Tinnitus in Al-Diwania city

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الخلاصة:
المقدمه: الطنين هو صوت يسمع لأكثر من خمس دقائق في كل مرة، في غياب أي تحفيز صوتي أو كهربائي خارجي ولايسمع مباشرة بعد التعرض لصوت مرتفع. وهو إما ذاتي ، مسموع فقط للمريض ، أو متجرد ، مسموع للفاحص كذلك.وهو أحد ألاعراض المعقدة ، و عادة ما يترافق ذلك مع امراض سمعيه او عصبيه.
الهدف من الدراسه: لتقييم التوزيع و الأسباب المحتملة للطنين في مدينة الديوانية.
الطريقه: هذه الدراسة مستقبليه عشوائيه، اجريت على 200 مريض .كانوا 110 ذكر و 90 إنثى،تم تقييمهم وفحصهم في شعبة الانف و الأذن والحنجره في مستشفى الديوانيه التعليمي في الديوانيه ، العراق،في الفتره من نيسان 2013 الى كانون الاول 2014. اعمارالمرضى كانت تتراوح بين 10الى 80 سنه. سالنا كل مريض عن أي صوت في الأذن أو الرأس يدوم 5 دقائق أو أكثر، و سواء كان أحادي الجانب أو ثنائي ،و يليه الفحص ا لسريري وتقييم السمع وضغط الأذن الوسطى. في المريض الذي نظن بوجود مشكله عصبيه لديه اجرينا التصوير بالرنين المغناطيسي.

النتائج : معظم المرضى (86 ٪) هم فوق 40 عاما ، و الأسباب الأكثر شيوعا هي أمراض الأذن (98%) بينما الامراض الاخرى كامراض مفصل الفك الاسفل كانت (2%). الأسباب الأكثر شيوعا من أمراض الأذن هي فقدان السمع الناجم عن الضوضاء (بما في ذلك الصدمات الصوتية) (30 ٪)، يليه فقدان السمع الناجم عن التقدم في العمر(21%) ثم تجمع الصملاخ(15%). أمراض الأذن الاخرى هي: التهاب الأذن الوسطى مع الانصباب (13,5%) ثم التهاب الأذن الوسطى المزمن(7,5%) ثم فقدان السمع المفاجئ(5%)،ثم التهاب الأذن الوسطى الحاد (3,5%) ومرض مينير(1,5%) وتسمم الأذن الدوائي (1%).
الاستنتاج : ازدياد معدل حدوث الطنين مع التقدم في السن ، وغالبية المرضى هم فوق 40 سنة. و الأسباب الأكثر شيوعا هي أمراض الأذن. الأسباب الأكثر شيوعا من أمراض الأذن هي فقدان السمع الناجم عن الضوضاء (بما في ذلك الصدمات الصوتية) ، يليه فقدان السمع الناجم عن التقدم في العمر ثم تجمع الصملاخ.

Abstract:

Introduction: Tinnitus is a sound perceived for more than five minutes at a time, in the absence of any external acoustical or electrical stimulation of the ear and not occurring immediately after exposure to loud noise. It is either subjective, audible only to the patient, or objective, audible to the examiner as well. It is a complex symptom, as it is usually associated with other neurotological complaints.
Aim of study : To evaluate the distribution and the possible causes of tinnitus in Al-Diwania city.
Method: This is a randomized analytic descriptive study, consisted of 200 patients. They were 110 males and 90 females . They had been assessed at the otolaryngology department in Al-Diwania teaching hospital, in Al-Diwania city in Iraq, during the period between April 2013 to September 2014, the age ranged from 10-80 years .We asked every patient about any sound in the ear or head lasting 5 minuts or longer, and whether it was unilateral or bilateral, followed by The clinical examination which included neurological, otorhinolaryngological assessment and audiological evaluation. In the patients with suspected neurological problem we did magnetic resonance imaging. For assessment of hearing loss we did pure tone audiometry and tympanometry.

