

INTRODUCTION

MANY patients attending the ENT clinic for ear infection can be treated and followed up at the health centre, while others who are in need to be referred to ENT clinic prefer to be treated at the local health centre.

This study looks at the present situation in Ibn Sina Health Centre with respect to management of patients with ear discharge and the reasons for referral to ENT clinic, and the differences in the management at both places. We identified all the cases who had an ear swab during the year 1981 from the laboratory register and collected the information from their family folders.

We found that the most common reason for referral to the secondary care was ear infection caused by *Psuedomonas Aurenginsa*.

We also found that there was no major difference in the medical management of patients with ear discharge between the health centre and the ENT clinic.

PATIENTS AND METHODS

This study was done at Ibn Sina Health Centre. All patients with ear discharge for which an ear swab was sent to the laboratory and all patients referred to the ENT clinic for ear infection or ear discharge during the period January 1981 to April 1982 were included in the study. A total of 101 patients were identified. Fifteen patients were excluded because we could not get their family folders. Of the 27 patients referred to the ENT clinic, only 10 (37%) could be followed up.

The Problem of Ear Discharge in Ibn Sina Health Centre Bahrain (July 1981)

By Kadhim J. Al Halwachi*,
and Hani K. Atrash**

On an abstract form information about age, sex, nationality, laboratory studies, signs and symptoms, premorbid factors, family size and order among siblings was collected.

RESULTS

The seasonal distribution of patients with ear discharge who presented to Ibn Sina Health Centre between January 1981 and April 1982 show marked increase starting in August 1981. (Fig. 1).

Out of the 86 patients fully studied, 52 (60.5%) were Bahrainis and 34 (39.5%) were non-Bahrainis; 47 (54.7%) were males and 39 (45.3%) were females. Twenty six (30.2%) of the

patients were under the age of 5 years; of these 26 patients, 14 (53.8%) were fully vaccinated (Polio, DPT and measles) and 11 (42.3%) were fed by bottle or bottle plus breast. (Fig. 2).

Of the 86 patients 11 (12.8%) came from houses in which there was one to four inhabitants, 50 (58.1%) from house with five to ten inhabitants, and 25 (29.1%) were from houses with more than ten inhabitants. Thirty seven (43%) patients were of the order one to four among their siblings.

The average number of visits per patient per year was (3.15) for ear discharge only. However only 18 (18.6%) of the patients had 3 or more episode in a year. (Fig. 3).

Itching, inflammation of the external canal and blocked hearing were common signs and symptoms among patients older than 20 years, while pain, cold and perforation of the ear drum were more common among patients younger than 20 years. (Table 1).

Patients younger than 6 years were more likely to have premorbid factors. (Table 2).

A total of 89 swabs were taken for culture for a total of 101 patients; 57 (64%) swabs were positive, 28 (31.5%) were negative and in 4 (4.5%) cases the results were unknown.

Of the positive cultures, 29 (50.9%) grew *Psuedomonas auerogenosa*, 7 (12.3%) grew *staphylococcus aureus*, 4 (7.0%) grew *streptococcal pneumoiae* and

* Public Health Consultant,
Office of Professional
Standards and Systems Analysis,
Ministry of Health,
State of Bahrain.

** Assistant Professor of
Epidemiology & Biostatistics,
American University of Beirut.

3 (5.3%) grew *Proteus mirabilis*. (Table 3).

Of all 89 patients for whom swabs were taken for culture, 65 (73%) were given systemic antibiotics; of those 65, 35 (53.8%) cultures grew bacteria resistant to the prescribed antibiotics, 7 (10.8%) grew bacteria that was sensitive, 15 (23.1%) were sterile, while the results of cultures of the remaining 8 (12%) were unknown.

The highest sensitivity was (33.3%) to penicillin followed by Septrin and Erythromycin (16.7%) and Ampicillin (10%). None of the organisms was sensitive to Tetracycline.

Ampicillin was the most commonly prescribed antibiotic in this study (53.8%).

Among the local antibiotics used Chloromycetin was most commonly used 43% followed by Sofradex (24.4%). Of the 21 patients referred to ENT clinic 11 (40.7%) were referred because of infection caused by *Pseudomonas aureogenosa*, 5 (18.5%) were referred for chronic otitis media and 5 (18.5%) for otomycosis. Of the 10 cases followed up at the ENT clinic only 3 had different diagnosis from that made at the health centre; proper drainage of the ear and evaluation of the middle ear by audiogram and tympanometry were found to be the significant differences in the medical management.

DISCUSSION

Purulent otitis media is the tenth most common diagnosis and it accounts for ten million visits per year in USA¹. Common cold,

tonsillitis, upper respiratory tract infection, sore throat and atopy were found to be predisposing factors^{2,3}. Our findings were similar except that in our case those factors were more predominant among children below 6 years of age.

