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AN EVALUATION STUDY ON CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM) AND ITS RISK FACTORS: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Abstract

Background: Chronic Suppurative Otitis Media (CSOM) is a common middle ear infection that poses a significant public health problem in developing countries. It is associated with hearing loss and has several risk factors. **Objectives**: To study the prevalence, demographic distribution, and associated risk factors of CSOM in patients attending the ENT outpatient department. **Methods**: A cross-sectional observational study was conducted on 42 patients diagnosed with CSOM. Detailed history, clinical examination, and risk factor assessment were done using a structured proforma. **Results**: The study revealed a higher prevalence of CSOM in lower socio-economic classes and among rural populations. The most common risk factors included recurrent upper respiratory tract infections (URTIs), poor ear hygiene, and overcrowding. The age group most affected was 11–30 years. Males were slightly more affected than females. Conclusion: CSOM is significantly associated with preventable risk factors such as poor hygiene, recurrent URTIs, and low socioeconomic conditions. Early intervention and public health education are crucial in controlling the disease.

KEYWORDS: CSOM, Otitis media.

INTRODUCTION

Chronic Suppurative Otitis Media (CSOM) is a chronic inflammation of the middle ear and mastoid cavity, typically characterized by ear discharge (otorrhea) through a perforated tympanic membrane. It is a major cause of hearing impairment in children and adults, especially in developing countries[1].

CSOM is preventable and treatable, yet it continues to be a major public health burden. Understanding its demographic distribution and associated risk factors is key to implementing targeted interventions. Chronic Suppurative Otitis Media (CSOM) affects between 65 and 330 million people globally, with the majority residing in developing countries. The prevalence varies geographically, with higher rates in South East Asia, Western Pacific regions, and Africa. CSOM is a significant cause of hearing impairment, with an estimated 60% of those with draining ears experiencing some degree of hearing loss[2].

Key aspects of CSOM prevalence: Global Burden: CSOM is a widespread health issue, particularly in developing nations. Regional Differences: Prevalence is significantly higher in the South East Asia, Western Pacific, and African regions. Hearing Impairment: A substantial proportion of individuals with CSOM experience hearing loss, with an estimated 60% suffering from it. Mortality and DALYs: CSOM contributes to deaths and disability-adjusted life years (DALYs). Age: CSOM is a common childhood disease. Socioeconomic Factors: CSOM is more prevalent in low-income and middle-income countries. Specific Studies: A study in Bareilly, India, found a CSOM prevalence of 6.46% among school-going children. A study in Yemen found a 59% hearing impairment in children with CSOM. A study of urban and rural school children in India showed a prevalence of 2.32% and 5.11%, respectively[3-7].

METHODS

This study was conducted in tertiary hospital of purba Medinipur After obtaining institutional ethical committee approval It was a Observational cross-sectional study. study conducted on 42 patients in the department of Otorhinolaryngology, at a tertiary care centre, from January/ 2017–July/2017. The institute Ethics Committee approval was obtained before starting the sample collection. A written and informed consent was taken from the patient regarding the study in his/her vernacular language and English. In this study Patients were subjected to: A detailed history of sign & symptoms and its duration. Detailed history of systemic diseases and its duration, medication were noted.

Patients were subjected to General physical examination. Patient were counselling about the study so that drop out rate can be reduced .

Flowchart of Patient Selection

Total Patients Screened (n = 50)

↓

Excluded (n = 8)

- Not meeting inclusion criteria (5)

- Refused consent (3)

↓

Patients Included in Study (n = 42)

Study Design:

Cross-sectional observational study.

Sample Size:

42 patients diagnosed with CSOM.

Inclusion Criteria:

- Patients of all age groups with clinically diagnosed CSOM.
- Willing to participate with informed consent.

Exclusion Criteria:

- Patients with acute otitis media or otitis externa.
- Patients who had received recent antibiotic treatment for ear conditions.

Data Collection:

A structured proforma was used to collect data on:

- Demographics
- Clinical symptoms
- Duration of illness
- Risk factors
- Ear hygiene practices

Statistical Analysis:
Data analyzed using basic descriptive statistics. Risk factors were expressed in percentages and compared using odds ratios where applicable.