Results:most of our the patients (86 %) were above 40 years old, the most common causes were otological diseases (98%),while the non otological diseases found in (2%) in form of temporo-mandibular joint disorders . The most common otological

causes were noise-induced hearing loss (include acoustic trauma) (30%) followed by presbyacusis (21%)and wax impaction (15%). The other otological causes were: otitis media with effusion(13.5%), followed by chronic otitis media(7.5%), sudden hearing loss(5%), acute otitis media (3.5%), meniere's disease (1.5%),and ototoxicity (1%.(
Conclusion: The incidence of tinnitus increased with age,and the majority of the patients were above 40 years old. The most common causes were otological diseases. The most common otological causes were noise-induced hearing loss followed by presbyacusis and wax impaction.

Introduction

Tinnitus is a sound perceived for more than five minutes at a time, in the absence of any external acoustical or electrical stimulation of the ear and not occurring immediately after exposure to loud noise. It may have a negative impact on quality of life, and interfere with concentration, sleep, social activities, and even the emotional stability[(1) , (2) , (3)].

Tinnitus is sometimes described as either subjective, audible only to the patient, or objective, audible to the examiner as well [(4)]. It is a complex symptom, as it is usually associated with other neurotological complaints, such as hearing loss, dizziness, and hyperacusis[(5)]. All pathologies in the external, middle, and inner ear may cause tinnitus. Objective tinnitus is rare and the commonest form is vascular pathology such as glomus jugulare tumor, arterio venous malformations, and carotid body tumors. Temporo mandibular joint pathologies, insects in the external ear canal, and palatal myoclonus are other pathological conditions causing objective tinnitus besides vascular causes[(6)].

Aim of study :

To evaluate the distribution and the possible causes of tinnitus in Al-Diwania city.

Subject and method :

This is a randomized analytic descriptive study included of 200 patients. They were 110 males and 90 females . They had been assessed at the otolaryngology department in Al-Diwania teaching hospital , in Al-Diwania city , Iraq, during the period between April 2013 to September 2014, the age ranged from 10-80 years . During face to face interview , we asked every patient about any sound (buzzing or ringing)in the ear or head lasting 5 minutes or longer, if it is present the patient determine whether it is unilateral or bilateral .This is followed by the clinical examination which included neurological, otorhino laryngological assessment .For audiological evaluation we did pure tone audiometry (PTA) and tympanometry for every patient by using the same equipment (inter acoustics AA220 audiometer) in a sound treated booth in the audiometry unit. In the patients with suspected neurological problem we did magnetic resonance imaging (MRI) because four patients referred to the MRI because of difference in the audiometric threshold between the right and left to exclude intra cranial pathology and it was negative.

Data Analysis

All the data were analyzed using the An interactive calculation tool for chi-square tests of goodness of fit and independence, Kristopher J. Preacher, University of Kansas .P. values < 0.05 indicate statistical significant .

Results

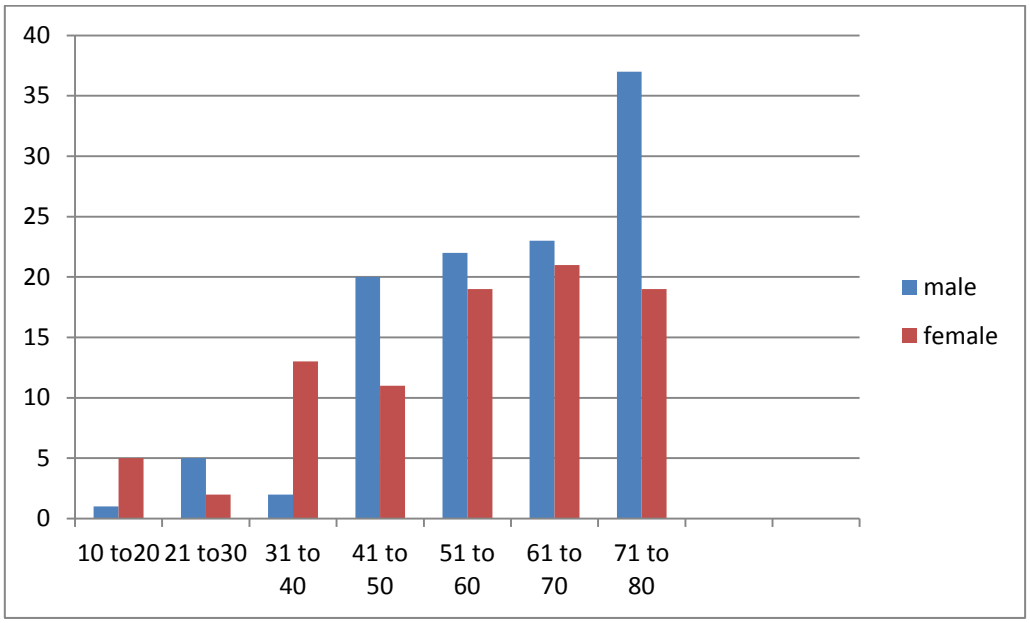
Our study included 200 patients. They were 110 males and 90 females.

