



PREVALENCE OF CHRONIC SUPPURATIVE OTITIS MEDIA IN SCHOOL GOING CHILDREN IN KATIHAR, BIHAR

ENT

Dr. Md Gajanphar Ali

Senior Resident, Department of ENT, Katihar Medical College and Hospital, Katihar.

Dr. Akoijam Kennedy Singh*

Professor and Head, Department of ENT, Katihar Medical College and Hospital, Katihar.

*Corresponding Author

ABSTRACT

Background: Chronic suppurative otitis media (CSOM) is a major health problem throughout the world in underdeveloped and developing countries including India. The objective of the study was to find the prevalence of CSOM in school going children in urban field practice area of tertiary care hospital in Katihar Medical College. **Methods:** This cross-sectional study was conducted in a school of urban field practice areas of Katihar Medical College and Hospital, Katihar, Bihar from July 2019 to June 2020. The study procedures involved completing a questionnaire, an otoscopic ear examination, an audiometric test of hearing. **Results:** The prevalence of CSOM was found to be 6.39%, with tubotympanic type constituting majority 78.26% trailed by atticofurrow type 21.74%. Most patients presented with moderate hearing impairment (39.13%) and mild hearing impairment (34.78%). With respect to socioeconomic groups, upper groups had 10%, and lower group had 55.56% prevalence. **Conclusions:** Improvement of health care facilities and awareness among health-care providers would definitely be helpful in reducing the prevalence of ear diseases in the developing countries like India.

KEYWORDS

Chronic suppurative otitis media, prevalence, urban schools, school children

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a common public health problem worldwide and a major cause of hearing impairment among children in developing countries. The disease and its associated problems constitute a hidden disability (1), putting children at risk of poor school performance, delayed language and speech development, and poor cognition.

Defined as the persistent discharge of pus through a perforated tympanic membrane for more than two weeks (2), CSOM is widely seen in children especially during early childhood (3) and often follows acute otitis media (AOM), a middle ear infection. The disease and its sequelae produce substantial economic and societal costs (4). A prevalence of CSOM greater than 1% in children in a defined community indicates that there is an avoidable burden of the disease. It has been estimated that 65–330 million individuals have discharging ears, 60% of whom suffer from significant hearing impairment (5). As proposed by World Health Organization (WHO), during a WHO/CIBA workshop of otitis media experts in 1996, CSOM prevalence rate of 1–2% was considered low and 3–6% to be high. With a national average of CSOM to be 5.2%, India has been classified as the high prevalence country (6, 7).

METHODS

This cross-sectional study was conducted in a school of urban field practice areas of Katihar Medical College and Hospital, Katihar, Bihar, India from July 2019 to June 2020. Two schools were selected by stratified random sampling for study after enlisting all the schools in urban field practice area. The schools were selected in such a way that the students of all socioeconomic strata could be included. In this study, all school children in age ranging from 6 years to 15 years were selected as a study group. Total 360 children participated in study. Help of school teachers were taken in conducting the survey. History regarding any discharge from the ears, history of deafness or any other relevant history was taken. Discharge from ear present if any, was cleaned. Otoscopic examination was done and record of pathology found was maintained. Pure tone audiometry was conducted, if needed. History regarding predisposing/contributing factors and socioeconomic status was taken.

RESULTS

Sex, age and socioeconomic status of study participants has been depicted in Table 1 to 3. Among 360 study participants 202 (56.11%) were male and 158 (43.89%) were female. 90.84% participants were in age group 6 to 12 years of age. 55.56% study participants belonged to lower socioeconomic strata. The total prevalence of CSOM was found to be 6.39%. Prevalence of CSOM was 7.43% (15/202) in males and 5.06% (8/158) in females. Tubotympanic type constituting majority 18 (78.26%) cases trailed by atticofurrow type 5 (21.74%) cases. The most children presented with moderate hearing impairment 9 (39.13%), and mild hearing impairment 8 (34.78%). With respect to socioeconomic

groups, upper, upper middle, lower middle, lower group prevalence of CSOM are 10%, 12.5%, 21.94%, and 55.56% respectively.

Table 1: Distribution of study participants according to sex

Sex	Number	Percentage (%)
Male	202	56.11
Female	158	43.89
Total	360	100

Table 2: Distribution of study participants according to age

Age (years)	Number	Percentage (%)
≤6	11	3.06
6-8	126	35
8-10	136	37.78
10-12	65	18.06
≥12	22	6.1
Total	360	100

Table 3: Distribution of study participants according to socioeconomic status

Socioeconomic status	Number	Percentage (%)
Upper	36	10
Upper middle	45	12.5
Lower middle	79	21.94
Lower	200	55.56
Total	360	100

Table 4: Distribution of study participants according to type of CSOM

Type of CSOM	Male	Female	Total
Tubotympanic type	11(61.11%)	7(38.89%)	18
Atticofurrow type	4(80%)	1(20%)	5
Total	15(65.22%)	8(34.78%)	23

Table 5: Distribution of study participants according to socioeconomic status

Socioeconomic status	Number	Percentage (%)
Upper	1	4.35
Upper middle	2	8.70
Lower middle	3	13.04
Lower	17	73.91
Total	23	100%

