

# HEARING AID USE IN PATIENTS WITH PRESBYACUSIS: A QUESTIONNAIRE SURVEY

A. Karimaneh\* and A. Eftekharian

Department of Otolaryngology, Loghman Hospital, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

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**Abstract-** The acceptability of hearing aids in people with presbycusis has been improved but assessment of whether there is a need for more counseling to increase the number of regular hearing-aid users seems to be important. The aim of this study was to determine if the hearing aid was worn regularly and over a long period of time in people with presbycusis. A questionnaire survey of patients with presbycusis who had been fitted with a monaural behind the ear hearing aid for the first time was undertaken. The patients were divided into four groups ranging from 6 months to 3 years after fitting. Overall regular long-term use of the hearing aid was found in the majority of patients with presbycusis. The main dropout point was within the first year after fitting the hearing aid. The study furthermore revealed a relatively high demand for further help and advice with the hearing aid in all groups.

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**Key words:** Hearing aid, Long-term use, Presbycusis

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## INTRODUCTION

Demographic data show an increasing number of elderly people, up to 30% of the population aged 60 and over, suffer from some degree of presbycusis, *i.e.* acquired sensorineural hearing loss due to a degenerative process in the inner ear and central nervous system without any evidence of exogenous damage (1, 2). The acceptability of hearing aids in people with presbycusis has been improved due to the introduction of the behind the ear hearing aid series and increased counseling (3,4). The purpose of the present study was to determine if the hearing aid was worn regularly and over a long period of time in people with presbycusis. Assessment of whether there is a need for more counseling to increase the number of regular hearing-aid users is important as there are major social benefits to be derived from successful hearing rehabilitation in the elderly (5-7).

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**\*Corresponding Author:**

A. Karimaneh, Department of Otolaryngology, Loghman Hospital, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Tel: +98 21 5419005, Fax: +98 21 5414066

E-mail: A\_karimaneh@yahoo.com

## MATERIALS AND METHODS

A questionnaire with a reply-paid envelope was sent to a total of 160 patients with presbycusis. All subjects were recruited from fitting records of the hearing aid department from the years 1999 to 2002. The patients were selected according to the date after first fitting with a behind the ear hearing aid, and were divided into four groups: group 1, 6 months; group 2, 1 year; group 3, 2 years and group 4, 3 years. Each group comprised of 40 patients.

All patients had attended one routine one hour follow-up counseling session 6 months after their hearing aid was fitted. The mean sensorineural hearing loss over 500 Hz, 1 kHz, 2 kHz, and 4 kHz frequencies necessary to be included in one of the four groups was 45 dB or more. To avoid having the subjects with too different characteristics, the patients with over 75 dB mean hearing loss at above mentioned frequencies and the patients with severe down-sloping audiograms were excluded.

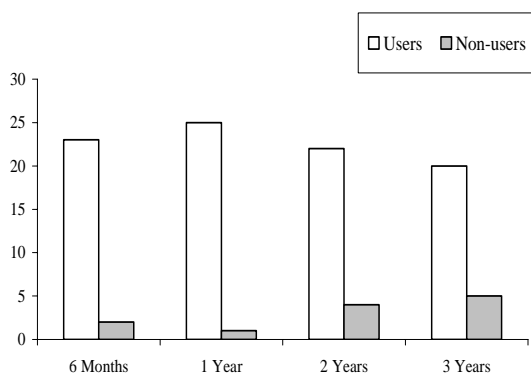
Only monaural hearing aid users were included as they represent majority of hearing-aid users in presbycusis patients. Patients with coexistent middle ear disease and mixed hearing loss were excluded.

## RESULTS

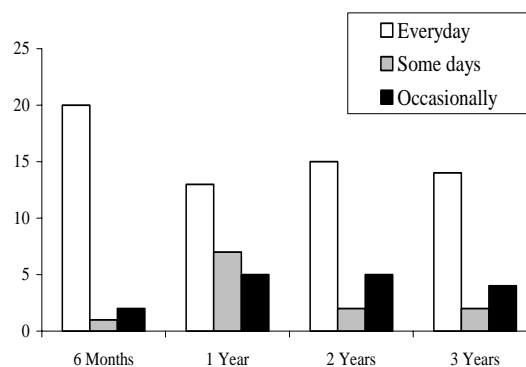
Out of the 160 questionnaires sent, 102 (64%) were returned with valid information; eight questionnaires were returned unanswered because the patients had passed away; 11 were returned with incomplete information and 7 were returned because of change in address. The mean age of patients at the time of fitting was 75 years (range 65-96). All patients were retired. Men and women were grouped together as otherwise the numbers in each single group would have been too small.

Of the patients who completed questionnaires, 90 were using their hearing aids and 12 had stopped using them. The ratio of users to non-users varied relatively little within the different groups (Fig. 1). Out of the 90 users of hearing aids, 7 had no inclination to use one initially, and of the non-users group, two did not want to use one.

By dividing frequency of usage of the aid to everyday, for some days or occasionally, the highest frequency of usage was found at the beginning (Fig. 2). After 6 months nearly 90% (20 patients out of 23) of the patients used their aid everyday, indicating that they really tried to adapt to it. After one year the daily use dropped to 50% (13 out of 25 patients) with an increasing number of patients who used their aids only for some days (7 patients) or occasionally (5 patients). After two years every day usage had increased to 70% (15 out of 22 patients), a usage time maintained over the following year.



