Auditory Neuropathy/ Dys-synchrony in NICU High Risk Babies : Results from a South Indian Hospital

Sir,

Auditory neuropathy (AN) is not a new diagnosis in the field of audiology and several studies have focused on this recently. Auditory neuropathy is a term used to describe a range of disorders found in patients (from infants to adults), characterized by abnormal neural function at the level of the auditory nerve.[1] In patients with auditory neuropathy, clinical audiologic testing yields normal OAEs in the presence of absent /abnormal ABR.

This study was performed to evaluate the high risk neonates who were admitted in NICU at Kasturba Medical College Hospital. All these babies underwent a two stage screening programme. Those babies, who failed in the initial ABR screening, were evaluated with otoacoustic emission. ABR responses were recorded using click stimuli at two intensity levels, 40 dBnHL & 70 dBnHL at 30.1 Hz presentation rate with a filter setting of 50 Hz to 3000Hz. DPOAE were recorded with two simultaneous pure-tone signals with frequency ratio 1.22 at 70 dB SPL presented at 1000, 2000, and 4000 Hz.

Out of seventy-five babies included in the study, ten babies had absence of ABR at both the intensity levels, in either one or both the, ears with DPOAE present bilaterally. It was suspected that these neonates might have AN/AD. Out of the ten babies who had possible AN/AD, seven (70%) of them had bilateral deficit, whereas three (30%) of them had unilateral deficit. Out of three babies, two of them had right ear deficit, whereas one of them had left ear deficit. Highest number of children had a history of hyperbilirubinemia (40%) plus other factors which included mechanical ventilation 30% of children had a history of anoxia. Other factors, gestation age of the baby and low birth weight had instances of AN/AD in 20% and 10%, respectively.

Although a normal ABR with a normal latency-intensity function usually accompanies normal peripheral hearing, it is important to remember that an absent or grossly abnormal ABR is not always associated with deafness.[2] Some newborns with normal OAEs and absent ABRs may show improvement if neuromaturation is the underlying problem *i.e.*, as the neural system matures, the ABR may improve.[3] Thus, it may be possible that few of these babies may have an auditory maturational delay. So, there is a need for longitudinal follow up evaluation of babies having AN/AD profile to explore the auditory maturational delay.

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