table The gender distribution of those 200 patients were shown in 1,which show that the incidence of tinnitus increased with increasing age (P value= 0.0043). While figure (1)represent the gender distribution of the study population.

table (1): the sex distribution of the study population

age	male	female	Total	Percentage %
10-20	1	5	6	3%
21-30	5	2	7	3.5%
31-40	2	13	15	7.5%
41-50	20	11	31	15.5%
51-60	22	19	41	20.5%
61-70	23	21	44	22%
71-80	37	19	56	28%
total	110	90	200	100%

figure (1): the sex distribution of the study population



All the data of those 200 patients according to the age groups and the clinical causes are shown in Table 2.

Table 2:The data of those 200 patients according to the age groups and the clinical causes

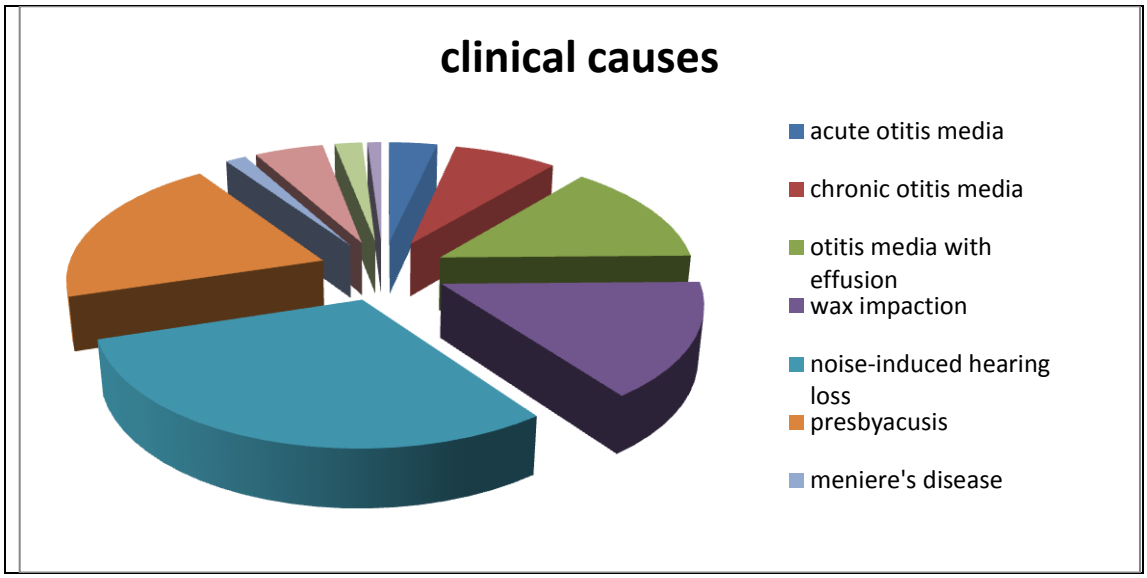
age	acute otitis media	chronic otitis media	otitis media with effusion	wax impaction	noise-induced hearing loss	presbyacusis	meniere's disease	sudden loss	temporomandibular disorders	ototoxicity	total
10-20	2	0	3	1	0	0	0	0	0	0	6
21-30	2	1	2	0	2	0	0	0	0	0	7
31-40	0	3	0	2	8	0	1	0	0	1	15
41-50	0	4	7	3	9	3	1	3	0	1	31
51-60	2	4	6	2	12	11	0	2	2	0	41
61-70	1	2	5	3	19	10	1	2	1	0	44
71-80	0	1	4	19	10	18	0	3	1	0	56
total	7	15	27	30	60	42	3	10	4	2	200

