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Two sided ear swabs versus one swab in bilateral chronic suppurative otitis media

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Abstract— Background: Chronic suppurative otitis media (CSOM) is a common public health problem worldwide. The global burden of illness from CSOM is estimated to involve about 65 to 330 million individuals with draining ears. There is an association between CSOM and poor educational performance. A portion of the variability observed may be related to differences in sampling and processing methods. The Causative microorganisms may be same or different in both ears, so this study was done to determine the prevalence of same micro organism versus different types in bilateral chronic suppurative otitis media Tooke place in Alhabobi teaching hospital. Method: a hospital-based cross-sectional descriptive study carried out at the ENT outpatient clinic and the Microbiology Department of Alhabobi teaching hospital and private laboratory .The sample comprised 46 patients with bilateral active CSOM. All patients were evaluated through a detailed history and clinical examination. Pus samples from draining ears were collected by aspiration with a sterile pipette. The specimens were immediately sent for microbiological analysis. Data were analyzed using SPSS.version 20. Results: The most of the patients were female (29) 63%, infection was common among age group below 30 years. Housewife 35% followed by students24% were the commonest occupational distribution. Most of the results of cultures were same type of bacteria in both ears (69.5%) while (30.5%) were different.No significant different between type of bacteria in relation to age of patients and sex distribution ,while there was significant relationship between type of occupation and type of bacterial isolation whether same or different , while didn't shown in regard to kind of residence. In our study the significant statistically difference between type of bacteria in term of same or different was clear in income distribution. Conclusions: Our study was shown that 30.5% of cases were different types of bacteria and it was important to do swabbing from both ear because its statistically significant characters.

Keywords: swabs versus, bilateral chronic suppurative,

Introduction:

Chronic suppurative otitis media (CSOM) is defined as a perforation of the tympanic membrane with persistent drainage of pus from the middle ear, lasting at least two weeks.[1] the World Health Organization's definitions suggest more than two weeks[2]others contend longer (eg, up to six weeks)[3] The global burden of illness from CSOM is estimated to involve about 65 to 330 million individuals with draining ears, 60% of whom suffer from significant hearing impairment.[4]There is an association between CSOM and poor educational performance[5]. Typical pathogens reach the middle ear following insufflations of respiratory pathogens through the eustachian tubes from the nasopharynx and spread from the external ear canal inwards through a non-intact tympanic membrane[6,7].

Studies on microbiologic diagnoses of CSOM differ in regard to patient age, geography, and the presence of complications and these inconsistencies likely impact some of the variation in reported pathogens. A portion of the variability observed may be related to differences in sampling and processing methods[8,9].

Method:

A cross sectional study was done in Al.habobi teaching hospital in the ENT out patient department between October 2018 to August 2019. Inclusion criteria were all patients with actively draining Bilateral chronic suppurative otitis media who consented to participate in the study.

Sample size determination

The sample size was determined using the Cochran (1963:75) formula to yield a representative sample for proportions.46 patients with active bilateral chronic discharging ears.

Sampling method

The study utilized simple random sampling to select CSOM patients. Subjects were recruited into the study as they came to the clinic until the required number was obtained with strict application of the inclusion and exclusion criteria .

Social demographic and medical history

A detailed clinical history that captured age, gender, duration of discharge and antibiotic therapy was taken for all included patients. Patients of any age, both genders, bilateral draining ears, resulting from CSOM of more than two weeks, were included in the study. Demographic data were taken and, together with the patient's medical history and physical examination findings, were entered in the patient's study file .

Bacterial isolation

Pus specimens from draining ears were taken on the first day of contact with the patient. The ears were inspected first, pus from the outer part of the ear canal was then cleaned by suction . A sterile pipette was then introduced through a sterile aural speculum placed in the external auditory canal, and each specimen was aspirated from the bony part of the ear canal or the middle ear cavity. Pus specimens were collected from both discharging ears . Each collected specimen was immediately placed in an anaerobic jar, under aseptic conditions and transported to the microbiology lab for microbiological culture and identification. For bacterial isolation, the specimens were inoculated on blood agar, MacConkey's agar, and Chocolate agar.

