

Prevalence and Pattern of Hearing Loss.

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Abstract

Hearing impairment is a major public health problem in developing countries. A cross-sectional study was carried out from out patient department(OPD) of Otolaryngology-Head & Neck Surgery, BSMMU, Dhaka from January 2010 to October 2010 with the aim find out the etiology and pattern of hearing loss. This included 250 cases. As 163 patients had bilateral ear diseases, so 413 ears were included in this study. Age of the patients starts from 5 years and above where male were 58% and female were 42%. Most (45.2%) of the patients came from low income group family. In this series, sensorineural type of hearing loss most common (46.97%) and majority (40.92%) had mild hearing loss. This study shown that most (21.3%) of the patients with hearing loss were suffered from CSOM followed by presbycusis (19.37%).

Key words: Hearing loss, Conductive HL, Sensorineural HL

INTRODUCTION

Hearing is one of the special senses god has bestowed upon human beings. One can really appreciate the value of hearing only where one ceases to hear. Unfortunately, in a developing country like us hearing impaired individuals are ridiculed. Hearing loss in the leading chronic disability following arthritis and hypertension¹. Hearing impairment is a pervasive disability affecting nearly 250 million people in the world and 75% of sufferers live in developing countries². Hearing loss has become a common problem in industrialized societies due to combined effects of noise, aging and heredity. Infection is a added factor contributing to hearing loss in developing countries. In other words the problem is global.

In our subcontinent, hearing impairment specially for children- the commonest⁴ cause is CSOM. CSOM

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contribute to 71.6% of the hearing impaired, while in the other parts of the world like Mediterranean region, otitis media with effusion (30.8%) was the commonest cause³.

Hearing impairment is a major public health problem in developing countries. A considerable difference in the prevalence rates for ear disease is evident between developed countries and developing countries. Some of the reasons for this disparity include the absence of regular screening programmers for the ear disease, poverty, malnutrition, ignorance and paucity of accessible health care in developing countries⁴.

Good hearing is known to be one of the basic conditions for normal speech and language development. Children hear speech as a stream of sounds from which basic patterns of language need to be extracted. To enable the children to hear all the acoustic clues of speech adequately, the speech level should be at least 18dB or 30dB above the background noise level⁵.

Hearing loss was more common with age and men exhibited more severe hearing loss than women. It was estimated that hearing loss was nearly four times more prevalent in men than women. There are a number of life style and environmental factors that have been linked to hearing loss in adults and likely interact with the influences of age, race and gender⁶.

Aims and Objectives

1. To find out the etiology of hearing loss.
2. To find out the type and degree of hearing loss.
3. To find out the socio-demographic status.

MATERIALS AND METHODS

This study was conducted using following methods and materials:

Type of study : Cross sectional study

Place of study : Department of Otolaryngology-Head & Neck Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka.

Period of study :From January, 2010 to October, 2010

Study population : Patients with complaints of hearing impairment in OPD of department of Otolaryngology- Head & Neck surgery, BSMMU.

Sample size (n) : 250 cases.

Selection of patients:

Inclusion criteria:

1. All patients complaining hearing impairment.

Exclusion criteria:

1. Patients less than 5 years age.

Methods of study:

Patients complaining hearing impairment were examined by detailed history, thorough ear, nose & throat examination and general & systemic examination. Patients were selected above 5 years of age because patients below 5 years could not interpret pure tone audiometry properly. During history taking, the exact duration of disease was noted. Type of treatment were received by patients was also noted. Number of topical drops used also taken into account.

The no. of patients having bilateral ear disease was 163 and unilateral disease was 87. So total number of diseased ear were 413. On examination of the ear- condition of the pinna, pre-auricular region, post-auricular region and external auditory canal were noted. On otoscopy, condition of the external auditory canal and tympanic membrane was noted and if perforation was present in the tympanic membrane-site, size and shape of tympanic membrane perforation, condition of the rest of the tympanic membrane, condition of the middle ear mucosa and the ossicles were also noted. Test for facial nerve function, fistula test and tunic fork test were performed in every case.

Then, thorough examination of the nose & throat was carried out. General examination and examination of the chest and abdomen was also done.

Hearing impairment was assessed by pure tone audiometry with or without masking. X-ray mastoid & X-ray para nasal sinuses were also done to exclude any local pathology.

Criteria for hearing assessment—These patients were categorized as having conductive and sensorineural hearing impairment. The degree of hearing impairment was also assessed as by WHO guideline (1980) being mild (25-40dB), moderate (41-55dB), moderately severe (56-70dB), severe (71-90dB), profound (>90dB).

RESULTS

Two hundred and fifty cases with 413 ears of were included in this study from the out-patient department of Otolaryngology-Head & Neck BSMMU, Dhaka, from January, 2010 to September, 2010 (Table- 1)

Table- I: Distribution of patients by age (n=250)

Age group (years)	Total	Percentage (%)
0-10	23	9.2
11-20	32	12.8
21-30	48	19.2
31-40	52	20.8
41-50	29	11.6
51-60	46	18.4
>60	20	8
Total	250	100

Table shows the distribution of age of the patients (by inclusive method). Majority of the patients were among the age group 31-40 years (20.8%).

Table-II: Types of hearing loss according to age group (n=413)

Age group	Hearing loss No. (%)	Conductive No. (%)	Sensorineural No. (%)	Mixed No. (%)
0-10	39 (9.44)	30 (7.36)	9 (2.18)	0
11-20	55 (13.32)	38 (9.2)	17 (4.12)	0
21-30	78 (18.89)	34 (8.23)	36 (8.17)	8(1.94)
31-40	85 (20.58)	30 (7.26)	38 (9.2)	17 (4.12)
41-50	52 (12.59)	17 (4.12)	21 (5.08)	14 (3.39)
51-60	69 (16.71)	17 (4.12)	44 (10.65)	8 (1.94)
760	35 (8.47)	2 (.48)	29 (7.02)	4 (.97)
Total	413	168 (40.68)	194 (46.94)	52 (12.35)

Table -II Shows most (46.94%) of patients suffered from sensorineural type of hearing of hearing loss.

