Deafness in Paediatric Age Group

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Abstract

Incidence and predominant causes of deafness in 20 neonates, 100 infants and 1340 school going population in the northern region of the Indian subcontinent, was investigated by the E. N. T. Department. of Dayanand Medical college and Hospital, Ludhiana, Punjab.

The recorded incidence of deafness in school going children was 12.16% comprising conductive loss (98%) and S. N. loss 2%. Out of many cases more notable were chronic rhinitis, tonsillitis, adenoiditis etc.

Every child who does not respond normally to sound stimuli soon after birth or in the first six months, must undergo complete audiological assessment. since, even a completely deaf child passes through a period of crying and babbling, a serious hearing deficit begins to be suspected when speech does not develop. Most children with hearing disorders present to the otologist between 1st and 3rd years of life.6

Persistence of partial deafness distorts the speech and language acquisition during latechildhood. Therefore
recognition of deafness is vital during early childhood. The auditory responses of children are a complex set of reactions depending on applied testing stimuli and neurological physiological and arousal state.

The school boy or girl, perfects his or her speech only by means of careful and constant listening to sounds which are repeated very often into his ears. Deafness of almost any type and of any degree distorts the sound of speech. Because of the complex nature of speech, deafness will produce varied effects on its reception and reproduction. It may vary from distortion or omission of certain speech sound to complete absence, if the hearing loss is profound.

Cardle response audiometry (CRA), evoked response audiometry (ERA), pure tone audiometry (PTA) and impedance audiometry (IA) are the workhorse of paediatric audiological evaluation now-a-days. It is feasible to assess hearing at all ages especially in babies who are at risk of having a hearing loss (due to jaundice, birth anoxia, preterm birth, positive family history) and school going children with treatable chronically discharging ears or otitis media with effusion.

A study was conducted by the Department of E.N.T., D.M.C. and H. Ludhiana from 1980 to 1995 to debit the rural and urban population in the northern region of India.

The study involved a detailed clinical examination with emphasis on tympanic membrane, ear canal and nasopharynx. 20 neonates, 100 infants and 1340 school going children formed the three primary division of our study, who were assessed by:

- Cradle response audiogram (Cribogram) (CRA) AMPlaid reactometer
- Free field audiometry (FFA) MKIV 700
- Evoked response audiometry (ERA) Nicolet CA- 1000
- Impedence audiometry (IA) AZ-7
- Pure tone audiometry (PTA) MKIV - 700

**Observation**

1. Incidence of hearing loss was 12.16% in the school going children.
2. Conductive loss accounted for 98.16% and neurosensory loss 1.84%.
3. Amongst the conductive loss group reduced middle ear pressure was recorded in 85.73%, active. SOM in 12%, dry Ch. SOM in 1% and acute SOM in 2%.
4. In another study involving 50 patients with secretory O.M. the rehabilitation with ventilation tube was carried out (mainly between 5-10 yrs.) In first group entailing only V.T. insertion with pre-op.A/C Threshold and A-B. gap of 45.87 dB and 24.71 dB respectively which improved to 22.48 dB and 10.87 dB. In second group involving VT insertion with related surgery it improved from 49.44 and 39.50 dB to 22.21 and 12.57 dB respectively.
5. Chronic rhinitis, tonsillitis, adenoiditis were observed in 93.75% children with a conductive loss as compared to 51.96% in children with normal hearing. This study incidence of unilateral/bilateral involvement in children having hearing loss was almost equal both for conductive as well as perceptive.
6. Economically weaker section of the society have a higher incidence of hearing loss, 16.25% conductive loss and 9.88% perceptive hearing loss.
7. The higher incidence in the children from economically weaker section is due to
   - malnutrition
   - poor hygienic conditions (ear pricking; oil instillation, entry of water during bath in ponds)
   - lack of proper medical care
8. In hearing evaluation of neonates in cribogram it has been found that 1.5 KHz narrow band noise (N. B. N.) is the most useful test frequency as it has:
   a) highest response incidence
      i) 19.44% in new born
      ii) 17.22% in 7 wks of age
   b) highest incidence of babies responding positively.