Research Article

Hearing aid use in private & governmental sectors

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Abstract

Background: Hearing loss has a detrimental effect on the patient`s communication, vocational and social life, and in children, it affect speech development and school performance. There are many types of hearing aids to help the patients to overcome the difficulty of hearing and communication and some of them, like the in the ear hearing aids, are preferred cosmetically. Binaural hearing aid fitting was proved superior to monaural fitting in terms of speech discrimination in noise and localization of sound.
Objectives: to compare the types of hearing aids dispensed in private and governmental sectors.
Methods: Hearing aid users from private and governmental sectors were analyzed retrospectively during the interval from Jan to Dec 2012, and it included 110 and 166 hearing aid users respectively.
Results: Privately, 59.1% of hearing impaired patients used in the ear type, 40.9% used behind the ear type and the rest of patients, 11.8%, used binaural hearing aids; whereas in the governmental sector, the users of these types accounted to 3.1%, 96.9% and 0% respectively. About two-thirds or more of the ears aided with hearing aids were of moderate degree and sensori-neural type in both sectors.
Conclusions: It is necessary to change the policy of hearing aid fitting in the governmental sector with paying more attention to binaural hearing aid fitting, and hearing aid prescription is geared to the need and desire of hearing aid users.

Keywords: Hearing aids, unilateral or monaural fitting, Bilateral or binaural fitting

INTRODUCTION

Hearing loss is a common problem in children and adults. However , the fundamental difference between hearing loss in early childhood and that acquired in adulthood , is its likely effect on language acquisition, social and personality development, and in adults the hearing loss might lead to social isolation , vocational and psychological problems such as isolation, depression, and oversensitivity .[1-3] Hearing loss (HL)was found as clinically significant if the pure tone average (PTA) is more than 25 decibel (dB) in the better ear.[4]These effects entails the importance of development of rehabilitative means to increase the ability of hearing impaired patients (HIPs) to communicate with those around them. proper hearing aid fitting plays a major role in this aspect, and there are about six types of hearing aids such as the body-worn(BW), the behind the ear (BTE), spectacle type, in the ear (ITE), in the canal (ITC) and completely in the canal (CIC) hearing aids , and the last two types could be regarded a subsets of the ITE type and these are preferred cosmetically, because they are, more or less, hidden inside the ear rather than hung behind ear, and the large pocket type(BW) have a long visible wire; the ITE type became commercially available in the 1960s , but their use are restricted in severe and greater degree of hearing loss.[5] Binaural hearing aid fitting is proved to be superior over unilateral fitting in terms of speech discrimination, head shadow effect, and localization and it is useful in background noise and reverberant situations, and nowadays in the developed countries, binaural fitting is the usual trend, particularly, in fitting of children to enhance speech development.[6-11] On the bases of these facts for hearing aid prescription, the aim of this paper came to check hearing aid practice in private and governmental sectors

PATIENTS AND METHODS

Hearing aid user records were collected retrospectively from two main sites during a period of 12 months started on Jan 2012 and ended at Dec 2012; the first site is a private sector-Al-Razi hearing aid center, which is one of the main private hearing aid dispensers in Baghdad, and the cases of this sector consisted of 110 hearing aid users (HAUs), 37 females and 73 males (fig. 1). The

second site is the governmental (or national) sector- Al-Yarmouk Teaching Hospital, which is one of the main hospitals in Baghdad dispensing hearing aids for HIPs at Al-Kharkh region of Baghdad and other nearby governorates, and this sector consisted of 166 HAUs, 77 males and 89 females (fig. 2), and the researcher was a member of the hearing aid committee.

The unaided threshold of each ear was classified according to the Goodman classification for degree of hearing loss into mild (PTA between 21 to 45 dB), moderate (PTA between 46 to 70 dB), severe (PTA between 71 to 90 dB), and profound (PTA 91dB and greater). [12]

For analysis of data, Pearson Chi-square was used, where p value of 0.05 or less denoting a significant difference; p value equal or less than 0.01 denoting a high significant difference.

