

Original Article

Study on Hearing Status of Elderly Patients attending a Specialized ENT Hospital (SAHIC)

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Abstract

Background: Age related hearing loss is a natural process in elderly population all over the world.

Objectives: To determine the hearing level of elderly patients in relation to age, sex, socio-economic condition and to determine the pattern and extent of hearing loss in old age.

Method: This cross sectional study was carried out at out patient department of Specialized ENT Hospital of SAHIC, Mohakhali, Dhaka, from October 2012 to March 2013. 200 patients were included with age > 50 years and who have no past history of drug therapy. Data were collected by detailed history, clinical examination and audiometric findings and result were expressed in table form.

Result: 57% patients were found with normal hearing and 43% had variable degree of hearing impairment. Highest number of hearing impairment was found in 9th decade. Most of hearing loss were found to be bilateral and sensorineural in type.

Conclusion: A good number of elderly people in our country is suffering from some degree of hearing loss, which are mostly sensorineural in type. The prevalence and severity of hearing loss increases with increasing age.

Key Words: Age related hearing loss, Elderly patients.

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Introduction

Age related hearing loss may be defined as mid to late adult onset, bilateral, progressive sensorineural hearing loss, where underlying causes have been excluded. To define strictly, age related hearing loss excludes hearing loss caused by primary factors including loud noise exposure, underlying medical conditions (e.g. atherosclerosis, diabetics, hypertension, Paget's disease of bone, myxoedema), intrinsic otological disease (e.g. otosclerosis, chronic otitis media and Meniere's disease), head injury and ototoxic drug therapies.¹

Hearing loss in elderly people is always gradual onset and forms part of the

progressive deterioration of physiological functions associated with aging process.²

The most common cause of chronic or gradual hearing loss is age related sensorineural hearing loss, which was previously known as presbycusis.³

Regarding aetiopathogenesis of age related hearing loss Schuknecht & colleagues performed cadaveric histopathological studies of inner ear in people with age-related sensorineural hearing loss. Six distinct types of age related sensorineural hearing loss were found according to the histopathological changes in inner ear. These are 1. sensory type- loss of hair cell (and of sustentacular cells) at the basal end of organ of Corti. 2. Neural type- degeneration of neurons of the cochlear nerve, with resulting cochlear ganglion cell loss. 3. vascular or metabolic- atrophy of the cochlear stria vascularis with associated loss of stria tissue primarily in the apical & middle turns of the cochlea. 4. mechanical or cochlear conductive associated with stiffness of cochlear basilar membrane. 5. change in characteristic of the cochlear duct that are not evident on light microscopy but alter function at a submicroscopic level. 6. Mixed type- involving some contribution of the other five.¹⁻³

Age related sensorineural hearing loss usually presents with bilateral hearing loss that initially affects frequencies, above 2KHz and later it affects lower frequencies. Approximately one-third of individuals over age of 65 years develop age related SNHL. But age related changes in inner ear which causes hearing loss starts from 55 years of age.⁴

Methods

This cross sectional study was carried out in outpatient department of Specialized ENT Hospital of SAHIC, Mohakhali, Dhaka, from October 2012 to March 2013.

Inclusion Criteria: Age >50 years, No past history of drug therapy which may cause sensorineural hearing loss.

Exclusion Criteria: People with previous history of aural discharge or history of trauma including noise trauma to the ear.

All data was collected in a structured sheet by appropriate questionnaire, history, clinical examination and audiometric findings. Data processing work was consisting of registration schedules, editing computerization, preparation of dummy table, analyzing and matching of data.

Results

Out of 200 cases 57% were found with normal hearing and 43% had variable degree of hearing impairment (Table-1). The highest prevalence of hearing impairment was found in 9th decade (100%) and lowest was 30% in 6th decade (Table-2). Most of the cases were found to be bilateral (67.44%) (Table-3). Majority (69.76%) of hearing impaired people had sensorineural type of loss with significant number (18.60%) of conductive loss (Table-4). Irrespective of type of impairment, most of the people (69%) had no complaint of ear problem during presentation (Table-5). Only 31% had some sorts of otological symptoms like hearing loss, tinnitus, vertigo (Table-5) and among them about 96.77% complained of hearing loss (Table-6). About 44.45% of hearing impaired person of 6th decade (Table-7) showed mild hearing loss. In the 7th decade maximum (50%) had moderate to severe hearing loss. About 31% of persons of 8th decade and 50% of 9th decade had severe degree of hearing loss (Table-7).

