Research Article

Distribution of preventable otological diseases among school going children

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Abstract

Introduction: ENT disorders are common in the school going age. Sometimes these disorders can remain undetected and affect the academic as well as overall personality development of the child. The objective of this study was to determine the percentage of different types of hearing disorders in school going children by simple clinical and audiological assessment. **Materials and Methods:** In the present study school children within age group of 6-15 years were included. About 289 children of both sexes were selected randomly from the school located in Nerul, Navi Mumbai. Children were examined in detail by an otorhinolaryngologist. **Results**: In the present study sample (n=289) the otological disorders were observed in132 (45.67%) children. Wax was the commonest hearing disorder (93.18%) seen. Otitis media with effusion was found to be the second commonest disorder (3.03%).Less common disorders were Chronic suppurative otitis media (1.51%) followed by otomycosis(0.75%),foreign body in the ear(0.75%) and acute suppurative otitis media (0.75%). **Conclusion**: Regular health checkups by otorhinolaryngologists and increasing awareness in parents and teachers can help in early diagnosis of ear disorders in children. Early diagnosis will help in their effective treatment and rehabilitation. Simple ENT examination and audiological assessment when and where required can help in improving prognosis of most of the preventable hearing disorders in children.

Keywords: ear disorder, audiological assessment, school going children.

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INTRODUCTION

Otological diseases and resulting deafness among school going children is substantial health problem and cause of economic burden in developing countries like India. In children hearing loss usually goes undetected in the absence of associated symptoms like otalgia, otorrhoea, fever, tinnitus, vertigo, headache, pre or post auricular swelling and facial paralysis. Lack of awareness of parents and teachers also leads to late diagnosis. Hearing loss in children affects their academic performance as well as social life. Common ear diseases leading to deafness among children are wax, serous otitis media, acute suppurative otitis media, chronic suppurative otitis media, otomycosis, and foreign body in the ear. Most of the causes of deafness in children are correctable as well as preventable. Regular hearing screening of school children will help in early diagnosis and rehabilitation of children with hearing impairment. This study was carried out to find out the prevalence of different types of otological conditions leading to hearing loss in school going children.

MATERIALS AND METHODS

The study was conducted in the Department of ENT at Terna Hospital and research centre, Nerul, Navi Mumbai. A total number of 289 school children of both sexes, in the age group of 6-15 years were randomly selected from a school located in Nerul, Navi Mumbai. Informed consent was taken from the parents or guardians after explaining about the research project. After taking detailed history ENT examination of all children was done. Along with the otoscopic examination, tuning fork test; Rinne's test, Weber's test and Absolute Bone Conduction (ABC) test were performed with tuning forks

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of 256Hz, 512 Hz and1024Hz. History and ENT examination findings were noted in proforma. Those children found to have hearing impairment as per history and/or examinations were subjected for audio logic assessment. Audiologic assessment was done by pure tone audiometry and Tympanometry. Audiometry was performed in an acoustically treated room using a calibrated pure tone audiometer, Arphi Diagnostic Audiometer 2001 model. Tympanometric evaluation was conducted using, model Zodiac Madsen tympanometer; the statistical analysis and the charts were done using the Microsoft Office Excel. The study has clearance from institutional ethical committee

RESULTS

Among our sample of 289 school children, 143 (49.48%) were male and 146 (50.51%) were female. Children were divided into three age groups. Out of 289 children 35.64% children were of 6-8years age, 28.02% of 9-11yrs age and 36.33%children were of 12-15 years age. About 157(54.32%) children had normal otoscopic finding on examination. Otological abnormalities were seen in 132(45.67%) children. A majority123 (93.18%) of them had unilateral (n= 55) or bilateral (n=68) impacted wax. About 4(3.03%) children showed signs (confirmed by B-type tympanogram) suggestive of otitis media with effusion. Two (n=2, 1.51 %) children had unilateral or bilateral ear discharge suggestive of chronic suppurative otitis media. Two cases of chronic suppurative otitis media had central perforation and no patients showed attic or marginal perforation. The less common findings were otomycosis 1 (0.75%) and foreign body 1(0.75%) and acute suppurative otitis media1 (0.75%).