Data management

All data collected in the study were sorted, coded, and entered in a computer using SPSS version 20 software. The demographic details, characteristics, and particulars of the subjects, in terms of predictability and determination of risk of CSOM, were analyzed using the Chi-square test. Cross tabulations were done to establish relationships between variables and Chi-square tests were used to test association.

Results:

The age groups were range from 1 up to 60 years, and there were (29) female and (17) male included in this study.

Table 1. shows most of the patients were female (29) 63%, and (17) male 37%. also reveals the infection was common among age group below 30 years. Housewife 35% followed by students24% were the

commonest occupational distribution was shown in the table1. Prevalence of the cosm was high in rural (58.7%) while (41.3%) in urban areas, higher among un married patients (58.6%) and highest among patients with illiterate level of education (65.2%) with significant deferent in income status (70%) was poor patients.

Most of the results of cultures were same type of bacteria in both ears (69.5%) while (30.5%) were different as shown in figure 1.

76% of the patients had bilateral CSOM last more than 12 months was shown in table 2.

Table 3. and table 4. were reveal no significant different between type of bacteria in relation to age of patients and sex distribution.

Significant relationship between type of occupation and type of bacterial isolation whether same or different was seen in table 5, while didn't shown in regard to kind of residence as in table 6.

Table 7 shows no significant difference between marital status and type of bacteria , also no significant different between level of occupation and type of bacteria was seen in table 8.

Table 9 shows a significant different betweentype of bacteria and income status.

Table 1: Demographic distribution of the patients

Socio-demographic characters	Number	Percentages
age		
1-15	20	43.5%
16-30	14	30.5%
31-45	6	13%
46-60	6	13%
Sex		
Male	17	37%
Female	29	63%
occupation		
No job	3	6.5%
Employed	4	8.6%
Self-employed	4	8.6%
Retired	1	2%
House wife	16	35%
Student	11	24%
Baby	7	15.3%
Residence		
Urban	19	41.3%
Rural	27	58.7%
status		
married	17	37%
single	27	58.6%
divorced	2	4.4%

Level of education		
Illiterate	30	65.2%
Primary school	7	15.3%
Secondary school	6	13%
University	3	6.5%
income		
Poor (<250 ID)	34	74%
Medium(250- 500ID)	10	21.7%
High (> 500 ID)	2	4.3%