Table-I

Distribution of hearing status (n=200)

| Type | Number of patients | Percentage |
|------------------|--------------------|------------|
| Normal hearing | 114 | 57.0 |
| Impaired hearing | 86 | 43.0 |

Table-II*Relative frequency of hearing impairment in different age group (n=200)*

| Age group(years) | Study population | Normal | No. of Impairment | Percentage |
|------------------|------------------|--------|-------------------|------------|
| 50 – 59 | 120 | 84 | 36 | 30.0 |
| 60 – 69 | 30 | 18 | 12 | 40.0 |
| 70-79 | 38 | 12 | 26 | 68.42 |
| >80 | 12 | 0 | 12 | 100.0 |

Table-III*Involvement (unilateral/bilateral) of ear among the impaired population (n=86)*

| Involvement | Number of patients | Percentage |
|-------------|--------------------|------------|
| Unilateral | 28 | 32.56 |
| Bilateral | 58 | 67.44 |

Table- IV*Pattern of hearing impairment (n=86)*

| Pattern | Number of impaired patients | Percentage |
|---------------|-----------------------------|------------|
| Sensorineural | 60 | 69.76 |
| Conductive | 16 | 18.60 |
| Mixed | 10 | 11.62 |

Table-V*Distribution of symptoms (n=200)*

| Symptoms | Study patients | Percentage |
|---|----------------|------------|
| Presence of otological symptoms (Hearing loss, tinnitus, vertigo) | 62 | 31.0 |
| Absence of otological symptoms | 138 | 69.0 |

Table-VI*Pattern of otological symptoms*

| Symptoms | Number of patients | Percentage |
|--------------|--------------------|------------|
| Hearing loss | 60 | 96.77 |
| Tinnitus | 10 | 16.13 |
| Vertigo | 6 | 9.68 |

Table-VII*Relation of age with degree of hearing loss (n=86)*

| Age group (years) | No of hearing loss | 26-40db | 41-55db | 56-70db | 71-90db | >90db |
|-------------------|--------------------|-------------|-------------|------------|------------|-----------|
| 50-59 | 36 | 16 (44.45%) | 10 (27.78%) | 6 (16.66%) | 4 (11.11%) | |
| 60-69 | 12 | 2 (16.67%) | 4 (33.33%) | 6 (50%) | | |
| 70-79 | 26 | 6 (23.08%) | 4 (15.38%) | 6 (23.08%) | 8 (30.78%) | 2 (7.69%) |
| >80 | 12 | | 3 (25%) | 3 (25%) | 6 (50%) | |

Discussion

In this study two hundred (200) people aged over 50 years, were studied cross sectionally after taking relevant history, clinical examination and investigations.

In this study, minimum number of hearing impaired patients (30%) was noted in the 6th decade and gradually increasing the number of hearing impairment with increasing age and that the maximum number (100%) was found

in the 9th decade. This finding is consistent with other series where it was showed that the prevalence of age related hearing loss is increased with age and the highest prevalence was a striking 95% in the 80+ year age group.⁶

In this series 43% people were found to have impaired hearing. This is very much similar to the incidence (40%) among the Koreans observed by kim HN et al.⁷

This study shows that, among the hearing impaired persons, 67.44% were bilateral and 32.56% were unilateral. This result is consistent with the findings of other studies, where bilateral involvement was 65.85% and unilateral 34.15%.^{8,9}

In this series majority of the impaired persons were found to have sensorineural impairment (69.76%) followed by conductive impairment in 18.60%. This result is consistent with the findings of other studies, where sensorineural impairment 65.85% followed by conductive impairment 21.95%.^{8,9,10,11}

The majority of the person (69%) among the study population had no otological symptoms like hearing loss, tinnitus or vertigo on presentation. Hearing loss was the most frequent complain (96.77%) and vertigo was the least (9.68%) among those who had otological symptoms. This result coincides with other studies.^{5,9,10,11}

In this study, a gradual increase in the severity of hearing loss was found with increasing age. In the 6th decade maximum 44.45% of the impaired people were found to have mild degree (26-40db) hearing loss. 50% of the impaired people of 7th decade had moderate to severe degree (56-70db) hearing loss. Maximum percentage of impaired people of 8th and 9th decade had severe degree (71-90db) of hearing loss. In a study in Italy A. Quaranta et al found that there is increase in the severity of hearing loss with increasing age, which supports this study⁸.

The facts and figures mentioned here may considerably vary from a large series. Still then, as the cases were collected from different parts of the country and evaluated with the best resources available in the country, this study may be of some value in reflecting certain facts regarding "Hearing status of elderly patients attending in specialized centre of SAHIC"

Conclusion

From this study, it can be concluded that a good number of elderly people in our country is suffering from some degree of hearing loss. In the elderly people, hearing loss is mostly sensorineural in type. The prevalence and severity of hearing loss increases with increasing age.

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