It was found that the incidence of purulent otitis media is high in Eskimos and other Alaskan natives, Canadian Indians and Swedish Lapps¹, but the etiology was not known. If cold weather is the reason, this may explain the peak incidence in December in our study. The other peak observed in August could be explained by swimming in pools or the sea.

The age and sex distributions are similar to studies done in Tillburg in Holland and Rochester Family Medical Centre¹ where the predominant age group was below 5 years. At that age infection may probably be due to a narrow and short Eustachian canal. Bottle feeding was found to be a factor in ear infection. In Rochester's study¹ the incidence was found to be less with increase in the number of family members, which was unexpected. We found in our study that 50 patients (58.1%) came from families in which there were five to ten members; knowing that the average family size in Manama in 1981 was 5.2 persons, (census 1981), we concluded that the incidence of ear discharge was high among patients coming from large families.

Unexperienced mothers, and mothers tired with successive pregnancies may not have enough time to take care of their children. This may explain the high incidence in those children whose

order among their siblings is between 1st and 4th.

In a study done in Bahrain in 1979, *Proteus mirabilis* was found to be a common organism in the acute stage⁴; *H. Influenza* and streptococcal pneumonae were the common organisms isolated from middle ear aspirate in children each accounting for 33% followed by *Ps. Auregenosa* (11%)^{5,6}. In our study *Ps. Auregenosa* accounts for (50.9%) followed by staphylococcus aureas (12.3%), streptococcal pneumonae (7%) and proteus mirabilis (5.3%).

We found a very low sensitivity rate to most of the antibiotics prescribed in the health centre, we cannot predict the same in ENT clinic due to a wider range of antibiotics used. However we don't recommend to take our findings seriously, because the swab result does not represent the actual bacteriology of the middle ear and we don't have control cases.

CONCLUSION

Most patients with ear discharge can be diagnosed and treated medically at the health centre, few cases have to be referred to secondary care for diagnosis and/or medical or surgical treatment.

Ear swab is useless and often misleading if taken 8 hours after starting the discharge.

