

# *Chronic Suppurative Otitis Media in School Children of Kathmandu Valley*

## *Otite Média Crônica Supurada em Crianças de Escolas do Vale Katmandu*

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### **RESUMO**

- Objetivo:** Este estudo foi realizado para comparar a prevalência da otite média crônica supurada entre duas populações de crianças de escolas do Vale Katmandu.
- Casística e Método:** Este é um estudo prospectivo transversal entre dois grupos de crianças. Foram selecionadas 280 crianças de escolas públicas e 230 crianças de escolas particulares de uma mesma área do Vale Katmandu. As crianças tinham entre 5 e 12 anos de idade. Todas as crianças foram entrevistadas e examinadas otoscópicamente entre novembro de 2006 até abril de 2007. A perfuração persistente da membrana timpânica com ou sem otorréia por mais de 3 meses foi considerada uma evidência da otite média crônica supurada e somente esses casos foram incluídos. Crianças com perfuração traumática da membrana timpânica ou crianças com lábio leporino e síndromes congênitas foram excluídas. Analisaram-se os dados estatisticamente através do uso de frequências e porcentagem.
- Resultados:** Os resultados mostraram que 5,7% das crianças da escola pública tinham otite média crônica supurada. Entretanto, 4,8% das crianças das escolas particulares tinham otite média crônica supurada. A enfermidade unilateral foi observada em 81,5% dos casos e 26,0% tinham a doença ativa. Em torno de 88,9% tinham algum tipo de doença timpânica.
- Conclusão:** As crianças da escola pública tiveram uma maior prevalência da otite média crônica supurada do que as crianças da escola particular. Embora a prevalência da otite média crônica supurada foi considerada menor do que as de estudos anteriores, necessita-se um esforço em conjunto para diminuí-la futuramente. Educação sanitária, melhoria do nível sócio-econômico e infra-estrutura sanitária serão de grande ajuda na redução da prevalência da otite média crônica supurada.
- Palavras-chave:** otite média crônica supurada, prevalência, crianças de escolas.

### **SUMMARY**

- Objective:** This study was done to compare the prevalence of chronic suppurative otitis media between two populations of school children of Kathmandu valley.
- Materials and Methods:** This is a prospective cross sectional study between two sets of school children. Two hundred eighty school children from government school and 230 school children from private school of the same place of Kathmandu valley were selected. School children were aged between 5-12 years. All the students were interviewed and examined otoscopically from November 2006 to April 2007. Persistent perforation of the tympanic membrane with or without otorrhoea of more than three months duration was taken as evidence of chronic suppurative otitis media and only these cases were included. Children with traumatic perforation of tympanic membrane or children with cleft palate and congenital syndrome were excluded. Data were analyzed statistically using frequency and percentage.
- Results:** Results showed that 5.7% of school children in the government school had chronic suppurative otitis media. However, 4.8% of school children in the private school had chronic suppurative otitis media. Unilateral disease was seen in 81.5% and 26.0% had active disease. Around 88.9% had tybotympanic type of disease.
- Conclusion:** School children from government school had higher prevalence of chronic suppurative otitis media than that from private schools. Though the prevalence of chronic suppurative otitis media, we found is lower than the previous studies, a combined effort is needed to decline it further. Health education, improvement of socioeconomic status and health facilities will be helpful in reducing the prevalence of chronic suppurative otitis media.
- Key words:** Chronic suppurative otitis media, prevalence, school children.

## INTRODUCTION

Chronic suppurative otitis media (CSOM) is one of the most common ear diseases (1, 2) in many of the developing countries including Nepal. It was found to be second only to common cold as a cause of infection in childhood (3). It is the most common cause of persistence mild to moderate hearing impairment in children and young adults (4).

The etiology and pathogenesis of otitis media are multifactorial and include genetic, infections, allergy, environmental, social and racial factors and Eustachian tube dysfunction (5). During the recent decades, the incidence of chronic suppurative otitis media has dramatically declined due to improvements in housing, hygiene and antimicrobial chemotherapy (6). There were only few cases where CSOM affected patients from the higher socioeconomic ladder and even the pathology started before the patient moved up the socioeconomic ladder (1). This study was done to compare the prevalence of chronic suppurative otitis media between two populations of school children.

## MATERIALS AND METHODS

This study was conducted from November 2006 to April 2007 in two government and two private schools of Kathmandu valley. There were 280 school children from government schools and 230 from private schools. Altogether, there were 510 students aged between 5-12 years. Informed consent was taken from their guardians to participate in this study. The local ethical committee approved the research. The diagnosis of CSOM was made on history and otoscopic findings. Persistent perforation of

the tympanic membrane with or without otorrhoea of more than three months duration was taken as evidence of CSOM and only these cases were included. Children with traumatic perforation of tympanic membrane or children with cleft palate and congenital syndrome were excluded. Data were analyzed statistically using frequency and percentage.

## RESULTS

There were 280 students (Male: 124, Female: 156) in government schools and 230 students (Male: 123, Female: 108) in private schools (Table -1). The prevalence of CSOM in children of government schools revealed 5.7% (Table-2) while in private schools; it was 4.8% (Table-2). Unilateral disease was seen in 81.5% (Table-3) and 26.0% had active disease. (Table-4). Around 88.9% had tybotympanic type of disease (Table-3).

