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AEROBIC BACTERIOLOGICAL STUDY OF CHRONIC SUPPURATIVE OTITIS MEDIA WITH REFERENCE TO MRSA, GOVERNMENT GENERAL HOSPITAL, KAKINADA

Microbiology

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ABSTRACT

Chronic suppurative otitis media(CSOM) is a disease of multiple etiology and is well known for its persistence and recurrence in spite of treatment. MRSA (Methicillin Resistant *Staphylococcus aureus*) and other aerobic bacteria either alone or more than one are responsible for most of CSOM infections. The present study aims to isolate and identify the aerobic bacteria causing CSOM and their antibiotic sensitivity pattern with special reference to MRSA for a period of 3 months, September to November 2016. A total of 50 samples were collected from patients, of which 42 were culture positive. Predominant among isolates was *S. aureus* (18,) of which MRSA were 6, followed by *Pseudomonas aeruginosa* (13), *Klebsiella* species (6), CONS(4), and *Proteus mirabilis* (1). *Staphylococcal* species (GPC) were most sensitive to Linezolid (100%), Gram negative organisms were more sensitive to Carbapenems (95%).

KEYWORDS

CSOM, MRSA, CONS-Coagulase negative *Staphylococci.*

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a disease of multiple etiology and is well known for its persistence and recurrence in spite of treatment. *Staphylococcus aureus* and *Pseudomonas aeruginosa* are most common isolates of CSOM.

AIMS & OBJECTIVES

1) To isolate and identify the aerobic bacteria of CSOM.
2) To study antibiotic sensitivity pattern of isolates with special reference to MRSA.

INCLUSION CRITERIA

Patients attending to OPD and admitted in wards respectively.

EXCLUSION CRITERIA

Patients who had used topical or systemic antibiotics1-2 weeks prior to collection of swab.

METHODS

A total of 50 samples were collected from patients with established CSOM attending E.N.T OPD during 3 months period from September to November 2015. Swabs were processed by standard microbiological methods. Antibiotic sensitivity was done using Kirby-Bauer disk diffusion method according to CLSI guidelines. MRSA were identified by Cefoxitin (Cx) (30µg) disc method.

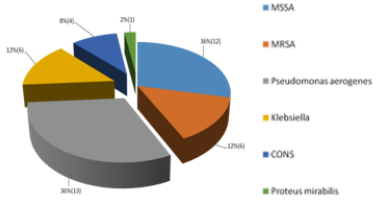
	No. of isolates	No. of isolates
Gram positive bacteria	22	52.38%
Gram negative bacteria	20	47.62%
TOTAL	42	100%

RESULTS

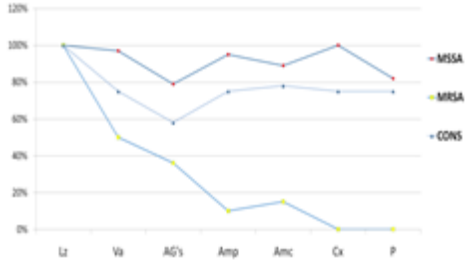
Out of 50 samples collected 42(84%) were positive for culture. Predominant among them were *Stapylococci* [MSSA-18(36%) and MRSA-6(12%)], followed by *Pseudomonas aeruginosa*-13 (26%), Gram positive cocci-22 (52.38%) were sensitive to Linezolid (100%), followed by Vancomycin (98.64%) and Aminoglycosides (79.10%).

MRSA isolates were more resistant to tested pencillins and β-lactam drugs(77%) compared to isolates of MSSA(15.63%).

Bacterial isolates of patients with CSOM

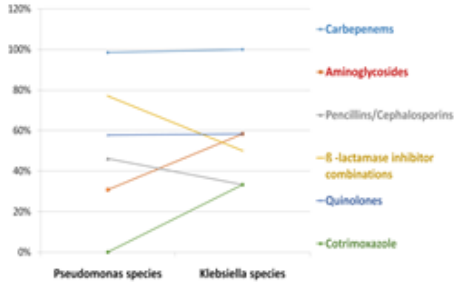


Antibiotic sensitivity pattern of Gram positive cocci



Lz- Linezolid, Va- Vancomycin, AG's- Aminoglycosides, Amp-Ampicillin, Cx- Cefoxitin, P- Pencillins.

Antibiotic sensitivity pattern of Gram negative bacilli



Comparison of present study data with other studies

	Suhail A Patigaro et al	Usha Rani .R et al	Saranya SK et al	Present study
Most common organisms isolated	Staph/kococcus aureus-6.5% (MSSA-15% & MRSA-30%), Pseudomonas (13%)	Staph/kococcus aureus-10.52%,CONS-9.47% Pseudomonas aeruginosa-17.89%, Klebsiella -21.05%, Proteus-6.31%	Staph/kococcus aureus-41.25% (MRSA-18.95% & MSSA-22.35%), Pseudomonas -37.5%	Staph/kococcus aureus-48%(MSSA-36% & MRSA-12%), Pseudomonas -36.5%
GNB Antibiotic sensitivity	Carbepenems(100-95%), Aminoglycosides(92-86%)	Aminoglycosides(95%), Carbepenems(100%)	Quinolones (95-84%), third generation Cephalosporins (78-64%) and Aminoglycosides(69-52%)	Carbepenems(95%) ß-lactamase inhibitor-combination drugs(80-75%)
GPC Antibiotic Sensitivity	Cephalosporins(100-95%) & Pencillins(100-97%), Aminoglycosides(78-61%)	Aminoglycosides(100%), Cephalosporins & Pencillins(74%).	Linezolid(100%), Vancomycin(100-95%)	Aminoglycosides(72-54%) Cephalosporins,& Pencillins(100-72%)
MRSA Antibiotic sensitivity	Linezolid(100%), Vancomycin(89%)	-	Linezolid(100%) Vancomycin(100%) Aminoglycosides (82%)	Linezolid(100%) Vancomycin(78%)

Discussion

In the present study, the most common organism isolated was *Staphylococcus aureus*, followed by Pseudomonas species, Klebsiella and CONS. Gram positive cocci were more sensitive to Linezolid, followed by Vancomycin, Aminoglycosides and Cephalosporins

where as Gram negative bacilli were more sensitive to Carbepenems, followed by Aminoglycosides, Quinolones and ß-lactamase inhibitor combination drugs. MRSA were detected by using cefoxitin(30µg) disc by Kirby-Baeur disc diffusion method on Muller-Hinton agar plates with zone diameter less than 21mm. MRSA isolates were highly resistant to cephalosporins(15%) and Penclillins(10%).

Conclusion

The present data showed that there is no change in etiological agents of CSOM, but change in predominant pathogen is observed.

The isolates were more resistant to commonly used antibiotics stressing the need for rotation of antibiotics in the use.

Emergence of MRSA in CSOM cases necessitates the detection of these strains by routine antibiotic susceptibility test.

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