



STUDY OF EAR INFECTION AND ITS COMPLICATIONS AMONG IRAQI PEOPLE

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ABSTRACT

Poor management of ear infections can lead to many complications, and lack of otolaryngology services in our area may be a key cause of a high ear, nose and throat (ENT) disease complication rates. The aim of this survey was to determine the epidemiological characteristics of ear infection and its complications in Iraqi patients presenting to health facilities. This retrospective cross-sectional chart review survey was conducted on (2554) patients who attended to Al-Karama teaching hospital in Baghdad / Iraq and consulted for an ENT problem during the period from January to December 2017. The results showed that 785(30.7%) presented with ear infections, and 478 of them were men and 307 were women with an average age of 28 years. The most affected age group was children aged between (0-10) years with 36.6% prevalence. The prevalence rate was the highest among rural people (32.6%). Otitis media predominated (84.3%) of all ear infections). Otitis externa and interna were represented with a frequency of (14.0%) and (1.7%) respectively, and the most common complication was chronic otitis (41.2%). It can be concluded that ear infection remains a serious public health problem because of its incidence and complications associated with a high morbidity. Early and detailed consultation by an otolaryngologist might be a solution to this high rate of complications in our country.

KEYWORDS: Ear infection, Complications, Iraq.

INTRODUCTION

Ear infection is a common health problem for children and adults in the developing countries. Both ear inflammation and ear discharge are the commonest symptoms of ear infection.^[1] The ear is an important organ that allows us to hear and to be in touch with others, and also help in the function of body balance. Infections of the ear disturb the homeostasis of the human body.^[2] Otitis is skin or mucous membrane inflammation of the ear. According to which part is affected by the inflammation, the otitis can be named as external, middle and inner otitis.^[3] Otitis externa is an inflammation of the external auditory canal, and may be caused by bacterial infections in 90% of cases or fungus in 10%.^[4] Otitis media is an inflammation of the middle ear and mastoid air cells which could be clinically classified as an acute otitis media (AOM), an otitis media with effusion (OME) and chronic suppurative otitis media (CSOM).^[5] Otitis interna is technically an infection of the innermost part of the ear. Otitis interna is usually not an infection, but an inflammation or irritation of the parts of the ear responsible for balance and hearing. Less commonly, an otitis interna is a true infection caused by a virus or bacteria.^[6] Otitis is an otolaryngological emergency associated with significant morbidity (e.g. deafness and facial paralysis) but also

mortality due to intracranial complications (e.g. meningitis and encephalitis). Numerous works have shown the importance of the bacterial epidemiology of the otitis and the virulence of some pathogens.^[7-10] Every year, it is estimated that there are more than 70 million cases of otitis worldwide. In 2017, the World Health Organization (WHO) declared that 330 million people endure problems of chronic otitis.^[11, 12] Every year, 21 000 people worldwide, die from the complications of otitis media or its resulting illnesses and that 31 in 10 000 develop an auditory deficiency following otitis media infection.^[13] Fifty percent of the 70 million yearly cases of acute otitis media present in developing countries.^[2] In sub-Saharan Africa, acute otitis media is characterized by its high rate of complications. The delayed diagnosis in this part of the world, explains the high prevalence of adult patients with chronic ear infections as well as a high rate of complications.^[14] In Guinea Conakry, among 1877 patients seen by ENT specialists, 13.96% of them were diagnosed with otitis.^[4] In a survey conducted in five countries of sub-Saharan Africa (Kenya, Gabon, Cameroon, Congo and Democratic Republic of the Congo), 18.9% (100/528) patients had acute otitis media.^[14] As ear infections remain a great public health problem worldwide due to their impact and complications which are associated to a

high rate of morbidity. This survey aimed to determine the epidemiology and complications of ear infections in Iraq. Furthermore, the survey could enable health workers to be more aware of ear infections and facilitate the timely care of patients suffering from ear infections; this could reduce the rate of their complications in Iraq.

METHODS

The current retrospective cross-sectional chart review survey was carried out from the 1st January to 31st December 2017 in Al-Karama teaching hospital in Baghdad/Iraq. The target population consisted of (2554) patients admitted and diagnosed with ENT pathology. Our sample was exhaustive and consisted of 785 patients diagnosed with ear infections and whose health files were found and completely filled. The following parameters were screened: Socio-demographics (age, sex

and origin), types of otitis (otitis externa, otitis media or otitis interna) and complications of otitis.

Statistical analysis

Data were processed and analyzed using Epi-Info software, version 3.5.4 and Microsoft Excel 2007. Association of variables was analyzed using odds ratio (OR), at a confidence interval of 95% (95% CI). We considered associations as significant when CI did not contain 1 or the P value was less than 0.05.

RESULTS

In our present study, it was found that among 2554 patients admitted and diagnosed with Ear, nose and throat infections, 785(30.7%) patients presented with ear infections as shown in Figure (1).