Table 6: Distribution of study participants according to type of hearing impairment

Hearing impairment	Number	Percentage
Mild hearing impairment	8	34.78
Moderate hearing impairment	9	39.13

Moderately severe hearing impairment	6	26.09
Severe hearing impairment	0	0
Profound hearing impairment	0	0
Total	23	100

DISCUSSION

WHO deafness and hearing impairment fact sheet has given prevalence of CSOM in the South East Asia region to be 5.2 % (8). In this study, the prevalence of CSOM in school going children was found to be 6.39%. Some studies have reported the lower prevalence of CSOM as compared to our study, such as Kalpana and Chamyal in Pune of Maharashtra have reported prevalence to be 4.75 % (9). Wakode et al in Yavatmal district of Maharashtra have found prevalence to be 3.0 % (10). In a study conducted by Minja and Machemba, on 802 primary school children in Tanzania prevalence was found to be 2.6 % (11). The reasons for these differences from our study may be different geographical location with respect to socioeconomic and environmental conditions, different age groups of the children studied and different diagnostic criteria used for diagnosing CSOM. However, other studies have reported a higher prevalence of CSOM with respect to our study, Adhikari et al have reported a prevalence of 5.7%, Akinpelu et al have found the prevalence in school going children of Nigeria to be 11.1%(12,13) The prevalence of CSOM was found to be 7.8% in a study conducted by Jacob et al in Tamil Nadu(14) .In our study no significant difference was observed in prevalence of CSOM with respect to gender and age of children, while it was observed to be significantly associated with socioeconomic status. Findings of this study is similar to study carried out by Gupta and Mittal, they had reported prevalence of tubotympanic (89.43%) and atticofacial (10.57%) in their study (15).

CONCLUSION

There is a need for capacity building to reduce the burden of cost of chronic as well as the associated risk. Increasing awareness about ear diseases should be one of the goals of all health-care providers. Improvement of health care facilities and awareness among health-care providers would definitely be helpful in reducing the prevalence of ear diseases in the developing countries like India.

REFERENCES

1. Mackenzie I, Smith A. Deafness—the neglected and hidden disability. *Ann Trop Med Parasitol* 2009; Oct;103(7):565-571.
2. Smith AW, Hatcher J, Mackenzie IJ, Thompson S, Bal I, Macharia I, et al. Randomised controlled trial of treatment of chronic suppurative otitis media in Kenyan schoolchildren. *Lancet* 1996; Oct;348(9035):1128-1133.
3. Kong K, Coates HL. Natural history, definitions, risk factors and burden of otitis media. *Med J Aust* 2009; Nov;191(9)(Suppl):S39-S43.
4. World Health Organization. Prevention of hearing impairment from chronic otitis media, Report of a WHO/CIBA Foundation Workshop, held at The CIBA Foundation. World Health Organization, London, U.K. 1996; 19–21.
5. World Health Organization. Chronic suppurative otitis media; burden of illness and management options. Geneva, Switzerland. World Health Organization. 2004; 2-83.
6. Foundation WC. Prevention of Hearing Impairment from Chronic Otitis Media. WHO/CIBA Foundation Workshop. 19-21 November; 1996.
7. Gupta R, Mittal M. A study on clinical and epidemiological profile of chronic suppurative otitis media (CSOM) at a tertiary care center. *Int J Med*
8. World Health Organization. State of hearing and ear care in the South East Asia Region. WHO Regional Office for South East Asia. WHO-SEARO. SEA/Deaf/9. Available at: http://www.searo.who.int/LinkFiles/Publications_HEARING_&_EAR_CARE.pdf. Accessed on 10 January 2010.
9. Kalpana R, Chamyal PC. Study of prevalence and aetiology of the hearing loss among school going children. *Indian J Otolaryngol Head Neck Surg.* 1997;49(2):142-4.
10. Wakode PT, Joshi SV, Gawale SH. Chronic suppurative otitis media in school going children. *Indian J Otolaryngol Head Neck Surg.* 2006;58(2):152-5.
11. Minja BM, Machemba A. Prevalence of otitis media, hearing impairment and cerumen impaction among school children in rural and urban Dar es Salaam, Tanzania. *Int J Pediatr Otorhinolaryngol.* 1996;37(1):29-34.
12. Adhikari P, Kharel B, Ma J, Baral DR, Pandey T, Rijal R, et al. Pattern of otological diseases in school going children of Kathmandu Valley. *Int Arch Otorhinolaryngol.* 2008;12(4):502-5.
13. Akinpelu OV, Amusa YB, Komolafe EO, Adeolu AA, Oladele AO, Ameye SA. Challenges in management of chronic suppurative otitis media in a developing country. *J Laryngol Otol.* 2008;122(1):16-20.
14. Jacob A, Rupa V, Job A, Joseph A. Hearing impairment and otitis media in a rural primary school in south India. *Int J Pediatr Otorhinolaryngol.* 1997;39(2):133-8.
15. Gupta R, Mittal M. A study on clinical and epidemiological profile of chronic suppurative otitis media (CSOM) at a tertiary care center. *Int J Med Sci Public Health.* 2016;5(5):1021-4.