## DISCUSSION

Chronic suppurative otitis media (CSOM) is one of the common health problems in Nepal. It is more common in children of rural community where health facilities are least available. Poor living conditions, overcrowding, poor hygiene and nutrition have been suggested as a basis for the widespread prevalence of CSOM in developing countries (7). Okafor et al found that the majority of the patients with chronic ear disease came from communities living in subsistence agricultural or slum areas of the cities (1). Poverty is a major risk factor in developing countries and certain neglected population (8). Swimming in polluted water is an important cause of suppurative otitis media in our children.

**Table 1. Distribution of children by sex.**

Sex	Number of students in government schools (Percentage)	Number of students in private schools (Percentage)	Total (Percentage)
Male	124 (44.3%)	122 (53.0%)	246 (48.2%)
Female	156 (55.7%)	108 (47.0%)	264 (51.8%)
Total	280 (100.0%)	230 (100.0%)	510 (100.0%)

**Table 2. Distribution of CSOM.**

CSOM	Number of students in government schools (Percentage)	Number of students in private schools (Percentage)
Present	16 (5.7%)	11 (4.8%)
Absent	264 (94.3%)	219 (95.2%)

**Table 3. Types and side of CSOM**

Types of CSOM	Number of students in Government Schools (Percentage)	Number of students in Private Schools (Percentage)	Total (Percentage)
CSOM-Tubotympanic			
Right	7 (43.8%)	6 (54.5%)	13 (48.1%)
Left	4 (25.0%)	2 (18.2%)	6 (22.3%)
Both	3 (18.7%)	2 (18.2%)	5 (18.5%)
CSOM-Tubotympanic (Total)	14 (87.5%)	10 (90.9%)	24 (88.9%)
CSOM-Atticoantral			
Right			
Left	1 (6.25%)	1 (9.1%)	2 (7.4%)
Both	1 (6.25%)	1 (3.7%)	
CSOM-Atticoantral (Total)	2 (12.5%)	1 (9.1%)	3 (11.1%)
CSOM (Total)	16 (100.0%)	11 (100.0%)	27 (100.0%)

**Table 4. Active and Inactive CSOM**

CSOM	No. of students having CSOM in Government schools (Percentage)	No. of students having CSOM in Private schools (Percentage)	Total (Percentage)
Active	4 (25.0%)	3 (27.3%)	7 (26.0%)
Inactive	12 (75.0%)	8 (72.7%)	20 (74.0%)
Total	16 (100.0%)	11 (100.0%)	27 (100.0%)

The prevalence of CSOM varies in different countries, different populations and ethnic groups. The prevalence of CSOM in our study was found to be 5.7% in the school children of government schools while it was 4.8% in the school children of private schools. The study of Ologe and Nwawalo et al found the prevalence of CSOM to be 6.0% in rural government primary schools while 0% in the children of urban private schools (9). Okeowo et al (10) study observed a statistically significant difference in the prevalence of CSOM among the rural children (3.6%) and urban school children (0.6%). Similarly, the prevalence of CSOM done in government school children as quoted by Rup et al (11) was 6.0%, Kamal et al (12) was 7.3%, which was slightly higher than our study. Prevalence of CSOM among school children at Narayangunj by Chowdhury and Salauddeen et al (13) was 4.3%.

However, the prevalence of CSOM in private school children is lower than that of children of government schools; the difference is of 0.9% only. This can be due to difference in the socioeconomic status between these two different populations as well as due to higher educational

status in private school parents. As both of these studies were done in the village development committees, which is a semi urban area, but near from the capital of Nepal, the difference on the prevalence of CSOM are not higher than studies done in other parts of the world. Still there are studies, which had a higher prevalence. Maharjan et al (5) showed a prevalence of CSOM to be 13.2%. While Biswas et al (4) showed 12.4%, Morris et al (14) showed 15.0%, Okur et al (15) had 10.4%. However, the prevalence of CSOM in urban school children quoted by Minija et al was 1.3% and 9.4% in urban school children (16).

In our study almost all of our school children (88.9%) had a tubo tympanic type of diseases which was in between the findings of Kamal et al study (73.4%) and Ologe et al (99%) (12, 17). Our study revealed that 26.0% had active CSOM similar to the study done by Ologe et al (17) which was (27.7%).

CSOM is more commonly found in lower socioeconomic status. Parents of government schools are relatively more illiterate than the private schools. The

socioeconomic status is also low in children of government schools. Malnutrition and poor living conditions are more highly likely among the children in the rural school (9). Poor housing and sanitation are prevalent in rural area, which is supported in WHO/CIBA foundation workshop of 1996 where poor housing has been recognized as a risk factor for CSOM (8). The vast majority of the infecting organisms reach the middle ear by way of the Eustachian tube in both children and adults, most commonly from an ordinary head cold (18). Potential loss of hearing because of otitis media has important consequences on the development of speech and cognitive abilities, including academic performance of children (9).

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## CONCLUSION

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This study shows that the prevalence of chronic suppurative otitis media was higher in children of government schools than that of private schools. Though the prevalence of chronic suppurative otitis media we found is lower than the previous studies, a combined effort is needed to decline it further. Health education, improvement of socioeconomic status and health facilities will be helpful in reducing the prevalence of chronic suppurative otitis media.

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