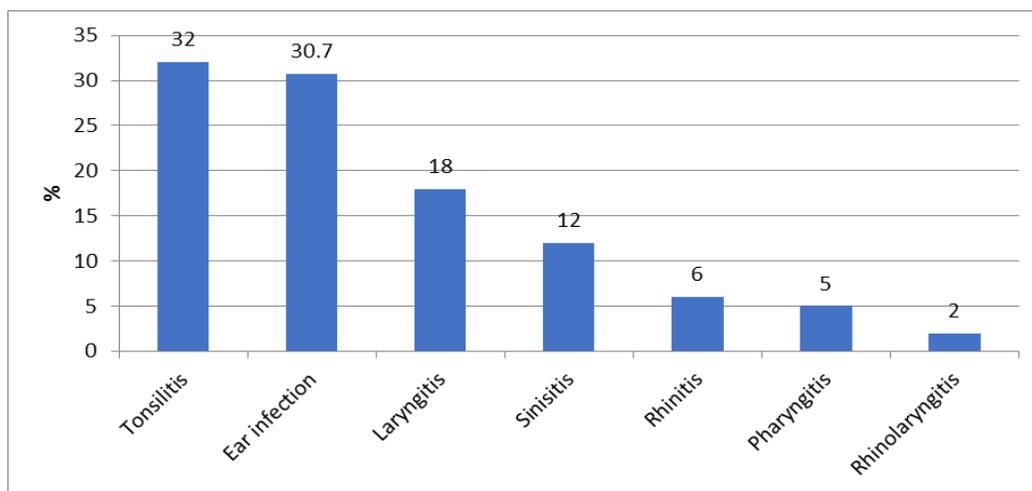


Figure 1: Distribution of ear, nose and throat infections among the studied patients.

The majority of our patients were young with an age range between (0-10) years; men were more affected than women with a ratio of 1.24:0.86. There was a high

prevalence of ear infections in rural patients in our survey (32.6%) versus (30.5%) in urban as illustrated in table (1).

Table 1: Ear infections and Socio-demographic characteristics of patients.

Variables	Group	Total	Otitis	%	OR	CI 95%	
						Lower	Upper
Age (year)	0-10	1489	545	36.6	1.98	1.66	2.37
	11-20	386	69	17.9	0.44	0.34	0.58
	21-30	313	81	25.9	0.76	0.58	1.00
	31-40	154	40	25.9	0.78	0.54	1.13
	41-50	79	19	24.1	0.71	0.42	1.19
	51-60	50	12	24.0	0.71	0.37	1.36
	71-80	58	15	25.9	0.78	0.43	1.42
	>81	25	4	16.0	0.43	0.15	1.25
	Total	2554	785	30.7			
Gender	M	1414	478	33.8	1.39	1.17	1.64
	F	1140	307	26.9	0.72	0.61	0.86
	Total	2554	785	30.7			
Origin	Rural	322	105	32.6	1.10	0.86	1.42
	Urban	2232	680	30.5	0.91	0.71	1.16
	Total	2554	785	30.7			

Distribution of patients according to ear infections and their complications showed that otitis media was most prevalent (84.3%) followed by otitis externa (14.0%)

then otitis interna (1.7%). Chronic otitis constituted the most frequent complication (41.2%) as shown in table (2).

Table 2: Type of ear infection and complications.

	Type	Effective	%
Ear infections	Otitis media	662	84.3
	Otitis Externa	110	14.0
	Otitis Inner	13	1.7
	Total	785	100
Complications	Chronic Otitis	84	41.2
	Mastoiditis	62	30.4
	Otitis Media with effusion	58	28.4
	Total	204	100

DISCUSSION

During our survey of ear infection and its complications in the country of Iraq, the average age of our patients was similar to the one of H. Tall et al., who found an average age of 26 years old.^[15] In an otolaryngology survey study performed by Keita found an average age of 31 years.^[16] The majority of our patients were young with an age range between 0 to 10 years. This can be explained by the fact that ear infections principally affect children.

This result was different from the one found by H. Tall et al. who found a high prevalence between 11 and 20 years old.^[15] Otherwise, our results proved that children aged between (0-10) years had a risk of developing ear infections. Ear infections predominated in men in our survey.

In 2013, Njifou et al and H. Attifi et al. as well as Tall et al. found a male predominance while Keita didn't find any predominance.^[15, 17, 18] This predominance could be explained by the fact that men neglect to take care of their diseases in developing countries and also as the high rate of ear infections comes from rural areas where men may not take regular care of their ears. Even if most of patients in our survey came from urban areas, the highest prevalence of ear infections was found in the rural area. Indeed, rural people are at increased risk of contracting ear infections with an OR of 1.1. However, urban people can develop otitis with OR of 0.91. This could be due to the fact that in urban environment, hygiene may be better. We found that 785 patients presented with ear infections among 2554 patients seen and treated for ENT problems, representing 30.7%. This result is not different from the one of Tall et al. who found a prevalence of 24.7%.^[15] However, our results were different from those found by H. Attifi et al. In his survey done in 2014 of otolaryngology experience in a rural hospital, H. Attifi found a prevalence of 27.9%.^[17]

Otitis media was most prevalent in our survey followed by otitis externa and otitis interna. These results were not far from the one of H. Attifi et al. who found 75.19% prevalence rate for otitis media and 24.81% for otitis

externa, in his survey done in 2014.^[17] Moreover, Amana et al. found a prevalence of 11.9% for external otitis.^[19] This can be explained by the fact that the diagnosis was confirmed later because of the lack of specialist workers in our country. Otherwise, we found otitis media to be the most common otitis in children. According to the literature, paediatric patients are at high risk of developing otitis media, as found by H. Teele et al. in their survey; otitis media was very common, with around 80% of children experiencing at least one episode by their third years old.^[20]

Chronic otitis constituted the most frequent complication in our survey. Our result is similar to the one of H. Attifi who found 49.6% in their population with ear infections.^[17] This can be explained by the fact that many of our patients reach the health facilities late and the diagnosis can also be delayed; this indicates poor management of ear infections in our area. It has been estimated that there are 31 million new cases of chronic otitis per year worldwide, with 22.6% in children less than 5 years old.^[21] The populations with the highest reported prevalence of chronic otitis are the Inuits of Alaska, Canada and Greenland, American Indians and Australian Aborigines.^[22, 23]

CONCLUSION

Ear infections remain a serious public health problem in Iraq; early and detailed evaluation by an otolaryngologist might be a solution to the high rate of their complications.

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