ACKNOWLEDGEMENT

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FIGURE 1

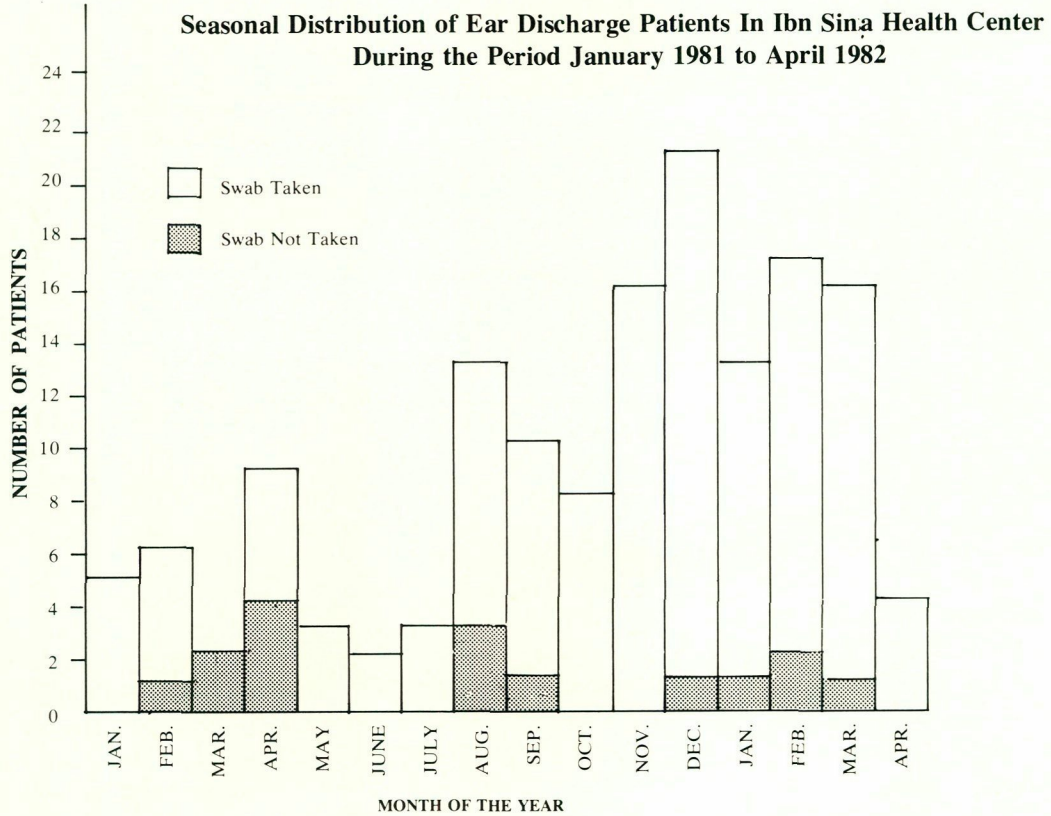


FIGURE 2

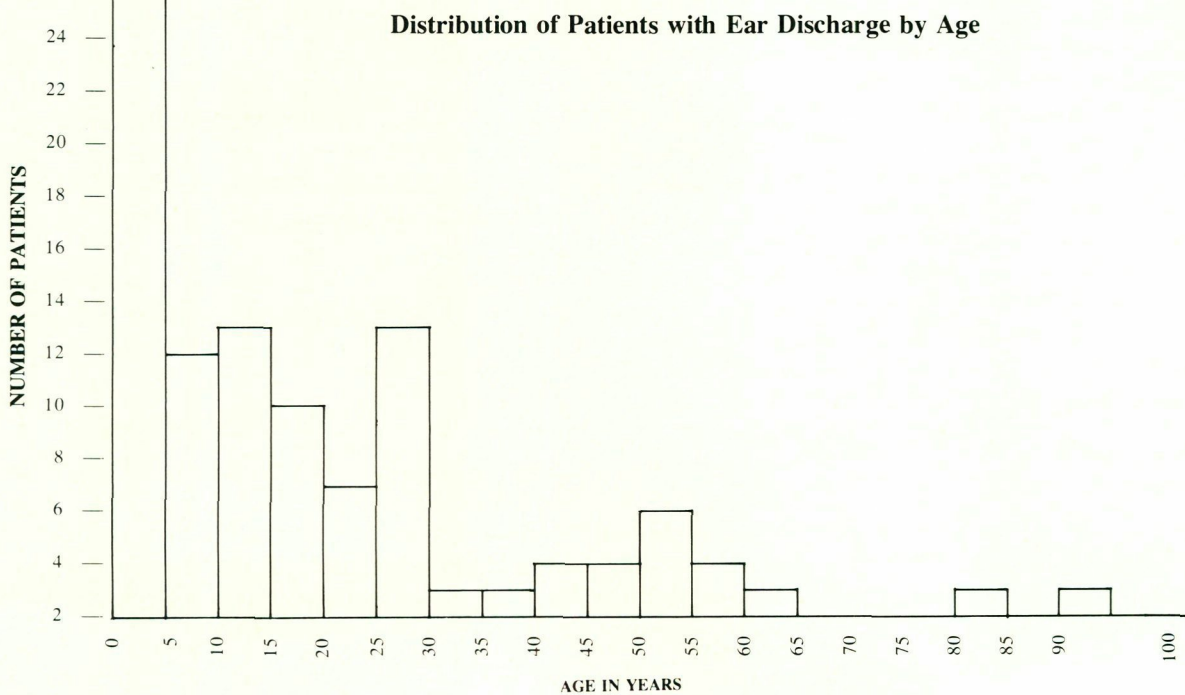


FIGURE 3

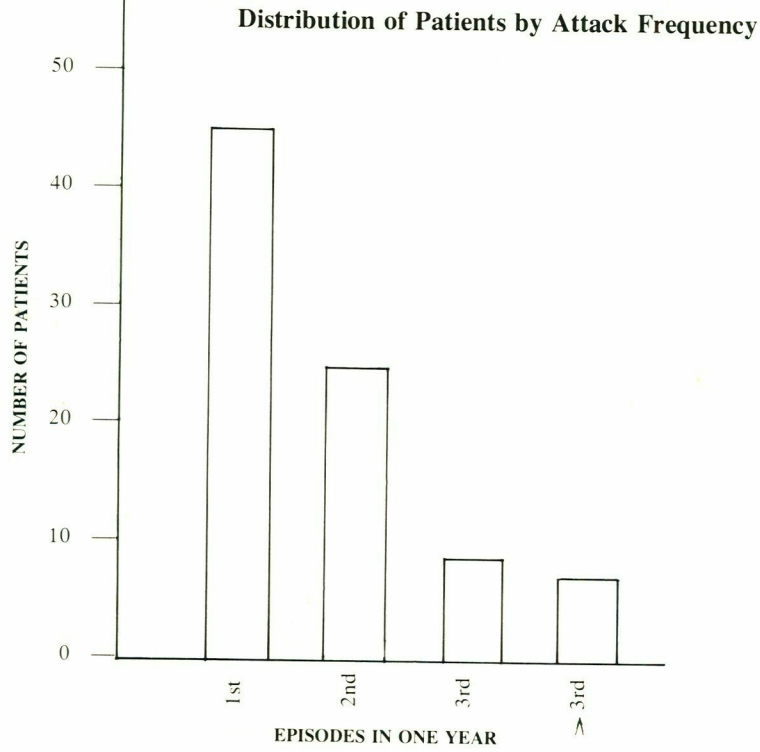


FIGURE 4

Percentage Distribution of Sensitivity to the Antibiotics given to Patients with Ear Discharge

