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Research Paper

BACTERIAL AND FUNGAL STUDY OF 100 CASES OF CHRONIC SUPPURATIVE OTITIS MEDIA.

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ABSTRACT

Objective – To study the bacterial and fungal organisms present in chronic suppurative otitis media and to study the antibiotic sensitivity pattern of the bacterial

tern of the bacterial isolates.Methodology – A total number of 100 patients with clinical *diagnosis of CSOM, attending the ENT OP comprised the study group. Three pus swabs from each patient discharging ear were collected. One pus swab is used for smear preparation, second swab for bacterial cultures and third swab for fungal cultures.Bacterial isolates identified and antibiotic susceptibility testing is done.Fungal isolates were identified by conventional methods.The findings were analysed.Results – Out of 100 patients, 53% were females and 47% were males. In this 40% belonged to 0-15 yrs age group. From 100 bacterial cultures 95 bacterial strains were isolated. In this Pseudomonas aeruginosa (36), Klebsiella(20),Staphylococcus aureus(10) followed by other organisms. Differ- ent fungal organisms isolated from 100 cultures were Candida albicans(12),Aspergillus flavus(5), Aspergillus niger(4). Study of antibiotic susceptibility of 95 bacterial isolates revealed that Imipenem is most effective without resistance followed by Amikacin(6.3% resistance), Ge ntamicin(7.3%),Ciprofloxicin(10.5%) followed by other antibiotics.Conclusion – The present study stresses the need for careful isolation of both bacterial and fungal organisms to establish the role of fungi in CSOM pathology and to prevent administration of unwanted antibiotics.* INTROD

UCTION CSOM with its complications is one of the common diseases in the practice of otologist, paediatrician and general practitioner. CSOM is an infection of the middle ear and mastoid cavity 1 .It is defined as persistent or intermittent infected discharge of more than 3 months duration through perforated or non intact tympanic membrane caused by bacteria, fungi and viruses re- sulting in inflammation of the mucosal lining that often results in partial or total loss of tympanic membrane and the ossicles 5 . CSOM is one of the most common causes of deafness and can cause permanent perforation of tympanic membrane. World Health Organization had estimated that CSOM prevalence in In- dia, Tanzania, Soloman islands, Guam, Australian aborigins and Greenland is highest(> 4%) and urgent attention is needed to deal with the health problem 1 . In the recent years a steady in- crease in the incidence of gram negative bacterial infections has been observed. Many a times random antibiotic therapy prior to a defined laboratory diagnosis, leads to indiscriminate use of an- tibiotics, which results in emergence of resistant strains. Recent advances in the management of CSOM emphasize the necessity of bacteriological examination of ear discharge and mycological study.In the present study an earnest attempt was made to study the bacterial and fungal flora of CSOM cases. METHODOLOGY A total number of 100 patients with clinical diagnosis of CSOM attending ENT OP department of Govt. General Hospital, Kaki- nada during February 2012 to September 2014, comprised the study group. All these are not having recent treatment with an- tibiotics either locally or systemically. These cases included are individuals of both sexes and all age groups.Clinical evaluation of the disease was done by presence of per- foration of tympanic membrane and otorrhoea which are the two presenting symptoms of patients. The discharging pus was collected under aseptic conditions with the help of sterile swabs in triplicate by dipping into deep meatus through it drains. The pus samples from each patient was analyzed in the department of Microbiology.The material of the first swab was used for making smears and for KOH preparation for microscopic examination. The second swab was used

KEYWORDS :

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METHODOLOGY

A total number of 100 patients with clinical diagnosis of CSOM attending ENT OP department of Govt. General Hospital, Kaki- nada during February 2012 to September 2014, comprised the study group. All these are not having recent treatment with an- tibiotics either locally or systemically. These cases included are individuals of both sexes and all age groups.Clinical evaluation of the disease was done by presence of per- foration of tympanic membrane and otorrhoea which are the two presenting symptoms of patients. The discharging pus was collected under aseptic conditions with the help of sterile swabs in triplicate by dipping into deep meatus through it drains. The pus samples from each patient was analyzed in the department of Microbiology.The material of the first swab was used for making smears and for KOH preparation for microscopic examination. The second swab was used to inoculate on two Sabourad's Dextrose agar slopes and incubated at 37oC and another at 25oC. The third swab was used for bacteriological cultures on Blood agar and MacConkey agar. The bacterial strains isolated were identified according to standard procedures given in Mackie MacCartney 14th edition2. Bacterial isolates were subjected to antibiotic sus- ceptibility test using disc diffusion method by Kirby-Bauer. Fun- gal growth on SDA were identified by standard identification methods3.

