



## Short Communication

## Congenital Hearing Loss among Pre-term infants in North India

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## ABSTRACT

Earlier investigations have reported congenital hearing loss in pre-term infants. Present study investigated hearing tests among pre-term infants to know the percentage of pre-term infants with hearing impairment. Two stage hearing assessment of pre-term infants showed congenital profound hearing loss in 16% of the infants. Present study showed the importance of TEOAE and ABR as efficient tool for hearing screening of high risk infants.

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## 1. Introduction

Previous literature has reported newborn hearing screening as an effective way in early identification of hearing impairment in neonates and it should be carried out in neonatal care.<sup>1,2</sup> Previous researches has also showed the incident of congenital hearing loss is between 1 to 3 per 1000 healthy infants and 2 to 4 per 100 in high risk infant.<sup>3</sup> Earlier literature has reported that the preterm birth is clearly linked with high risk of congenital hearing loss. Therefore, special attention must be given to pre-term infants to postnatal control of auditory function.<sup>3</sup>

## 1.1. Need for the study

Earlier literature has reported hearing impairment in high risk infants including preterm delivery, low birth weight, craniofacial malformations, low Apgar score, mechanical ventilation, ototoxic medications, bacterial meningitis, ICU for more than 7 days.<sup>3–8</sup> A study done by Nikolic et al., in 2016 concluded that the prematurity being the earlier the risk of hearing impairment increases.<sup>9</sup> They also reported that the high incidence and association of risk factors

lead to almost twenty times the incidence of congenital hearing loss in the preterm babies.<sup>9</sup> Kumar, Shah, Patel and Vishwakarma in 2015 reported that hearing loss was highly associated with Neonatal Intensive Care Unit (NICU) admission (72.7%) followed by Low Birth Weight (LBW) and hypoxia (54.5%) each.<sup>10</sup> There is a dearth of literature regarding prevalence of hearing impairment in pre-term infants in Indian population. So, there is a need to study prevalence of hearing impairment in pre-term infants in Indian population.

## 1.2. Aim and Objective of the Study

The aim and objective of the study was to find out prevalence of hearing impairment in preterm infant in North India.

## 2. Materials and Methods

The current study includes 352 pre-term infants referred from pediatric tertiary hospitals. Data were collected from 5 different hospitals of northern India having full fledged ENT and audiology facilities. All the audiological evaluations were carried out by qualified and experienced audiologist with a minimum post graduate degree in audiology. Written

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consent were taken from the parents of all pre-term infants participated in the present study. A two stage hearing test was carried out. The first stage includes TEOAE (Transient Evoked Oto Acoustic Emissions) and the infant failed in TEOAE suppose to undergo second stage test i.e. ABR (Auditory Brainstem Response).

### 3. Results

In our study, from a total of 352 pre term infant, 55.96% (197 pre-term infants) passed in TEOAEs and 44.04 % (155pre-term infants) failed in TEOAEs test. Out of 155 pre-term infants who failed in first stage of screening, 57 failed (36.77%) in ABR test (second stage screening). The finding of present study showed that out of 352 pre term infant, 57(16.19%) pre term infants was having congenital hearing loss. The finding of present study is in consonance with previous literature.<sup>10</sup> The present study also supports the notion of two stage hearing test procedure for newborn hearing screening program as the finding of present study clearly revealed that 44.03% pre-term infants failed in first stage of screening (TEOAEs), whereas hearing loss reported in 16.19% only.<sup>11</sup>

### 4. Conclusion

Finding of present study revealed that congenital hearing loss is more common in pre-term infants. Current study also showed that 16% preterm infant were having congenital hearing loss. TEOAE s and ABR screening of pre term infants is a clinically efficient approach for early identification hearing loss.

### 5. Source of Funding

None.

### 6. Conflict of Interest

None.

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