were analyzed pre- and 12 months post-implantation to assess outcomes. Results were compared with 221 children without additional needs (AN-ve). Also, the age at implantation was divided into <2 and >2 years

**Results**

CAP: AN-ve the mean score was 1.67 pre and 4.31 post; AN+ve 1.06 pre and 3.20 post. Independent T-test compared the rate of improvement [AN+ve 2.14 mean;1.08SD; AN-ve 2.67 mean;1.41SD] *p=0.019* showing both groups benefit

MAIS: AN-ve the mean score was 13.3 Pre and 34.5 post; AN+ve 9.22 pre and 25.92 post. T-test compared the rate of improvement [AN+ve 16.69 mean;9.30SD; AN-ve 21.16 mean;10.48 SD] *p=0.006*. Both groups showed improvement.

MUSS: AN-ve the mean score was 13.4 Pre and 23.18 post; AN+ve 9.43 pre and 14.49 post. T-test compared the rate of improvement [AN+ve 5.06 mean;5.63 SD; AN-ve 9.82 mean; 7.29 SD] *p=0.000*. Both groups showed improvement

LIP: AN-ve the mean score was 12.27 Pre and 35.74 post; AN+ve 7.83 pre and 25.24 post. T-test compared the rate of improvement [AN+ve 17.41 mean;9.61 SD; AN-ve 23.48 mean;12.41 SD;] *p=0.001*. Both groups showed improvement.

SIR: AN-ve the mean score was 1.67 Pre and 2.28 post; AN+ve 1.34 pre and 1.51 post. T-test compared the rate of improvement [AN+ve 0.16 mean; 0.37 SD; AN-ve 0.61 mean; 0.61 SD] *p=0.000*. Both groups showed improvement.

In all groups, the rate of change was significantly lower in the AN+ve children

Age: the rate of change in MAIS, LIP and CAP scores in children implanted <2 compared to those implanted >2 years was statistically significant

**Conclusions**

All children were able to gain access to sound following CI, there were improvements seen in all outcome measures assessed. The greatest improvements were seen in MAIS CAP and LIP with enhancement in environmental and family interactions. A longer review may show improvement with oral communications but in a number of children, this may be an unrealistic achievement. The rate of improvement was statistically significantly lower in children with additional needs compared to those without additional needs.

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