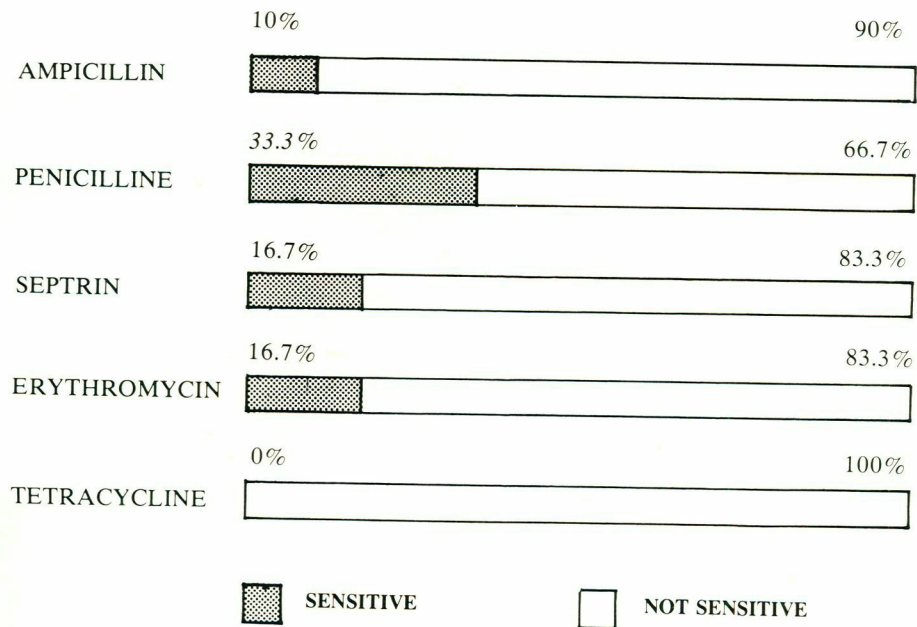


TABLE 1
Percentage Distribution of Presenting Signs
and Symptoms by Age Group

<i>Signs & Symptoms</i>	<i>6 Years</i>		<i>6 - 20</i>		<i>20 Years</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Ear Discharg	24	43.6	27	47.4	23	30.3
Ear Pain	18	32.7	22	38.6	26	34.2
Ear Itching	0	0	0	0	7	9.2
Blocked Hearing	1	1.8	1	1.7	3	3.9
Throat Pain	1	1.8	0	0	2	2.6
Perforated Drum	4	7.3	4	7.0	2	2.6
Drum Not Seen	1	1.8	1	1.7	6	7.9
Inflamed Canal	2	3.6	0	0	4	5.3
Cold	3	5.5	1	1.7	1	1.3
Tonsillitis	1	1.8	0	0	1	1.3
Adenoid	0	0	1	1.7	0	0
Fever	0	0	0	0	1	1.3
Total	55	100	57	100	76	100

TABLE 2
Percentage Distribution of Premorbid Factors by Age Group

<i>Premorbid Factor</i>	<i>6 Years</i>		<i>6-20</i>		<i>> 20</i>	
	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>	<i>No.</i>	<i>%</i>
Cold	15	50	5	33.3	6	54.5
Tonsillitis	5	16.7	4	26.7	1	9.1
U.R.T.I.	6	20	4	26.7	0	0
Cough	3	10	1	6.7	4	36.4
Sore Throat	1	3.3	1	6.7	0	0
Total	30	100	15	100	11	100

TABLE 3
Organisms Isolated from Swab Culture

<i>Microorganism</i>	<i>Frequency</i>	<i>Percentage</i>
Pseudomonas Auerogenosa	29	50.9
Staphylococcus Aureus	7	12.3
Streptococcus Pneumoniae	4	7.0
Proteus Mirabilis	3	5.3
Mixed Organisms*	8	14.0
Other Organism (Each One)	4	7.0
Aspergillus Niger	2	3.5
Total	57	100

* 6 of these had Ps. Auerogenosa.

TABLE 4
**Antibiotics used for Treatment of Patients
with Ear Discharge**

<i>Antibiotics</i>	<i>Frequency</i>	<i>Percentage</i>
Ampicillin	35	53.8
Penicillin	12	18.5
Septtrin	10	15.4
Erythromycin	7	10.8
Tetracyclin	1	1.5
Total	65	100

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