



Hearing impairment in preschool children in vindhya region

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Abstract

Hearing impairment in preschool children is an important developmental disability, we conducted a study on 250 preschool age group children to find out type and cause of hearing impairment amongst them. The commonest type was conductive hearing loss (CHL). Impacted ear wax (18%), otitis media (16%), neonatal jaundice (12.4%), birth asphyxia being the common cause. Type A tympanometry was seen in majority of the patient. Hearing impairment amongst preschool children makes a huge disease burden and a better execution of nation and state level awareness program is needed.

Keywords: execution, tympanometry, children, developmental

Introduction

Hearing impairment in preschool children is very common. It is estimated to be the second most common disability worldwide. WHO estimates global prevalence of 360 million people, out of which 32 million are children [1]. Majority of these children live in low-income countries with poor socio economic conditions. India has an estimated prevalence of 6.8% of hearing impaired individuals. As per NSSO survey, currently there are 291 persons per 1 lakh population who are suffering from severe to profound hearing impairment (NSSO, 2001) [2]. Of these a large percentage is children between 0-14 years of age.

The first 5 years of life are crucial for speech and language development, hearing impairment results in significant delay in language development and academic achievements [3]. Disabling hearing impairment in children is defined as hearing threshold more than 30dB in better hearing ear [4].

Academic underachievement and lower employment in adulthood are the major outcome. Therefore early identification and prompt treatment is vital. The goal of "Early Hearing Detection and Intervention" is to maximize language competence and academic development in these hearing impaired children so that don't fall behind their normal hearing peers in communication, language acquisition, sociability and employment.

The long term objective of "National Program for Prevention and Control of Deafness" is to prevent and control major causes of hearing impairment and deafness, so as to reduce the total disease burden by 25% of the existing burden by the end of 12th five year plan [2].

In this study we tried to measure the incidence of hearing impairment in preschool children in Vindhya Region in terms of its cause, presentation, assessment and necessary preventive measures to be taken.

Material and Methods

It is a prospective longitudinal study conducted at Shyam Shah Medical College, Rewa (M.P.) in department of E.N.T. over the period of one and a half year from January

2018 to June 2019. All the children of age group 1-5 years presenting to the E.N.T. Department with complains of hard of hearing were evaluated. A thorough history including antenatal, prenatal and postnatal history and clinical examination along with assessment of developmental milestones was done.

Hearing evaluation was done by tympanometry, Oto-Acoustic Emission and Brianstem Evoked Response Audiometry if required.

Results

A total of 250 children presenting with complaints of hearing impairment came to the E.N.T. Department. Amongst them maximum number of patients were present in 2-3 years age group (25.6%).

Table 1: Age distribution of the patient.

Age group	Frequency	Percentage
0-1	55	22%
1-2	58	23%
2-3	64	25.6%
3-4	40	16%
4-5	33	13.2%
Total	250	100%

There were 160 male children and 90 female children. 174 were rural dwellers while 76 were from urban belongings.

Table 2: Sex distribution of the patient.

Sex	Frequency	Percentage
Male	160	64%
Female	90	36%
Total	250	100%

Table 3: demographic distribution of the patient.

Belongings	Frequency	Percentage
Rural	174	69.6%
Urban	76	30.4%
Total	250	100%

The most common type of hearing impairment was conductive type, accounting for 63.2% followed by sensorineural hearing loss in 21.6% of the patients.

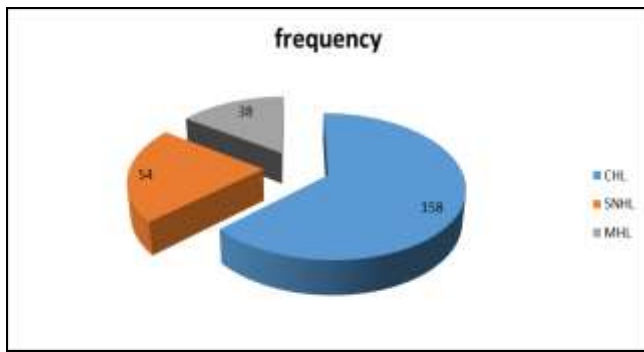


Fig 1: type of hearing impairment

Impacted ear wax (18%) was found to be the commonest cause for hearing impairment, otitis media (16%), neonatal jaundice (12.4%) being the other important causes for hearing impairment.

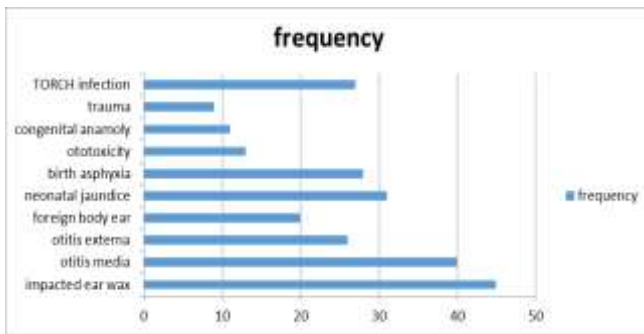


Fig 2: Causes of hearing impairment.

We performed tympanometry, OAE & BERA (in required cases) to assess the audiological profile of these children. The most common type of tympanometry was type A, refer type in OAE and profound type of hearing impairment on BERA amongst those case where the history & examination suggests a sensorineural hearing loss.

Table 4: Audiological assessment.

Audiological tests	Frequency	Percentage
A. Tympanometry		
Type A	147	58.8%
Type B	64	25.6%
Type C	39	15.6%
B. Otoacoustic Emission		
Refer type	167	66.8%
Pass type	83	33.2%
C. Brainstem Evoked Response Audiometry (n=54)		
Moderately severe	8	14.8%
Severe	12	22.2%
Profound	34	62.96%

Conservative treatment of causes of conductive hearing impairment such as impacted ear wax, otitis media and externa were done. These include suctioning cleaning, ear syringing, aural toilet and dressing along with prescribing the antibiotics, anti-inflammatory and antipyretics. Patients with severe to profound hearing loss were advised for hearing aid and speech therapy.

Discussion

In this study majority of the patients presented in the age group of 2-3 years. Other studies also reported a late presentation [5-7]. The reason for late presentation may be due to less number of neonatal screening, parental ignorance and low socioeconomic condition.

Hearing impairment was found to be more in male children as compared to female children, this finding was similar to other reported studies [8-9]. A greater number of children from rural dwelling have hearing impairment; this could be attributed to their lower socioeconomic status, poorer access to good health, poor standard of living and a higher risk to recurrent ear infections [10].

The commonest causative factor to hearing impairment was impacted ear wax in our study, other causes were otitis media, neonatal jaundice, birth asphyxia, otitis externa, prenatal TORCH infections etc. which was similar to those reported in other studies [11]. This has proven for majority of our patients presenting with conductive type of hearing impairment and thus a preventable cause for hearing loss. Many of them improved with routine conservative management and a few have required hearing amplification in the form of hearing aids and speech therapy [12-14].

Conclusion

Hearing impairment in preschool children makes a huge disease burden with late presentation. Majority of the causes are still preventable with routine medical screening. Universal neonatal screening should be made available, affordable and mandatory and a better execution of nation and state wide awareness program is need of the time.

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