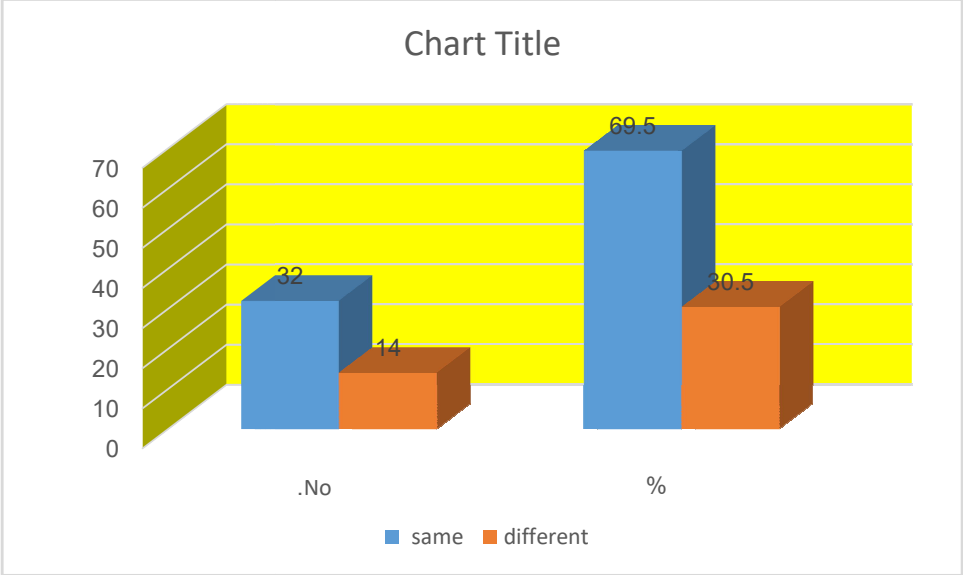

Fig 1: distribution of types of bacteria according to culture

Table 2: distribution of period of the disease

Months	No.	%
<3 months	0	0
3-6 months	2	4.5
6-12 months	9	19.5
>12 months	35	76

Table 3: type of bacteria in relation to age distribution

Type of Bacteria	Age				Total	X^2
	<15	16-30	31-45	46-50		p.value
Same	12	10	5	5	32	1.962
Different	8	4	1	1	14	.580
Total	20	14	6	6	46	

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		sex		Total	X^2 P value
		male	female		
Type of Bacteria	same	14	18	32	2.083[a] .149
	different	3	11	14	
Total		17	29	46	

Table 4: type of bacteria in relation to sex distribution

Table 5: type of bacteria in relation to occupation distribution

Type of bacteria	Occupation							X^2, P value
	No job	employed	self-employed	retired	House wife	student	baby	10.674[a] 0.099
Same	2	3	3	0	13	7	4	
Different	1	1	1	3	3	1	4	

Table 6: type of bacteria in relation to residence distribution

Type of bacteria	residence		X2, P value
	urban	rural	1.217 0.270
Same	10	12	
different	9	5	

Table7: type of bacteria in relation to marital status distribution

Type of bacteria	Marital status			
	married	Single	divorced	2.231[a] 0.328
Same	14	17	1	
different	3	10	1	

Table 8: type of bacteria in relation to education level distribution

	education				**X2. P**
Type of bacteria	illiterate	Primary	secondary	university	1.017[a] 0.797
Same	20	5	5	2	
different	10	2	2	0	

Table 9: type of bacteria in relation to income distribution

Type of bacteria	**Income**			
	Poor	Medium	High	11.326[a]
Same	28	4	0	0.003
Different	6	6	2	

Discussion:

Chronic suppurative otitis media was more among children and young adults in our study compatible with other studies in India and Pakistan [10, 11].This is can be explained as a result of shape and position of the Eustachian tube which is horizontal in children increasing chance of spread of the infection from the nasopharynx to middle ear cavity [12]. However, these findings differ from the findings of another study from Singapore, which showed that the disease was more prevalent in the age group of 31 to 40 years[13]. In our study female more affected than male differ from study done in Malawi [14]and Ethiopia [15].

Patients in our study who had bilateral chronic suppurative otitis media exhibited difference in term of causative microorganism between two ears (30.5%) near to the results of study conducted in South Africa,(44.4%) of patients with bilateral disease showed differences in the distribution of bacteria, indicating that separate pus specimens need to be taken in bilateral disease[16].However in study done in Malawi at Queen Elizabeth Central Hospital, shown on difference in term of CSOM causing micro-organisms[14].

Housewives patient were the most type of occupations have csom in our study with significant difference between types of bacteria (p value 0.099) , and shown its high prevalence of same type of bacteria in two ears (13 :3) shown in table 5.

No significant statistical characters in our study between type of bacteria in term of type of residency as in table(6)while Jae Ho Chung et,al.[17]in there study found it was more in row houses.

Type of bacteria shown no significant statistical characters between type of bacteria in relation to marital status (table 7) and level of education (table 8) although it was more among illiterate patient in our study.

In our study the significant statistically difference between type of bacteria in term of same or different was clear in income distribution (table 9) , where the prevalence more among poor people which are same type in both ears.

Conclusions:

Our study was shown that 30.5% of cases were different types of bacteria and it was important to do swabbing from both ear because its statistically significant charecters.

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