RESULT

All patients were found to have bilateral hearing loss ranged from mild to profound hearing loss(table 1), and included all age groups with lowest and highest age in private group were 4 & 80 years respectively and in the governmental group were 4 and 85 years respectively, and it is noted that most of the HAUs in private sector lie within age groups of, 1 to 29yrs, 30 to 59 yrs, and 60 yrs and over with percents of 35.4%, 44.5% and 20% respectively, whereas in the governmental sector, the percents in these age groups were 17.4%, 31.9%, and 51.5% respectively(fig.1,fig.2 & table 2).

Table 1 shows no significant difference in the type and PTA of the hearing loss between both sectors and about two-thirds or more of HIPs have a moderate hearing loss of sensori-neural type in the ears using the hearing aids in both sectors, and collectively the mild and moderate degree HAUs constitute 82.8% and 91.6% in the private and governmental groups respectively, but there is a significant difference in the use of hearing aids, with a results of 59.1% of the HIPs in the private sector used ITE type and 40.9% used BTE type; in contrast to that is found in the governmental sector, the results of use of these types of hearing aids are 3% and 97% respectively. Also, it is noted a significant difference of binaural hearing aid fitting in the private sector forming about 12 %, in contrast to zero per cent in the governmental group. Also, in both sectors, the results showed remarkably more patients used a right rather than left sided hearing aid.

Table 2 describe the hearing aid use in different age groups in both sectors; the results showed that in the private sector, the ITE type and binaural hearing aid fitting was used in all age groups; whereas in the governmental group, the BTE type users constituted about 97%, and used by all age groups and the use of ITE type was very low (3%), and with no binaural hearing aid fitting.

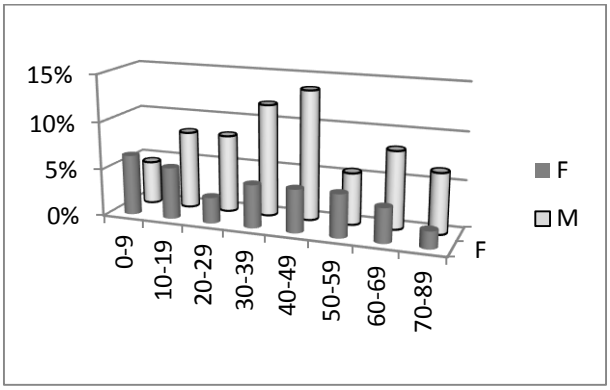

Fig. 1 Age & sex distribution of HAUs in private sector

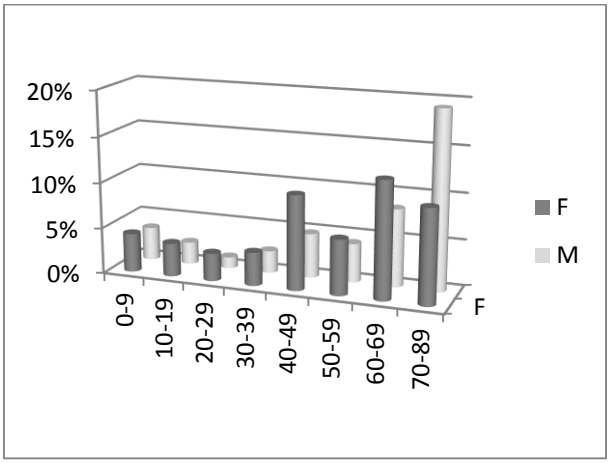

Fig.2 Age & sex distribution of HAUs in governmental sector

Table 1: Data of the two groups of HAUs

		HAU Sector				P value
		Private		Governmental		
		No	%	No	%	
Gender	Male	73	66.4	77	46.4	0.001*
	Female	37	33.6	89	53.6	
Hearing aid side	Unilateral (Rt)	53	48.2	106	63.9	0.0001*
	Unilateral (Lt)	44	40.0	60	36.1	
	Bilateral	13	11.8	0	0	0.003*
Type Hearing Aid	Behind ear	45	40.9	161	97.0	0.0001*
	In the ear	65	59.1	5	3.0	
Aided ear PTA	Mild (21-45)	13	11.9	31	18.7	0.675
	Moderate (46-70)	72	65.5	121	72.9	
	Severe (71-90)	19	17.3	14	8.4	
	Profound (>90)	6	5.6	0	0	
Un-aided ear PTA	Mild (21-45)	14	12.7	16	9.6	0.167
	Moderate (46-70)	62	56.4	88	53	
	Severe (71-90)	20	18.2	41	24.7	
	Profound (>90)	14	12.7	21	12.6	
Aided ear type of HL	Sensori-neural	77	70	138	83.1	0.166
	Conductive	23	20.9	13	7.8	
	Mixed	10	9.1	15	7	
Un-aided ear Type of HL	Sensori-neural	76	69.1	134	80.7	0.055
	Conductive	21	19.1	13	7.8	
	Mixed	13	11.8	19	11.5	