Table 1: Age and sex distribution

Age grp	Male	Female	Total	Percentage
6-8 yrs	48	55	103	35.64
9-11 yrs	35	46	81	28.02
12-15 yrs	60	45	105	36.33
Total	**143**	**146**	**289**	

Table 2: Various otoscopic findings in children

Sr. No	Otoscopic finding	No. of cases
1	Normal	157
2	Bilateral ear wax	68
3	Unilateral ear wax	55
4	Dull TM	4
5	Congested TM	1
6	Fungus in external auditory canal	1
7	Central perforation	2
8	Foreign body in external auditory canal	1
	Total	**289**

Table 3: Distribution of various otological disorders in children with hearing impairment

Otological disorder	No of cases	Percentage
Wax	123	93.18
Otitis media with effusion	04	3.03
CSOM TTD	02	1.51
ASOM	01	0.75
Otomycosis	01	0.75
Foreign body	01	0.75
Total	**132**	

DISCUSSION

Ear disease in children is one of the most important public health issues in developing countries like India. Some of the common causes of ear problems in children are acute suppurative otitis media, chronic suppurative otitis media, and otitis media with effusion, otomycosis, wax and foreign bodies. Deafness because of these conditions can affect not only their academic performance but their overall personality development. Impacted wax or cerumen is one of the most common causes of deafness seen in pediatric age group. It is composed of secretions of ceruminous glands, desquamated epithelial cells from the skin of the canal and outer layer of tympanic membrane. Many parents try to remove the wax on their own at home with cotton buds; it can result in pushing the wax deeper into the canal. In some patients wax can obstruct the migration of epithelium from the outer surface of tympanic membrane leading to bone eroding

mass of desquamated epithelial cells. It is called keratosis obturans. In our study wax is found to be the most common ear disease. Similar findings were noticed by Naeimeh daneshmandan *et al*[1], R.Nepali *et al*[2], Prakash Adhikari *et al*[3], Aqueel Absalan *et al*[4], Janaina *et al*[5], Tahir Husain *et al*[6] and Saud Lateef Chisty *et al*[7]. According to studies conducted by Bijan Basak *et al*[8] and Sanjay Kishve *et al*[9], otitis media was the most common otological disorder. Otitis media with effusion was most commonly found ear disorder in a study conducted by G.Yamamah *et al*[10]. Otitis media with effusion is commonly seen in school children. Eustachian tube malfunction, allergy, unresolved otitis media, viral infections can result in Otitis media with effusion. It is mainly asymptomatic and often remains undetected for a long time. In our study Otitis media with effusion is the second commonest ear disease. Acute suppurative otitis media occur most commonly in the early childhood. Prognosis of these patients depends on early diagnosis and institution of treatment at right stage. Predisposing factors like adenotonsilitis, nasal allergy, cleft palate, chronic rhinitis and sinusitis should be taken care of especially in patients of recurrent cases. In our study only one child had acute suppurative otitis media. Incidence of chronic suppurative otitis media is usually high in developing countries like India because of low socioeconomic living standards, overpopulation, malnutrition and lack of health education. In our study chronic suppurative otitis media is third highest otological condition. Foreign bodies in small children can completely obstruct the canal especially if foreign body is hygroscopic and if there is an infection surrounding the foreign body. In our study one patient showed as a foreign body in the ear. Otomycosis is a fungal otitis externa.It is very commonly seen in the hot humid climate of Mumbai .In our study only one child was having otomycosis.

CONCLUSION

Regular checkups of the school going children by the otolaryngologist should be conducted for the early detection of preventable ear diseases. Teacher, parents and child health education is also needed in order to reduce the prevalence of hearing loss in school children. In developing countries like India this can help in reducing the expenditure required in the treatment and rehabilitation of deaf children.

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