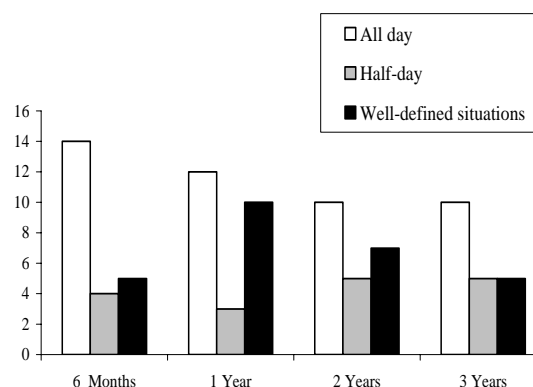
**Fig. 1.** Number of hearing aid users and non-users after 6 months to 3 years after the first time a hearing aid was fitted for presbycusis.



**Fig. 2.** Number of hearing-aid users in the different post fitting time groups based on frequency of usage.

Evaluation of the amount of time the hearing aid was used per day showed that around 50% of the users used their aid all day long. The group of patients who used their aid for half a day was smaller than the group who used the aid in well-defined situations (watching television, meetings) in all groups except for group 4 (Fig. 3).

In the non-user group, 2 patients stopped wearing their hearing aid after 1-2 months, 5 patients stopped wearing it 2-6 months after fitting and 5 patients within 1 year after fitting. None of the non-users stopped using the hearing aid more than 1 year after fitting.



**Fig. 3.** Number of hearing aid users in the different post-fitting time groups based on amount of time the hearing aid was used per day.

The reasons for stopping wearing the hearing aid were being able to hear better without the aid in 1 patient (8.3%), having difficulty in handling it in 4 patients (33.3%), getting no benefit from the aid in 3 patients (25%), cosmetic reasons in 1 patient (8.3%), purchasing a private hearing aid in 1 patient (8.3%) and having tinnitus in 2 patients (16.7%).

All of the non-users stored their hearing aid at home. The number of hearing aid users who wanted help with their aids was very high in all groups, ranging from 86% (20 patients) in 6 months group to 58% (12 patients) in 3 years group (Fig. 4). In the non-users, 50% (six patients) wanted help with their hearing aids whereas the remainder did not feel that help would be necessary.

## DISCUSSION

A high acceptance of hearing aids among people with presbycusis was found (92% of users and 83% of non-users wanted a hearing aid). This indicates that the idea of having a hearing aid for presbycusis is well accepted, facilitating the positive adaptation to the hearing aid (8, 9).

It has been shown that adaptation to a hearing aid takes a long time (3, 4, 8-14). In this study, the most critical time was the first year after fitting: all non-users were identified within the first year being fitted. The routine 6-month follow-up after fitting helped to identify 60% of the non-users in our study. Other

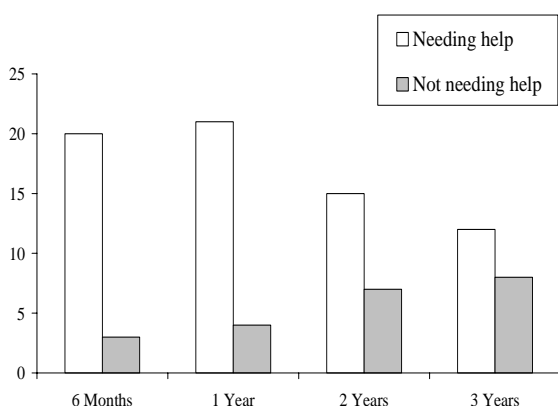
studies found that the number non-users could be reduced if follow-up was increased from one to two or more counseling sessions (4, 12). Our study indicates that a second follow-up between 6 month and 1 year after fitting would identify all non-users and probably increases the usage 1 year after fitting.

It is interesting to note that once the "taking care effect" (15) provided by the 6-month follow-up is removed, the number of patients who would like help with their hearing aid remains high (Fig. 4). It will be necessary to elucidate in another study the reasons why hearing aid users continue to need help.

The usage of hearing aids in patients with presbycusis was found to be high and remained high over 3 years. Similar figures have been reported from other countries, as in Great Britain, where post-fitting services are available (6, 10, 11). There is, however, some variation between the groups regarding the everyday use of the hearing aid and the amount of time it is worn daily. More than 50% of patients in all groups used the hearing aid every day and all day long. Interestingly, one year after fitting, the number of those patients who used their hearing aids every day was lowest as was the amount of daily usage. This might be explained by the fact that this group is still in the adaptation process but not awaiting any further follow-up to encourage regular wearing of hearing aid. After 2 years of fitting, regular daily use is well established at a higher level than after 1 year and is maintained for the following year.

As far as the daily use of the hearing aid is concerned, two main groups were identified in our study: those patients who wear their hearing aid all day long, and those who use it only in well-defined situations such as watching TV. The cause of this remains to be elucidated in further studies; it might indicate that there are different subgroups of sensorineural hearing loss in presbycusis.

Only 11% of those who received a hearing aid did not use their aid at all, the so-called "hard core" of non-users (3). In our study, the main reason for not using the hearing aid was difficulty in handling it. This might be due to advanced age at the time of first fitting and lack of manual dexterity and could probably partly be helped by further counselling in individual patients (3). The next most common reason for not using the hearing aid was that there



**Fig. 4.** Ratio of number of hearing aid users who liked help with their hearing aids in the different usage time groups

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was no perceived benefit from it. The ageing process leading to presbycusis involves several locations along the auditory pathway (2,3) and this explains why the benefit derived from amplification through a hearing aid varies considerably, even when the amount of hearing loss as shown in pure-tone audiograms among the candidates is comparable (5,16). Certainly, those who do not use their aids every day for all day find that the aid does not completely restore normal hearing for them.

The results of our study indicate that a hearing aid for presbycusis is valued and is used on a long-term basis by patients, but there is a need for more professional support of this group of patients to enable them to wear their aids all day, every day.

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