## Is Early Hearing Development Delayed In Children With Auditory Neuropathy Spectrum Disorder?

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**Objectives:** Early hearing development was monitored in children with Auditory Neuropathy Spectrum Disorder (ANSD) using the LittlEARs Auditory Questionnaire (LEAQ) and compared to the same measures in other groups of children with hearing loss.

**Background:** The hypothesis was that the ANSD group would show evidence of slow auditory development given known difficulties in temporal auditory processing due to asynchronous stimulation of the auditory nerve and brainstem.

**Methods:** LEAQ results were collected from 18 children with ANSD (7 with cochlear implants, 11 with hearing aids) and 86 children with other etiologies of sensorineural hearing losses (SNHL; 43 with cochlear implants, 43 with hearing aids). Between one and seven LEAQs (M=2, SD=1.26) were completed for each participant over an average of 6.62 months (SD=8.48). At first LEAQ administration, the children with ANSD were, on average, 23 months old (SD=15) and the children with SNHL were 19 months old (SD=15). The longitudinal LEAQ outcomes for children with ANSD were compared to those of children with SNHL to identify any relationship the scores might have with age and hearing experience using a linear mixed effects model. A logistic regression was also used to investigate differences in the pattern of responses given on individual LEAQ questions.

**Results:** Children with ANSD progressed at a similar pace as those with SNHL ( $\chi^2(1)$ =.46, p=.50). The ANSD cohort did show faster rates of auditory development than children with hearing aids but slower rates than children with cochlear implants ( $\chi^2(2)$ =17.25, p<.001). Developmental delay in addition to hearing loss, however, negatively influenced LEAQ outcomes ( $\beta_3$ =-.72±.16, t=-4.56).

**Conclusions:** The findings suggest that children with ANSD should be monitored with tools like the LEAQ to determine effectiveness of treatment in early auditory development. The influence of device use and residual hearing should be considered in LEAQ interpretation to determine the best treatment options for this group.