



A STUDY OF BACTERIAL FLORA IN CHRONIC SUPPURATIVE OTITIS MEDIA IN A RURAL BASED PEDIATRIC POPULATION

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ARTICLE INFO

Article History:

Received 13th September, 2018

Received in revised form 11th

October, 2018

Accepted 8th November, 2018

Published online 28th December, 2018

Key words:

Chronic suppurative otitis media, bacteria, ear discharge, antibiotics, pediatric CSOM

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ABSTRACT

Background: The study was conducted to study the incidence of Chronic suppurative otitis media in different pediatric age groups, to find out the pathogens in those cases, to rule out foci of infections and eliminate the source of infections by medical/surgical treatment.

Materials and Methods: The study was conducted at Rajah Muthiah Medical College in department of ENT between 2013-2015, among 50 rural based children who attended the outpatient department. Ear swab was taken in aseptic conditions and sent for gram staining and culture and sensitivity.

Results: *Pseudomonas* was the most common bacteria isolated followed by *Staphylococcus aureus*. There was equal sensitivity to both gentamycin and ciprofloxacin ear drops.

INTRODUCTION

Environmental and socioeconomic consequences of health care affects the pediatric age group more than the adult population. The socioeconomic factors like poor living conditions, poor hygiene, overcrowding and nutrition are considered as the reasons for the widespread prevalence of chronic suppurative otitis media in the third world countries. Though there are numerous causes of ear discharge in children, the most important and commonest still is chronic suppurative otitis media. This chronic inflammatory disease tends to be very often destructive and persistent with occasional irreversible sequelae. Cornerstone for management of this condition is by antibiotics. But these antibiotics have also caused problem due to its indiscriminate and haphazard use. This has caused some changing pattern of pathogens and their antibiotic susceptibility over the ages. This study deals with the bacteriological flora in ear discharges of children. So that we can effectively combat the pathogens with appropriate antibiotics. It is a race in global arena between the microbes and the research scientists who invent the newer generation antibiotics.

MATERIALS AND METHODS

The study was aimed to study the incidence of the disease in different pediatric age groups, to find out the pathogens in

those cases and to rule out other foci of infections and eliminate the source of infections by medical or surgical treatment. 50 children (less than 12 years) with chronic ear disease were included in this study conducted at Rajah Muthiah Medical College between 2013-2015. Those with otomycosis and other external ear discharges were carefully excluded from the study. Ear discharge was collected with sterile cotton swab and sent for microbiologic studies. The swabs were sent for gram staining and culture. Aerobic cultures were analysed after twenty four hours of incubation at thirty seven degree celcius and identified by conventional method (Cowan and steel).

RESULTS

Of the 50 children, 56% were boys and rest were girls. 50 percent of children were between 8 to 12 years of age, 40 percent were between 4 to 8 years and the rest were less than 4 years. There was equal sensitivity to Ciprofloxacin and gentamicin among the study population. 90 percentage of patients had recurrent upper respiratory tract infections before the developing chronic ear discharge.

Bacteria	Percentage
<i>Pseudomonas</i>	36
<i>Staphylococcus aureus</i>	22
<i>E. Coli</i>	12
<i>Proteus vulgaris</i>	10
<i>Proteus mirabilis</i>	8

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<i>Klebsiella</i>	4
Gram positive bacilli	2
No bacteria	6

DISCUSSION

Chronic suppurative otitis media is an important public-health problem. India has high-prevalence of those cases where urgent attention to the disease is needed.^[1] The disease follows viral infections of the upper respiratory system but soon invades and infects the middle ear with pyogenic organisms. The widespread usage of antibiotics has paved way to the emergence of multiple resistant bacteria that can produce both preoperative and postoperative infections. But by proper sample studies of the ear discharges it is a combat which can be eventually won. Indiscriminate, haphazard and irrational use of the antibiotics and improper follow-up of the patients have resulted in the persisting low grade infections.⁽⁵⁾ Changes in microbiological flora after the invention of synthetic antibiotics have resulted in improved relevance of reappraisal of recent trends of flora in chronic suppurative otitis media. In vitro antibiotic sensitivity pattern of those microbes is essential for the clinician in order to plan a treatment for patients with a chronic discharging ear disease.

In untreated cases there is a great risk of developing irreversible complications. CSOM is one of the major causes of preventable hearing impairment especially in the developing countries^[3] particularly in children, because it has long-term effects on language development, early communication, educational process, auditory processing, physiological and cognitive development.^[1] Early microbiological diagnosis paves way for prompt and an effective treatment and to avoid complications. High prevalence of middle ear infections is present in pediatric population because they are more prone to recurrent upper respiratory tract infections (URTI). Furthermore exposure to cold weather pre-disposes children to URTI.⁽⁴⁾

Pseudomonas is the leading cause of CSOM in tropical region. It is not usually present in the upper respiratory tract. But the presence of the bacteria in middle ear cannot be considered to be due to an invasion through Eustachian tube and it can be considered as a secondary invader that gains access to the middle ear through a Tympanic membrane perforation.^[2] Environmental socio-economic consequences of health care affects the paediatric age group more than the adult population. The CSOM is more common in populations with poor socio-economic conditions and limited healthcare access.

CONCLUSION

Continuous and a periodic evaluation of the microbiological pattern and the antibiotic sensitivity of the isolates is essential to initiate an effective treatment protocols for benefit of the study population. It also decreases the potential risk of complications by early institution of appropriate treatment.

Untreated cases of CSOM can result in a variety of complications like mastoiditis, meningitis, persistent otorrhoea, facial nerve palsy and labyrinthitis. Some patients can also develop life threatening complications. So the treatment has to be started early and effectively. As higher incidence of CSOM was seen among children, educating parents and guardians on possible risk factors of the disease may be a preventive strategy that might reduce disease occurrences.

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How to cite this article:

Balaji Swaminathan *et al* (2018) 'A Study of Bacterial Flora in Chronic Suppurative Otitis Media in A Rural Based Pediatric Population', *International Journal of Current Medical and Pharmaceutical Research*, 04(12), pp. 3897-3898.
