**Cochlear Implantation in Children with Auditory Neuropathy Spectrum Disorder: Long-Term Outcomes**

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**Abstract:**

**Background:**

Best practices concerning the audiological management of the child diagnosed with auditory neuropathy spectrum disorder (ANSD) have not been definitively defined nor fully understood. One reason is that previous studies have demonstrated conflicting findings regarding the outcomes of cochlear implantation for children with ANSD. Thus, the question remains whether children with ANSD are able to achieve similar outcomes following cochlear implantation as those children with sensorineural hearing loss (SNHL).

**Purpose:**

To assess speech perception outcomes for children with cochlear implants who have a diagnosis of ANSD as well as their age-matched peers who have sensorineural hearing loss.

**Research Design:**

Retrospective study

**Study Sample:**

Thirty-five subject pairs (n = 70) ranging in age at implant activation from to 10 to 121 mo (mean 39.2 mo) were included in this retrospective study. Subjects were matched on variables including age at initial implant activation and months of implant use at postoperative test point.

**Data Collection and Analysis:**

Speech recognition scores for monosyllabic and multisyllabic stimuli were compared across the subject groups. For those not developmentally and/or linguistically ready for completion of open-set speech recognition testing with recorded stimuli, GASP (Glendonald Auditory Screening Procedure) word recognition and/or questionnaire data using either the LittlEARS or Meaningful Auditory Integration Scale were compared across the groups. Statistical analysis using a repeated-measures analysis of variance (ANOVA) evaluated the effects of etiology (ANSD or SNHL) on postoperative outcomes.

**Results:**

The results of this study demonstrate that children with ANSD can clearly benefit from cochlear implantation and that their long-term outcomes are similar to matched peers with SNHL on measures of speech recognition. There were no significant differences across the ANSD and SNHL groups on any of the tested measures.

**Conclusion:**

Cochlear implantation is a viable treatment option for children with a diagnosis of ANSD who are not making auditory progress with hearing aids that have been fit using the Desired Sensation Level method (DSL v5.0). Expected outcomes of cochlear implantation for children with ANSD, excluding children with cochlear nerve deficiency, are no different than for children with non-ANSD SNHL. These results are important for counseling families on the expected outcomes and realistic expectations following cochlear implantation for children with ANSD who demonstrate no evidence of cochlear nerve deficiency.

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**References:** [30 references](http://aaa.publisher.ingentaconnect.com/content/aaa/jaaa/2012/00000023/00000001/art00002/references) open in new window

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