***Significant using Pearson Chi-square test at 0.05 level.**

Table 2: Data of HAUs in different age groups of both sectors

Age(years)	Private HAUs							Governmental HAUs						
	BE		ITE		Bil HA			BE		ITE		Bil HA		
	No.	%	No.	%	No.	%	Total %	No.	%	No.	%	No.	%	Total %
<10	8	7.3	1	0.9	3	2.7	**10.9**	12	7.2	0	0	0	0	**7.2**
10--	4	3.6	8	7.3	3	2.7	**13.6**	10	6	0	0	0	0	**6**
20--	4	3.6	8	7.3	0	0	**10.9**	5	3	2	1.2	0	0	**4.2**
30--	3	2.7	14	12.7	1	0.9	**16.3**	10	6	0	0	0	0	**6**
40--	5	4.6	13	11.8	2	1.8	**18.2**	24	14.5	2	1.2	0	0	**15.7**
50--	3	2.7	6	5.5	2	1.8	**10**	17	10.2	0	0	0	0	**10.2**
60--	6	5.5	6	5.5	1	0.9	**11.9**	35	21.1	1	0.6	0	0	**22.6**
=>70years	4	3.6	4	3.6	1	0.9	**8.1**	48	28.9	0	0	0	0	**28.9**
Total	**37**	**33.6**	**60**	**54.6**	**13**	**11.8**		**161**	**96.9**	**5**	**3.1**	**0**	**0**	
	110							**166**						

***Significant using Pearson Chi-square test at 0.05 level.**

DISCUSSION

The higher use of ITE type hearing aid in the private cases is similar to the current practice in developed countries which registered percents ranged from 40% to 81%. [5] As noted in the result, the mild and moderate PTAs of HAUs in private sector constitute about 83% and even more in the governmental sector of about 92%, and this level of PTAs could be fitted by ITE type hearing aids. The reason for higher use of ITE over the BTE type hearing aids is clearly cosmetic; the patient feels more comfortable with a hidden hearing aid, as much as possible, inside the ear rather than is hung behind the ear; and it is found that the low prescription of the ITE type hearing aid in the governmental sector is due to many reasons; firstly is the lack of ear-mould laboratories; secondly it need more time to process the hearing aid and thirdly, that the hearing aids in the governmental sector are imported in bulk, and the BTE hearing aids constitute the highest percent of this bulk. The ITE hearing aid can be prescribed to children by age of nine years and greater when the growth of external ear is complete and their external auditory canals are large enough to accommodate ITE hearing aid. [5][13]

Despite the increase in the cost of buying two hearing aids; it was noted more HIPs of private sector were fitted with binaural hearing aids and constituted about 12% of HAUs, and used in all age groups; and in the developed countries this number raised to 60.5%. [14] It was found that, the reason for lack of binaural fitting in the governmental group is mainly a legislation problem, due to the policy of issuing only one hearing aid to any patient, even in children. The Bertoli et al study, as in this study, also revealed more right than left ear hearing aid users and that is because most of the patients are right handed, and prefer a right-sided hearing aid for easy wearing and manipulation. [14]

In conclusions ITE hearing aids are used 20 times more in the private sector than in the Governmental sector, although the later sector have more HIPs with mild or moderate PTA hearing loss which could be fitted by ITE type. Also, it was found that binaural hearing aid fitting was only practiced in the private group and used by all age groups.

It is necessary to change the policy of hearing aid prescription in the governmental sector as regards the binaural hearing aid fitting, and the provision of all types of hearing aids according to the desire and need of HIPs,

since there will be no benefit of prescribing a hearing aid which will not be worn by the patient for cosmetic reason.

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