All the data is put in excel sheet then mean, median and association is analysed by SPSS version 20. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and SD. MS Excel and MS word was used to obtain various types of graphs such as bar diagram. P value (Probability that the result is true) of P value <0.05 was considered as statistically significant after assuming all the rules of statistical tests. Statistical software: MS Excel, SPSS version 22 (IBM SPSS Statistics, Somers NY, USA) was used to analyse data. Sample size is calculated by N master statistical software.

RESULTS
In this study we found that CSOM is associated with demographic profile of patient. 28.6% patient suffered of CSOM is belongs to 21 to 30 years age group followed by 23.8% belong to 11 to 20 years ag group.
Malé were more prone to suffered of CSOM as compared to female gender. Prevalenec in rural area is 66.7% as compared to urban area.(Table 1)

Table 1: Demographic Profile of Patients (n = 42)

Parameter	**Number (%)**
Age Group	
0–10 years	6 (14.3%)
11–20 years	10 (23.8%)
21–30 years	12 (28.6%)
31–40 years	8 (19%)
>40 years	6 (14.3%)
Gender	
Male	24 (57.1%)
Female	18 (42.9%)
Residence	
Rural	28 (66.7%)
Urban	14 (33.3%)
Socioeconomic Status	
Low	29 (69%)
Middle	10 (23.8%)
High	3 (7.1%)

In this study 76.2 % CSOM patient were due to Recurrent URTI followed by 66.7 % poor ear hygiene. (Table 2)

Table 2: Prevalence of Risk Factors (n = 42)

Risk Factor	**No. of Patients (%)**
Recurrent URTI	32 (76.2%)
Poor ear hygiene	28 (66.7%)
Overcrowded living conditions	24 (57.1%)
Passive smoking exposure	18 (42.9%)
Inadequate medical care access	20 (47.6%)
Swimming in contaminated water	10 (23.8%)

DISCUSSION

This study reaffirms that CSOM is more prevalent in younger populations and in individuals from lower socioeconomic strata[8-12]. The rural population showed a higher incidence likely due to poor health awareness and limited access to healthcare facilities.

Recurrent URTI emerged as the most significant risk factor, emphasizing the importance of managing upper respiratory infections promptly. Other contributing factors like poor hygiene and overcrowding are preventable through education and improved living standards[13-15].

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The findings align with existing literature and underscore the importance of preventive measures. A cross-sectional observational study on Chronic Suppurative Otitis Media (CSOM) aims to determine the prevalence and risk factors associated with this condition. CSOM is a chronic inflammation of the middle ear, often resulting in persistent or intermittent ear discharge due to perforation of the eardrum. This type of study allows researchers to assess the prevalence of CSOM within a specific population at a particular point in time and identify potential risk factors that may contribute to its development[16].

Prevalence: Determining the overall prevalence of CSOM within the study population, often differentiating between rural and urban areas[17]. Risk Factors: Investigating various factors that may increase the likelihood of developing CSOM, including: Socioeconomic factors: Nutritional status, standard of living, income level, maternal education, and housing conditions[18]. Environmental factors: Exposure to smoke, air pollution, and hygiene. Infectious factors: Frequent upper respiratory tract infections and history of acute otitis media. Other factors: Age, family history of otitis media, and day-care attendance[19]. Study Design: Cross-sectional studies involve examining a defined population at a single point in time, providing a snapshot of the situation. Data Collection:

Data is typically collected through questionnaires, physical examinations, and potentially audiometric testing to assess hearing loss. Data Analysis: Statistical methods are used to analyses the data, including calculating prevalence rates, identifying statistically significant associations between risk factors and CSOM, and potentially performing meta-analysis on pooled data from multiple studies[20].

Examples of findings from such studies: High prevalence in rural areas: One study found a higher prevalence of CSOM in rural areas compared to urban areas, suggesting potential disparities in access to healthcare or other risk factors. Association with socioeconomic factors: Several studies have reported a link between CSOM and factors like low income, poor housing conditions, and lack of maternal education. Impact of upper respiratory infections.

In this study 76.2 % CSOM patient were due to Recurrent URTI followed by 66.7 % poor ear hygiene. (Table 2

Frequent upper respiratory infections are often identified as a key risk factor for developing CSOM. Hearing loss: A significant proportion of individuals with CSOM experience hearing loss, highlighting the importance of early diagnosis and treatment to prevent long-term complications.

CONCLUSION

CSOM continues to be a public health challenge, especially in resource-limited settings. Preventive strategies focusing on hygiene education, early treatment of URTIs, and improvement in living conditions can significantly reduce the disease burden.

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