ejpmr, 2019,6(4), 358-360

SJIF Impact Factor 4.897

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

BACTERIOLOGICAL PROFILE AND THEIR ANTIBIOGRAM IN CSOM PATIENTS ATTENDING TERTIARY CARE TEACHING HOSPITAL IN WESTERN U.P.

Sakshi Vishnoi[1], Sudhir Singh*[2], Umar Farooq[3] and Akshay Jain[4]

[1] Post graduate Student, M.Sc. Medical, Department of Microbiology,
[2]Associate Professor, Department of Microbiology,
[3]Professor and Head of Department of Microbiology,
[4]Assistant Professor, Department of ENT,
Teerthanker Mahaveer Medical College and Research Centre, Moradabad (U.P.) India.

***Corresponding Author: Dr. Sudhir Singh**

Associate Professor, Department of Microbiology, Teerthanker Mahaveer Medical College and Research Centre, Moradabad (U.P.) India.

Article Received on 31/01/2019 **Article Revised on 21/02/2019** **Article Accepted on 14/03/2019**

ABSTACT

Introduction: Chronic suppurative otitis media (CSOM) is one of the most common illness of middle ear which required medical attention. CSOM is higher in India because of poor socioeconomic standards, poor nutrition and lack of health education. Its effects both sexes and all age group. Osteitis or granulation tissue in chronic otitis media destroys the bone and help infection to penetrate deeper. **Aim:** To assess the bacteriological etiology of CSOM and observe the antibiotics sensitivity pattern of isolated microorganisms. **Material and methods:** The study was conducted in bacteriology section of microbiology department at Teerthanker Mahaveer Hospital & Research Centre Moradabad (U.P.) Samples were processed and identified by conventional methods and drug susceptibility testing was done by Kirby-Bauer's disc diffusion method according to CLSI guidelines. **Result:** A total 100 patient clinically diagnosed with CSOM attending the ENT Unit of TMMC & RC. Out of 100 samples 64 were positive for CSOM while 36 were negative. The bacteria associated with CSOM include *Pseudomonas spp, Staphylococcus aureus, Proteus spp, E. coli* and *Klebsiella spp*. **Conclusion:** The study of microorganisms and the current drug sensitivity pattern helps the clinician to choose an appropriate treatment for patients with chronic suppurative otitis media.

KEY WORDS:-CSOM, Aerobic bacteria, Culture and sensitivity.

INTRODUCTION

Chronic Suppurative Otitis Media (CSOM) is one of the common disease in otorhinolaryngology practice today. Incidence of CSOM is more common in developing countries. Prevalence of CSOM in the world is around 65-330 million per year. India falls into countries with higher prevalence.[1] Chronic otitis media [COM] is defined as infection of the middle ear cleft of long standing duration. The condition is considered "chronic" if the tympanic membrane defect is present for more than 3 months.[2,3] CSOM is the most chronic infectious disease in children. The CSOM etiology is complex. In 74% cases aerobic bacteria are responsible and the rest are anaerobes, fungi and mixed infection`. The aerobic micro organism most frequently isolated in CSOM are *Pseudomonas aeruginosa, Staphylococcus aureus,* gram negative organism such as *Proteus spp, Klebsiella spp, Escherichia spp, Haemophilus influnenza* and *Moraxella catarrhalis.* The most frequently isolated anaerobic organisms are *Bacteroides spp.* and *Fusobacterium spp*.[4-7] Poor follow of patients and indiscriminate use of antibiotics may result in persistent infection and development drug resistance which lead to intracranial and intratemporal complication.[8,9] This study was aimed to assess the bacteriological etiology of CSOM and observe the antibiotics sensitivity pattern of isolated microorganisms.

MATERIALS AND METHODS

Total 100 patient 66% male and 34% female of different age group with sign and symptoms of CSOM was taken from Teerthanker Mahaveer hospital, Moradabad, UP. The ear discharge was collected with the help of sterile swab stick from each patient and it was transported to laboratory very soon for it's analysis. Swab stick inoculates on Nutrient agar, Blood agar and MacConkey's agar culture plate and was incubated for 24 hrs at 37°C. Antibiotic sensitivity pattern of bacteria isolated was done by modified Kirby-Bauer disk diffusion method.[10] The discharge from ear was collected on to swab for specimen processing. One swab was used for smear preparation and another used for culture. Ear discharges through swab were taken from 100 patients were suffering from CSOM. Culture isolates were identified by CSLI guidelines in which study of

colony morphology, staining reaction and various biochemical test.[11]

