Hearing Aid Problems in Elderly Populations

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Abstract
The use of hearing aid (HA) may improve the hearing performance and ease the perceived negative consequences of hearing difficulties in elderly individuals. The aim of this study was to determine the problems experienced by elderly individuals with HA and to investigate the factors that could increase the use of HA. A total of 122 female and 127 male patients with a mean age of 76.79 ± 6.91 years who were recommended HA were evaluated. The following details were taken from the patients: age, gender, duration of hearing complaint, whether or not they received HA, number of family members, number of hours they used HA in a day, type of device, number of ears with HA, educational status, whether they continued to work, whether they were tested before taking the device, the reasons for not taking HA, and the reasons that reduce their use of HA. A total of 18 patients did not receive HA for the following reasons: 9 considered HA too expensive, 8 thought it would be difficult to use HA, and 1 did not like it because of its appearance. No significant difference was found in the patients' daily HA use duration, age, sex, number of immediate family members, education level, type of device, test before taking the device, and use of HA in single ear or bilateral ears. There was a significant difference in the daily HA use duration and whether the patients continued to work. We need to help reduce the problems associated with the use of HA to help older individuals have a more active role in society and help them in their health problems.

Keywords
hearing, aid, elderly, presbyacusis

Introduction
Hearing impairment is a chronic health problem that affects about two-thirds of people aged 65 years and older, and it ranks third among all diseases. Advanced age-related hearing impairment is known as presbyacusis, and there is no clear cause known. It may be characterized by loss of ganglion neurons and cochlear hair cells during aging. Hearing difficulties can hamper interaction with other people and safe orientation in the environment, thus complicating engagement in daily life situations in elderly populations. The World Health Organization recommends treatment with hearing aid (HA) for problems associated with hearing loss. In addition, the use of HA can improve hearing performance, alleviate the negative consequences of hearing impairment, and support community participation.

However, there may be several reasons that limit the use of HA. Investigating and solving these causes will facilitate the daily lives of elderly individuals. In this study, the use of HA and the problems experienced with the use of HA in patients older than 65 years who were recommended HA due to bilateral neurosensory hearing loss were evaluated.

Materials and Methods
Between January 2017 and December 2018, 122 female and 127 male patients with a mean age of 76.79 ± 6.91 years who were recommended HA for neurosensory hearing impairment were evaluated retrospectively. All patients were investigated after receiving the approval of the local ethics committee.
January 2019/12). All patients signed an informed consent before the investigation.

Patients’ hearing levels were measured in a soundproof booth with Interacoustics AC-40 (Interacoustics A/S, Assens, Denmark) clinical audiometry. Hearing thresholds were calculated by taking the average decibels (dB) of 500, 1000, 2000, and 4000 Hz. The degree of hearing loss was classified as mild (26-40 dB), moderate (41-55 dB), moderately severe (56-70 dB), severe (71-90 dB), and profound (>90 dB), as proposed by Shaia and Sheehy.12

The following details from the patients were taken with a questionnaire: age, gender, duration of hearing complaint, whether or not they received HA, number of immediate family members, number of hours they used HA in a day, type of device (in the canal or behind the ear), use of HA in single ear or bilateral ears, educational status, whether they continued to work or not, whether they were tested for adaptation compliance before taking the device, the reasons for not taking HA, the reasons that reduce the use of HA, and the positive contribution of HA to them.

The duration of daily use of HA was divided into 4 groups as follows: never used, 0 to 2, 2 to 6, and >6 hours use.

The positive contribution of using HA was evaluated by visual analog scoring between 1 and 10.

Patients younger than 65 years, patients with unilateral hearing loss, and patients with mild hearing loss were excluded from the study.

A database was created from the obtained data using the SPSS for Windows 20 program (SPSS Inc, Chicago, Illinois). The data were evaluated in the SPSS version 20 statistical package program. Data were analyzed with Kruskal-Wallis test and χ² test. Results were evaluated in 95% confidence interval. The level of statistical significance was set at P < .05.

Results
Of the total number of patients, 91 female and 100 male patients with a mean age of 77.54 ± 6.94 years with bilateral moderate and more than moderate neurosensory hearing impairment were determined. The mean duration of hearing complaints in 191 patients was 2.52 ± 0.58 years. Of the 191 patients, 18 did not receive HA: 9 (50%) considered HA too expensive, 8 (44.4%) thought it would be difficult to use, and 1 (5.5%) did not like HA because of its appearance.

The positive contribution score of HA to the lives of the patients was determined to be 6.63 ± 2.81. Additionally, 60 (34.68%) patients receiving HA were found to be satisfied with their devices, and the reasons for reducing device usage in 113 (65.31%) patients are shown in Table 1. There was no statistical difference between the patients’ daily use of HA with age (P = .74). There was no statistical difference between the patients’ daily use of HA with sex (P = .10). There was no statistical difference between the patients’ daily use of HA with number of cohabiting family members (P = .29). There was no statistical difference between the patients’ daily use of HA with education level (P = .73). There was no statistical difference between the patients’ daily use of HA with HA type (P = .47).

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Discussion
Elderly people with hearing loss may experience communication problems in various situations and may feel excluded, which may lead them to loneliness. At the same time, hearing loss may impair the patient’s ability to detect and recognize what is happening around. Consequently, the patient’s own safety is at risk; for example, the inability to hear the sound of a motor vehicle will increase the risk of an accident.5,13 In addition, deafness has been identified as a significant potential risk factor in dementia cases.14 Therefore, hearing rehabilitation applied to elderly individuals with hearing loss will enable them to reduce health problems such as cognitive impairment and dementia.15

Some elderly patients do not opt for HA, even though they need it. Tamblay et al reported that the most common reason for this was the high price of the device.11 In our study, the most frequent reason for patients who did not receive HA is the high price of the device. Therefore, we believe that the incentive of the health ministry should be increased for the provision of HA for elderly individuals.

It is not enough to assist in the provision of HA to elderly patients. These patients should be encouraged to use the device. Some problems experienced with the device reduce the use of HA.16

Carrasco-Alarcón et al reported that the most common reasons that reduce the use of HA were device mold and voice problems.17 In our study, the reason that reduced HA use in elderly individuals was found to be discomfort with the sound quality and volume. In our study, no statistically significant difference was observed in the device tests among the groups according to hour of HA usage. We believe that the reason for this is the low test rate of HA in the study group. We also believe that the device usage duration will increase in patients by testing the HA before taking it.

| Reason for Reducing HA Use                              | n  |
|----------------------------------------------------------|----|
| None                                                     | 60 (34.68%) |
| Dissatisfaction with the sound quality                    | 33 (19.07%) |
| Dissatisfaction with the sound level                      | 31 (17.91%) |
| Forgetting to use the device                              | 18 (10.40%) |
| Disturbance of the mold of the device                     | 16 (9.24%) |
| Device failure                                            | 6 (3.46%)   |
| Battery problem                                           | 5 (2.89%)   |
| Disturbance of the image of the device in the ear         | 4 (2.31%)   |

Abbreviation: HA, hearing aid.

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In their study, Mizutari et al. found a statistically significant difference between HA use status and gender, the number of individuals living with the patients, and educational status. In our study, no statistically significant difference was found between the usage of HA in elderly individuals and gender, the number of individuals living with them, and their educational level. The most important factor affecting the use of HA was whether the patients continued their work or not.

Conclusion

The use of HA in older individuals will help them play a more active role in society and help them in their health problems. Therefore, we should help older individuals to ensure proper HA intake and to continue their use.

Declaration of Conflicting Interests

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