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Original Research Article

Identification of Bacterial Agents Responsible for Chronic Suppurative Otitis Media

Mona Sarawgi¹, Amit Kumar², Manoj Kumar³, Rizwan Ahmad⁴, Md. Ozair⁵

¹Ex. Senior Resident, Department of ENT, DMCH, Laheriasarai, Darbhanga
 ²Senior Resident, Department of ENT, DMCH, Laheriasarai, Darbhanga
 ³Assistant Professor, Department of ENT, DMCH, Laheriasarai, Darbhanga
 ⁴Associate Professor, Department of ENT, DMCH, Laheriasarai, Darbhanga
 ⁵Assistant Professor & Head, Department of ENT, DMCH, Laheriasarai, Darbhanga
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Corresponding Author: Dr. Amit Kumar Conflict of interest: Nil

Abstract:

Background: Otitis media which is an acute or chronic inflammatory state of the middle ear may be classified as suppurative or non-suppurative Complications of otitis media include meningitis, nasopharyngitis, mastoiditis and sinus thrombosis.

Material and Methods: A total of 100 ear swabs from cases of chronic otitis media were variously collected from patients attending the ENT department. Specimens were immediately transported in a transport medium to the base laboratory of the Department of Microbiology.

Results: Out of a total number of 100 cases of chronic otitis media screened for the isolation of bacterial aetiologic agents, 8 different genera comprising 13 bacterial species were isolated. These included S. aureus (39%), Pseudomonas aeruginosa (25%), Proteus mirabilis (16%), Alcaligenes faecalis (5%) and Klebsiella aerogenes (1%). Escherichia coli, Proteus rettgeri, Staphylococcus epidermidis, and Klebsiella pneumoniae, constituted (3%), (3%), (3%) and 1% of isolates in that respective order. From the number of cases screened, it was observed that 54 (54% and 46(46%) were males and females respectively.

Conclusion: We conclude that higher prevalence of otitis media among males than females and S. aureus has been identified as the leading pathogen in chronic otitis media.

Keywords: Bacterial Infections, Etiology, Otitis Externa.

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Introduction

Otitis media which is an acute or chronic inflammatory state of the middle ear may be classified as suppurative or non-suppurative [1-2]. Complications of otitis media include meningitis, nasopharyngitis, mastoiditis and sinus thrombosis3 Decker and Dacker [1] reported the isolation of some bacteria from otitis media, which included Staphylococcus aureus (32.2%) and Pseudomonas aeruginosa (29.6%). The prevalence of haemolytic Streptococci, S. aureus, Haemophilus influenzae and Pneumococci in cases of chronic otitis media has been variously reported . Ndip has also documented the isolation of S. aureus (41.2%), S. infleunzae (13.7%) andH. influenzae (13.7%) from cases of otitis media [4-6]. An array of other bacterial species has also been isolated from cases of chronic otitis media [7-11] A useful approach in the management of patients with bacterial chronic otitis media impinges on the appropriate use of antibiotics. Unfortunately several species of bacteria have adopted different strategies such as possession of plasmids and beta -lactamase

that thus enable them to acquire resistance to antibiotics and notable changes in the pattern of previously reported sensitive isolates to some antibiotics have been documents[12-13] Thus antibiogram of bacterial isolates are not static and this creates the need for effective update of antibiogram of isolates.

Materials and Methods

A total of 100 ear swabs from cases of chronic otitis media were variously collected from patients attending the ENT department Darbhanga medical college and Hospital Laheriasarai, Darbhanga. Specimens were immediately transported in a transport medium to the base laboratory of the Department of Microbiology. Specimens were then inoculated onto appropriate media and bacterial isolates were adequately identified.

Results

Out of a total number of 100 cases of chronic otitis media screened for the isolation of bacterial

aetiologic agents, 8 different genera comprising 13 bacterial species were isolated. These included S. aureus (39%), Pseudomonas aeruginosa (25%), Proteus mirabilis (16%), Alcaligenes faecalis (5%) and Klebsiella aerogenes (1%). Escherichia coli, Proteus rettgeri, Staphylococcus epidermidis, and Klebsiella pneumoniae, constituted (3%), (3%), (3%) and 1% of isolates in that respective order. From the number of cases screened, it was observed that 54 (54%) and 46(46%) were males and females respectively.

 Table 1: Bacterial agents isolated from cases of otitis media (chronic otitis media)

Organism isolated	No of patients	Percentage
Stapylococcus auerus	39	39
Pseudomonas aeruginosa	25	25
Proteus mirabilis	16	16
Alcaligens faecalis	5	5
Klebsiella aerogenes	1	1
Escherichia coli	3	3
Proteus rettgeri	3	3
Staphylococcus epidermidis	3	3
Klebsiella pneumoniae	1	1
Proteus vulgaris	1	1
Acinetobacter spp	1	1
Haemophilus influenzae	1	1
Diphtheroids	1	1
Total	100	100

Discussion

The incrimination of different genera and species of bacteria among cases of chronic otitis media screened is indicative of polymicrobial infections and this observation accords with previous reports [6, 8] S. aureus (39%), Pseudomonas aeruginosa (25%), Proteus mirabilis (16%), Alcaligenes faecalis (5%) and Klebsiella aerogenes (1%). Escherichia coli, Proteus rettgeri, Staphylococcus epidermidis, and Klebsiella pneumoniae, constituted (3%), (3%), (3%) and 1% of isolates in that respective order. From the number of cases screened, it was observed that 54 (54% and 46(46%) were males and females respectively. These results are similar with an earlier report [1]. They reported isolation rates of 30.3% and 29.6% for S. aureus and Pseudomonas aeruginosa respectively, from cases of otitis media screened. Indeed, the wide array of the bacterial agents isolated from cases of otitis media in this study have been variously documented by researchers in diverse geographical regions [9-13] Another interesting observation in this study was the higher prevalence of chronic otitis media among males (54%) than females (36%). This is comparable to the 62.8% and 37.2% observed among males and females respectively [14]

Conclusion

We conclude that higher prevalence of otitis media among males than females and S. aureus has been identified as the leading pathogen in chronic otitis media.

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