RESULT

A total 100 patients attending OPD/IPD of department of ENT, in Teerthanker Mahaveer Hospital, were included in the study from between January 2018 to October 2018. Total 100 patients, in which 65 were males and 35 were females. Among 100 samples 64 were positive for CSOM while 36 were negative. (Show Table no 1) A significant observation is that 64 patients out of the 100 patients, who presented with CSOM, were below age of 30 years though it is seen in this study that no age is absolutely immune to this disease. Out of the total 64 culture positive cases of aerobic bacteria, *Pseudomonas spp* 29(45.31%) were the commonest bacteria isolated followed by *Staphylococcus aureus* 23(35.93%) and *Proteus spp* 7(10.93%) *Escherichia coli* 3(4.68%) and *Klebsiella spp* 2(3.12%). Most common isolated bacteria i.e *Pseudomonas spp*. Which was responsible to cause CSOM. (Show Table no 2) Out of total 64 positive samples, 41 (64.06%) were infected males and 23 (35.93%) were infected females, it shows that number of males infected were highest than females. (Show Table no 3) Majority of the patients were in the age group of 11–20 years.(show Table no 4).

Table No 1: Culture Positive and Negative Samples

S.N.	Group	Number	Percentage
1	Positive Samples	64	64%
2	Negative Samples	36	36%
3	Total No. of Samples Processed	100	100%

Tables No 2: Different Organism Isolated from clinical samples of CSOM.

S.N.	Organisms	Number	Percentage
1	Pseudomonas spp	29	45.31%
2	Staphylococcus aureus	23	35.93%
3	Proteus spp	7	10.93%
4	Klebsiella spp	2	3.12%
5	Escherichia coli	3	4.68%
6	Total	64	100%

Table No:3: Genderwise distribution of Isolated micro Organism.

S.N.	Group	Number	Percentage
1	Isolation in Male	41	64.06%
2	Isolation in Female	23	35.93%
3	Total	64	100%

Table No: 4: Age wise distribution of samples and Isolation in patient with CSOM.

Age Group	No. of Sample	Positive Result
0-10	25	15
11-20	45	33
21-30	15	10
31-40	5	2
>40	10	4
Total	100	64

DISCUSSION

Due to changing pattern of bacteriological profile of CSOM and sensitivity of microganisms towards antibiotics, it has become very important to find out the organisms causing the disease. In the present study the prevalence of CSOM was higher in age group of11-20 followed by 0-10year, 21-30years 31-40years, >40. *Pseudomonas* was the most common microbe isolated. The sex distribution of CSOM in the present study was 64.06% males and 37.87% females. Ear swabs were cultured using standard microbiological techniques, 94.28% of these ears showed growth after 72 h. Majority of the patients in this group showed monomicrobial growth. In the present study most common isolate was *Pseudomonas spp(45.31%), S. aureus(35.93%), Proteus spp(10.93%), Klebsiella spp(3.12%), E.coli(4.68%).* Brook[12] reported that approximately 60% of aerobic bacteria in CSOM are beta-lactam producing organisms. In a study conducted by Indudharan *et al.*, they found that sensitivity to ceftazidine was 100 %.[13] Yang *et al.* found *Pseudomonas* to be the most common organism in CSOM and its sensitivity rate of ciprofloxacin was 89%[14] Similarly, Sharma found that all the isolated organisms were sensitive to ciprofloxacin and ofloxacin, while most isolates were resistant to amoxicillin.[15] Our study was conducted only for aerobic bacteria. The aim of treatment in cases of unsafe CSOM is to control infection and eradicate the disease. It has been seen that both gram positive and gram negative organisms are responsible for infection of middle ear. It is usually seen that the gram negative organisms outnumber the gram positive organisms in CSOM. In the present study, majority of the organisms were gram negative. Among the gram negative organisms, *Pseudomonas* was the predominant organisms followed by *proteus spp.* Many antimicrobial agents such as ampicilline, erythromycin, tetracycline, and chloramphenicol are normally prescribed for the treatment of bacterial otitis media. In the present study majority of isolates were sensitive to Amikacin, Ceftazidime, Ciprofloxacin & Cefotaxime Polymixin-B, Colistin, Imipenem, Meropenem, tazobactum, Co-trimoxazole, Vancomycin, Gentamicin.