Table-III: Degree of hearing loss according to age group (n=413)

Age group	Hearing loss No. (%)	Mild No. (%)	Moderate No. (%)	Moderately severe No. (%)	Severe No. (%)	Profound No. (%)
0-10	39 (9.44)	19 (4.6)	10 (2.42)	3 (.73)	7 (1.69)	0
11-20	55 (13.32)	31 (7.5)	13(3.15)	5 (1.21)	4 (.99)	2 (.48)
21-30	78 (18.89)	32 (7.75)	26(6.3)	10 (2.42)	7 (1.69)	3 (.73)
31-40	85 (20.58)	39 (9.44)	31(7.5)	11 (2.66)	2 (.48)	2 (.48)
41-50	52 (12.59)	23 (5.6)	19(4.6)	5 (1.21)	4 (.99)	1 (.24)
51-60	69 (16.71)	19 (4.6)	32(7.75)	16 (3.88)	1 (.24)	1 (.24)
760	35 (8.47)	6 (1.45)	13(3.15)	11 (2.66)	2 (.48)	3 (.73)
Total	413	169 (40.92)	144 (34.87)	61 (14.77)	27 (6.54)	12 (2.9)

Table-III Shows most (46.94%) of patients suffered from sensorineural type of hearing of hearing loss.

Table-IV: No. of diseased ear according to cause (n=413)

Name of disease	No. of Patients	No. of ear	Percentage
Otosclerosis	36	73	17.67
Presbycusis	40	80	19.37
CSOM	53	88	21.3
SSNHL	35	35	8.47
Impacted wax	6	11	2.66
ET dysfunction	10	15	3.63
Congenital	19	38	9.2
OME	26	39	9.44
NIHL	10	12	2.9
Drug induced hearing loss	7	14	3.39
Ossicular discontinuity	8	8	1.94
Total	250	413	

We found that CSOM is the most (21.3%) common cause for hearing losses (Table-IV).

DISCUSSION

Hearing loss has become a common problem with in developing and developed societies due to combined effects of noise, aging and heredity. Infection is an added factor contributing to hearing loss in developing countries. It is a global problem.

In this series, two hundred and fifty (250) patients complaining hearing impairment due to different etiology and different age group were studied. Here, 163 patients had bilateral disease, so total 413 ears were included in this study.

In this series (Table-I) majority of the patients were in 4th and 3rd decade i.e. 20.8% and 19.2% respectively. Age had a significant rule in the occurrence of hearing loss. It is well known that physiological hearing loss increases with ageing. In this study 9.2% of patients from 0-10 years and that draw to the importance of screening this age group, this includes neonatal screening and preschool screening. The identification of hearing problems earlier carries the best prognosis for treatment and rehabilitation through speech and language training and hearing aids.

In this study, male (58%) were found more affected than female (42%) with a male to female ratio of about 3:2. This

is consistent with other studies⁷. The explanation for the difference in hearing sensitivity between men and women largely has been attributed to differences in occupational and associated level of noise exposure. There also may be some intrinsic factors that could account for the differences. Although the structures of the auditory system appear similar for males and females at birth, intrinsic factors such as hormonal and metabolic differences may influence hearing across the lifespan. Hormone like estrogen may play a protective role in the cochlea. This might be due to high male attendance in hospital. Female were also reluctant to come forward for treatment in our country although O.Abdel (2007) showed that sex had no effect on the occurrence or any other parameters of hearing loss.

Sex has no effect on degree of hearing loss. Age however did have an effect, younger ages had milder degree of hearing loss, older subjects have more severe hearing loss. Mild hearing loss may not be noticed and even moderate losses may not impose a problem for people with excellent perceptual abilities and good coping skills. However, children are different and the problem is more complex since many children are considered to be suffering from psychological problems and in fact their psychological problems are due to hearing loss. Therefore, the early diagnosis requires screening programmes in order to identify those hearing impairment. In this study (Table-II), at overall age group, most of patients (40.92%) of the patients had sensorineural type of hearing loss due to most of patients were suffered from presbycusis, congenital deafness, SSNH while O. Abdel (2007) showed conductive deafness was most (64.1%) common type of hearing loss.

Different series showed different most common etiology for hearing loss. One survey⁹ showed 24% causes of hearing loss are due to genetic factors, while other survey³ showed otitis media with effusion was the most (30.7%) cause followed by presbycusis (22.7%). Olusanya et al. (24.7%) have documented impacted cerumen was the commonest cause of hearing impairment. In this series (Table IV), CSOM was found most (21.3%) common cause followed by presbycusis (19.37%)

From this study it can be concluded that hearing loss due to different etiology affects different age group patients. Health personnel and govt. should focus on hearing screening specially in neonates and preschool children in the future health planning since there was a high incidence of hearing loss in these young age groups. Since medical treatment is mainstay hearing loss management, improvement of the diagnostics and treatment skills of health service providers, specially at the primary care level, could considerably reduce the incidence of hearing loss.

The health authorities should integrate hearing and ear care

in primary health care centre. Such care will decrease the direct and indirect cost of hearing impairment problem. The health authorities of government and non-governmental organization should play a role in patient education and awareness of the hearing loss problem and the uses of hearing aids. The government needs to increase the subsidy of hearing aids. As most of the cases of hearing loss can be prevented, attention should be directed to preventive programs.

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