The distribution of the clinical causes according to the sex of those 200 patients are shown in table 3, and it is represented in figure 2.

table 3: The distribution of the clinical causes according to the sex (P value=0.041).

the causes	male	female	Total	Percentage %
acute otitis media	4	3	7	3.5%
chronic otitis media	5	10	15	7.5%
otitis media with effusion	9	18	27	13.5%
wax impaction	19	11	30	15%
noise-induced hearing loss	32	28	60	30%
presbyacusis	26	16	42	21%
Meniere's disease	1	2	3	1.5%
sudden loss	9	1	10	5%
temporo-mandibular causes	3	1	4	2%
ototoxicity	0	2	2	1%
total	110	90	200	100%

figure 2: The distribution of the clinical causes according to the sex.



Discussion

In our study we found that the majority of the patients 86 % are above 40 years old ,while the remainder 14 % were below 40 years old .This agrees with Coles RRA. (1984)who found that 62 percent of patients > 40 years and 38 percent of patients < 40 years[7].This may be due to longer life span in that country .The percentage of the patients increased with age from 3% between 10 to 20 years old ,to 28% between 71to 80 years old , but people of all ages can experience tinnitus .This agrees with Coles RRA. (1995) [8] , Davis A. (1995) [9] and Davis A. et al. (2000) [10]. In our study we found that the most common causes were otological diseases (98%),while the non otological diseases found in (2%) in form of temporo-mandibular joint disorders . The inner ear diseases were

the most common otological causes (58.5%), followed by middle ear diseases (24.5%) , then external ear problems (15%) in form of wax impaction. This great importance of ear pathology in the aetiology of tinnituswas supported by Tonndorf J. (1980) [11], McFadden D.(1982) [12], Lenarz T. et.al(1993) [13] ,and Coles RRA.(1995) [8] , but this disagrees with the results of Hazell JWP. [14]who reported that tinnitus is related to otological events in only 25 percent, and Tyler RS. et aI. (1990) [15] who found that only 27 percent of profoundly deaf people have tinnitus.

The most common otological causes are noise-induced hearing loss (include acoustic trauma) (30%) followed by presbyacusis (21%)and wax impaction (15%). The other otological causes are: otitis media with effusion(13.5%), followed by chronic otitis media(7.5%), sudden hearing loss (5%),acute otitis media(3.5%), meniere's disease(1.5%),and ototoxicity(1%) . All of our patients with noise-induced hearing loss show either military participation in the Iraq wars in majority of cases, or the use of electrical generators or occupational exposure to the noise . Helfer TM. et al.(2005) [16] and Barney R. et al.(2006) [17] , also found high incidence of tinnitus in military combat–related noise exposure . The mechanism of noise-induced hearing loss is that excessive noise exposure leads to excessive glutamate release and excitotoxic intracellular Ca ++ overload, which could be a basis for tinnitus [18]. The etiology of acoustic-based tinnitus is that hearing loss leads to reorganization of the auditory pathway. Hearing loss decreases the afferent stream of neural activity from the cochlea to the auditory cortex. Chronic hearing deprivation alters activity in the auditory brainstem and midbrain, and may change the tonotopic organization of the auditory cortex. Brainstem spontaneous activity may increase, and midbrain patterns may change because of compensatory down-regulation of inhibition. Altered activity in the auditory pathway may be responsible for the tinnitus percept [19]. Axelsson (1992) [20] found that the noise-induced hearing loss is the most common single diagnosis associated with tinnitus forming 28% among those with sensorineural hearing loss followed by Meniere's disease(8.2%) and congenital diseases (4.7%).While Nicolas-Puel et al.(2002) [21]showed that the most common pathologies associated with tinnitus are acoustic trauma, Meniere's disease and presbyacusis (32, 32 and 23 percent, respectively).

Conclusion

The incidence of tinnitus increased with age ,and the majority of the patients are above 40 years old. The most common causes are otological diseases. The most common otological causes are noise-induced hearing loss followed by presbyacusis and wax impaction.

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