CONCLUSION

In the present era of antimicrobial resistance, the emergence of antibiotic resistance is becoming more common. The most important factor responsible for development of antibiotics resistance is human negligence. As soon as, symptoms subside, patients stop taking antibiotics before completion of therapy and allow

partially resistant microbes to flourish. Such practice should be discouraged and patients should be educated to avoid the same. Knowledge of the causative organisms and their resistance pattern is crucial for appropriate treatment to prevent morbidity and mortality. As CSOM cases are more common in the day to day practice the general practitioners should aware of the changing patterns of microbial etiology and their susceptibility pattern to antibiotics. So we can conclude that culture and sensitivity in case of CSOM is very important for proper treatment of such cases.

ACKNOWLEDGMENT

The authors were thankful to the department of microbiology & department of ENT, Teerthanker Mahaveer Medical College and Research Centre, Moradabad(U.P.).

REFFERENCE

1. Acain J. Chronic suppurative otitis media- burden of illness and management option. Geneva; world health organization, 2004.
2. Telian SA, Schmalbach CE. Chronic Otitis Media. In: Snow JB Jr, Ballenger JJ. Ballenger‟s Otorhinolaryngology Head and Neck Surgery. Ed: Ontario: BC Decker Inc, 2003; 16: 261–90.
3. Mills RP. Management of chronic suppurative otitis media. In: Kerr AG, Booth JB, editors. Scott Brown‟s Otorhinolaryngology. 6th edition. Oxford: Butterworth – Heinmann, 1997; 3.
4. GOI HC, Kurnaz A, Turhan V, Onc 010, Pahsa A, micoorganisms isolated from middle ear culture and their antibacterial susceptibility in patients with chronic suppurative otitis media. kulak Burun Bogaz Ihtis Derg, 2006.
5. Verhoeff M, Vander Veen EL, Rovers MM, Sanders EA, Schilder AG, Chronic suppurative otitis media; a reveiw. Int J Pediator otorhinolaryngol, 2006; 70: 1-12.
6. de Miguel Martinez I, Del Rosario quintana C, Balanos RiveroM, Ramos Macias A - Actiology and Therapeutic Consideration in COM. Analysis of a 5 year period Act a Otorrinolaringol Esp, 2005; 56; 459-62.
7. Saini S, Gupta N, Aparan, Seema, Sachdeva OP, Bacteriological study of paediatric and adult chronic suppurative otitis media. India J Pathol Microbiol, 2005; 48: 413-6 (167617774).
8. Roger FG Acute and Chronic suppurative otitis media, In: David AA, Michael IC, Alan GK (eds) Scott-Brown's otolaryngology V016,6th edn, Butterworth Heinemann. Lodon, 1997; 1-25.
9. Gulati SK. Investigative profile in patients of chronic suppurative otitis media. IndJ Otol, 1997; 3(2): 59-62.
10. Miles RS, Amyes SGB. Laboratory control of antimicrobial therapy. In; Gerald Colle J, Barrie P, Andrew GF, Anthony S, editors; New delhi, Mackie and McCaetney Practical medical microbiology, 2007; 14 edn: 151-78.
11. CLSI (Clinical Laboratory Standard Institute), Perfomance Standard of antimicrobial disk susceptibility test, Approved standard, MO2 –a12, 12th ed, Clinical Laboratory Standardv Institute, Wayne, USA, 2015; 35(1).
12. Brook I. The role of anaerobic bacteria in otitis media: microbiology, pathogens-is, and implications on therapy. Am J Otolaryngol, 1987; 8: 109.
13. Indudharan R, Ashraful Haq J, Aiyar S. Antibiotics in chronic suppurative otitis media: a bacteriological study. AnnOtol Rhinol Laryngol, 1999; 108: 440–445.
14. Yang Y, Gong S, Liu Y The clinical investigation of bacteriology of chronic suppurative otitis media. Lin Chuang Er Bi Yan Hou Ke Za Zhi, 2001; 15(12): 550–552.
15. Sharma S, Rehan HS, Goyal A, Jha AK, Upadhyaya S, Mishra SC, et al. The bacteriological profile in chronic suppurative otitis media in eastern Nepal, Trop Doct. 2004; 34(2): 102-4.