Microorganisms present in discharging otitis media in a group of patients in Kathmandu

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ABSTRACT

Discharge from the ear is one of the commonest symptoms of infections of the ear. To study the major strains of bacteria encountered in ear discharges, this study was conducted from July 1999, to June 2001 in the microbiology laboratory of Om Hospital. A total of 115 patients, of 6-35 years of age clinically diagnosed as discharging otitis media were studied. In 60.9% single organism and in 26.08% two organisms were isolated. Results revealed that, *Staphylococcus aureus* (34.3 %), *Klebsiella pneumoniae* (24.3 %), *Pseudomons aeruginosa* (22.8%), *Enterobacter* sps (7.1%), *Esch coli* (4.3 %), *Citrobacter* sps (1.4%), *Proteus* sps (1.4%), *Acinetobacter* sps (1.4%) and *Pneumococci* (1.4%) were the common organisms in the discharge. *Candida albicans* (2.8%) was the pathogen in two cases. In 27.8% of cases the causative agent was not demonstrated. About sixty percent (65.9%), 64.8 % and 56.0 % of the isolates were sensitive to amikacin, ciprofloxacin and gentamycin respectively.

Keywords: Otitis media, *Klebsiella* species, *Staphylococcus aureus*, ciprofloxacin.

INTRODUCTION

Discharge from the ear is one of the commonest symptoms of ear. Ear infection occules the seventh position among top ten OPD diseases in Nepal as stated by the annual report 1998/99.[1]

A study carried out by indudhoran in Malaysia to analyze to organisms from the culture of ear swab and their sensitivity to various antibiotics showed that out of 302 swabs examined the major organisms isolated were Pseudomons aureus (27.2%) followed by Staphylococcus aureus sensitive of Ciprofloxacin (98.8%).

Similarly study carried out by Shah A[2] in trivhuwan university teaching hospital predominant organism isolated from discharging ear.

Acute otitis media is always a sequel to upper respiratory infection and seen most commonly in childhood with peak incidence in 5-6 years age group.[3] Organisms reach the middle ear via the Eustachian tube. In inadequately treated cases the disease in halted temporarily but recurs in 1-3 weeks.[4] Inadequate treatment leads to complications like hearing loss in 20.0% of children. The present study was conducted from July, 1999 to June 2001, to find out the etiological agents of acute otitis media and its antibiotic susceptibility patterns.[5]

MATERIALS AND METHODS

This study was conducted on the patients presenting in the Ear Nose and Throat outpatients in Om Hospital. The sample collected for this study was the pus and discharge from the ear. Fine swab sticks were prepared with the help of absorbent material like cotton- wool mounted on a wooden rigid stick and were sterilized in an autoclave. The discharge was collected in two consecutive swab sticks for each sample, one for the preparation of smear for microscopic and the other for the seeding of culture. Ear discharge swabs were taken from 115 patients suffering from discharging otitis media.[5] Direct microscopy was done for the presence of pus cells, bacteria and fungi. Culture was put up for the isolation of bacteria and fungi. Culture isolates were identified by standard techniques. Sensitivity testing of bacterial isolates was done by modified Kirby-Bauer disk diffusion method.[6]

RESULTS

The result of this study showed that 33.4% was the *Staph. aureus* showed properties growth. The result of this study inregard to microbial analysis of ear disease are similar to other studies.

The isolates of microorganism *staph. aureus* was the highest followed by *Klebsiella pneumoniae.* 24.3%, *Pseudomonas* (22.8%) and *Enterobacter* sps (7.0%).

Table-1 illustrates the age and sex distribution of patients in the study group. Direct microscopy coincided with the culture findings. In 70.0% single organisms were isolated and in13.0% two organisms were isolated, *Candida* sp was isolated in two cases.

Table-2 shows the organisms isolated. In 17.0% no pathogens was demonstrated. Table-3 shows the antibiotic sensitivity pattern of isolates. About sixty six percent (65.9%) of the organisms were sensitive to amikacin

DISCUSSION

Our study to find out the microbial organism responsible for discharging ear and the antibiotic sensitivity patern of commonly isolated organism. It is important in the management of ear infections to know the bacterial etiology so that antimicrobial treatment can be properly directed.[7] The study deal with the microbial analysis of ear disease isolates and identification of different boundaries and antibiotic sensitivity patern of the isolates.

The result of this study showed that 33.4% was the staph aureus showed positive growth. The results of this study inregards to microbial analysis of ear discharge are similar to other studies. The isolates of microorganisms *Staph. aureus* was the highest followed by *K. pneumonae* 24.3%, *Ps. aeruginesa* 22.8% and *Enterobacter* sps 7.0%.

Maximum numbers of cases were found in the age group of 1-10 years (45.0%) as reported by Taneja and Varaiya.[8] Males predominated (71.0%) over the females (29.0%) as in the study of Taneja. *Staph. aureus* (33.3%) was the commonest organisms found in the present study, whereas in the study of Taneja *Haemophillus influenzae* (42.8%) was the predominant one. Varaiya and Mathur reported *Ps. aeruginosa* (28.3%) as the commonest ones found in the discharge of otitis media.[9]

In the present study majority of isolates were sensitive to amikacin (68.7%) whereas in study of Varaiya[10] 54.1% were sensitive while ciprofloxacin was the next sensitive drug observed in 59.3% cases. The authors opine that, therapy should be administration of a combination of antibiotics depending on susceptibility pattern of the isolates should be given in order to prevent the complications.

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Table-1: Age and sex distribution of the study group

Age	No	Male	Female
<10 Years	39	25	14
11-20 years	30	10	20
20-30 years	27	20	7
30-35 years	19	14	05
Total	115	69	46

Table-2(A): Organisms isolated in the study group.

Single Organisms No. of cases 73	%
Staph. aureus	34.3
Klebsiella pneumoniae	24.3
P. aeruginosa	22.8
Enterobacter sps	7.1
Esch.coli	4.3
Citrobacter sps	1.4
Proteus sps	1.4
Acinetobacter sps	1.4
Pneumococci	1.4
C. albicans	2.8

Table-2(B): Two organisms Isolated

Two Organisms (No.of cases 10)	%
Staph. aureus+ Klebsiella	38.5
Klebsiella+Esch.coli	15.4
Staph. aureus +Enterobacter	7.7
Staph. aureus +Citrobacter	7.7
Klebsiella+Citrobacter	7.69
Klebsiella+Proteus	7.7
Ps. aeruginosa+Citrobacter	7.7
Ps. aeruginosa+Proteus	7.7

Table-3: Sensitivity pattern of the aerobes in percentage

ISOLATES NO 94	No	Ak	Cf	Nx	G	C	E	Cp
Staph. aureus. (32)	32	22	19	17	20	16	11	11
Klabsiella (23)	23	12	8	09	11	07	05	08
P.aeruginosa (19)	19	17	16	11	14	02	00	02
Enterobacter sps.(7)	07	04	05	05	06	03	01	02
Esch. coli(4)	04	01	03	01	03	02	-	-
Citrobater sps. (4)	04	03	02	01	-	02	-	-
Proteus sps. (3)	03	01	02	01	02	01	-	-
Acinetobacter (1)	01	-	01	01	01	-	-	-
Pneumococci (1)	01	01	-	01	-	-	01	-
Total	94	61	58	47	57	33	18	23

Ak-Amikacin Cf-Ciprofloxacin Nx-Norfloxacin G-Gentamycin
C-Chloramphenicol E- Chloramphenicol E-Erythromycin Cp-Cephalexine