RESULTS

Out of 100 CSOM patients investigated in the present study in- cludes various age groups ranging from 3-70 years. In these 100 cases 47 were males and 53 were females. In this 40 cases be- longed to 0-15 years age group.On culture of 100 patients swabs 95 bacterial strains and 21 fun- gal strains were isolated. 68 patients swabs showed growth of one bacterial organism , 4 patients swabs shows mixture of two bacterial strains, 19 patients swabs showed one bacterial and one fungal strain, 2 patients swabs shown only fungal growth and 7 patients swabs showed no growth of any organism.Out of 95 bacterial organisms isolated from cultures, Pseudomonas aeruginosa 36 (37.89%), Klebsiella pneumoniae 20 (21.05%), Staphylococcus aureus 10 (10.52%), Coagulasenegative Staphylococci 9 (9.47%), Escherichia coli 7 (7.35%), Proteus 6 (6.31%), Acinetobacter 3 (3.15%), Providencia 2 (2.1%) and Morganella morgagnii 2 (2.1%).Out of 21 fungal organisms isolated from cultures, Candida albi- cans 12(57.14%), Aspergillus flavus 5

(23.80%), Aspergillus niger 4 (19.04%) were found.Overall antibiotic sensitivity pattern of isolated bacterial or- ganisms from CSOM cases revealed that Imipenem(imp) was most effective antibiotic followed by Amikacin(Ak), Gentamicin (Gen),Ciprofloxicin(cip),Amoxycillin plus clavulanic acid(Amc) , Cefatoxime(ctx) and Cotrimaxazole(Cot).IJSR - INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH 125 Volume : 4 | Issue : 8 | Aug 2015 • ISSN No 2277 - 8179

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TABLE – SHOWING THE BACTERIAL ISOLATES FROM CSOM CASES AND THEIR RESISTANCE PATTERN TO ANTI- BIOTICS

ORGANISM	TOTAL	Imp	Ak	Gen	Cip	Amc	Ctx	Cot
1.Pseudomonas aeruginosa	36	0	5 14%	0	0	17 47%	17 47%	0
2.Klebsiella pneumoniae	20	0	0	1 5%	1 5%	0	6 30%	0
3.Staphylococcus aureus	10	0	0	0	5 50%	0	0	3 30%
4.CONS	09	0	0	0	2 20%	0	0	6 67%
5.E.coli	07	0	0	3 43%	2 28%	2 28%	0	5 71%
6.Proteus species	06	0	0	3 50%	0	1 17%	1 17%	2 33%
7.Acinetobacter	03	0	0	0	0	1 33%	1 33%	1 33%
8.Providencia species	02	0	1 50%	0	0	0	1 50%	0
9.Morganellamorgagnii	02	0	0	0	0	0	0	0
Total	95	0	6	7	10	21	26	27
% of organisms resistant to each antibiotic			6.3%	7.3%	10.5%	22.1%	27.3%	28%

DISCUSSION

CSOM is a well-known destructive and persistent disease, with insidious onset and capable of causing irreversible sequelae. The reason of serious concern particularly in children is, it may have long term effects on hearing. Early microbiological diagnosis en- sures prompt and effective treatment to avoid such conditions4. Drug sensitivity tests of bacterial isolates recovered is essential for making appropriate decision of antimicrobials that will effec- tively eradicate the pathogen.Among 100 cases studied, in the present study females are 53% and males are 47%. Correlates with the observation reported by Shrestha.B.L.etal 20115,Harvinder kumar and Sonia seth6.Among the study group the highest incidence of cases observed in the 0-15 age group correlating with 5,6.Different bacterial species isolated from cultures in the study showed Pseudomonas aeruginosa 36 (37.89%) is the most pre- dominant organism followed by Klebsiella pneumoniae 20 (21.05%) followed by Staphylococcus aureus10 (10.52%) is in correlation with V.K.Poorey etal (2000)7,Mohammed.S etal8,AHC Loy etal9,Kamran Iqbal etal(2011)10 .The incidence of Pro- teus group in this study is 10%, correlating with the reports of V.K.Poorey(2000)7(9.8%), Karman Iqbal (2011)10(8%) According to Mawson 196312 Proteus species and Pseudomonas species do not normally inhabit the upper respiratory tract and these organisms are considered mostly as secondary invad- ers from the external auditory canal gaining access to the mid- dle ear via defect in the tympanic membrane resulting from an acute episode of otitis media. The infectivity of these organisms is not high comparatively and their foot hold is gained only when resistance of middle ear has been significantly lowered by on slaught with other organisms11.Our observation of Candida albicans as predominant isolate fol- lowed by Aspergillus species is in correlation with Harvinder Ku- mar etal6 and Kamran Iqbal etal10 The overall antibiotic sensitivity pattern of organisms isolated in the present study is correlating with the sensitivity pattern test- ed in the study of Kamran Iqbal etal10 The high susceptibility of all the strains in general and Gram negative organisms in particular to Imipenem and Amikacin can be attributed to the sparing use of these drugs in the treatment of CSOM cases.

CONCLUSION

In the present scenario recovery of both bacterial and fungal species from CSOM cases necessitates the formulation of anti- microbial policy against all potential pathogens taking into con- sideration the role played by fungal species in the chronicity of CSOM.

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