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ORIGINAL ARTICLE

Frequency of Type of Hearing Loss in Patients Presenting to ENT Outpatient Clinics

ARIA MASOOM[1], ABDUL MANAN KHAN[2]
[1]Associate Professor, Department of ENT, Bolan Medical College / Complex Hospital, Quetta
[2]Associate professor ENT Bolan Medical College SPH Quetta
Correspondence to: Abdul Manan Khan, Email: mk1803754@gmail.com

ABSTRACT

Background: Hearing loss is a major health disorder that negatively affect the life of an individual. It has various type and many causes.

Objective: The aim of this study was to find out the Frequency of Type of Hearing Loss in Patients Presenting to ENT Outpatient Clinics

Material and method: This prospective study was conducted at the Department of ENT, Bolan Medical College / Complex Hospital, Quetta from July 2022 to December 2022 after taking approval from the research committee of the institute. A total of 410 individuals of both genders and different age groups (5years or above) presented sudden sensorineural hearing loss in one or both ears were included. Otoscopy was performed to check for any disease in the middle ear, tympanic membrane, and ear canal. To evaluate the degree of clinical hearing, tests using conversational and whispered voices were conducted. The rest of the neck and ENT were thoroughly inspected. For every patient, pure tone audiograms (PTA) were acquired. Where applicable, impedance audiography was used. Analyses were done on the basis of PTA hearing impairment. All the data was recorded on specific proforma and analyzed through SPSS version 16.

Results: A total of 410 individuals were examined in the study out of which 59% were male and 41% were female .The mean age of the study population was 30 (ranged 15-85) years. Hearing loss was most prevalent in the 5-10 years age group 27.5%. The most common type of hearing impairment was Conductive deafness 48.7% followed by Sensorineural loss 39.0% and Mixed 1.2%.Among the etiologies the most prevalent reason of hearing loss was Chronic suppurative otitis media 46.3% followed by presbyacusis 17.5%, NIHL 14.1%, and OME 12.6%. The most prevalent condition causing conductive & mixed hearing loss was chronic suppurative otitis media, while the most common condition causing sensorineural loss was presbyacusis. Conductive loss was most prevalent in the younger age group whereas sonsorineural loss was more prevalent in the elder age group.

Conclusion: The current study concluded that according to pure tone audiography, conductive hearing loss is the most common kind of hearing loss among individuals who attend ENT clinics, and it mostly affects children. The most frequent causes are otitis media with effusion and chronic suppurative otitis media.

Keywords: Frequency; Hearing Loss; Ear; Nose; Throat

INTRODUCTION

Hearing loss effect almost 1.3 billion individuals throughout the world annually and majority of the cases are congenital[1] But acquired hearing loss is also very common.[2] Syndromic and non-syndromic causes are examples of congenital causes. Middle ear disorders, ototoxic medications, noise and acoustic trauma, and iatrogenic factors are examples of acquired causes.[2-3] While non-syndromic hearing loss is the source of 70% of instances, syndromic hearing loss accounts for 15–30% of congenital causes.[1] Hearing loss can have both immediate and complicated long-term effects on one's social, financial, and mental health.[4-6] The most common type of hearing loss is otitis media. Additionally, hearing loss can be categorized as mixed, sensorineural, or conductive. Otitis media is the most common cause in children.[7] The most frequent cause of otosclerosis in adults is fixation of the stapes footplate in the oval window, which happens in the 2nd to fourth decade of life.[8] Presbyacusis is the most prevalent kind of hearing loss in old age, and it is brought on by the degeneration of the cochlea's machanosensitive hair cells.[9] Poor speech discrimination in a loud setting is one of its causes, along with middle ear disease and trauma.[9] Pesticides and other environmental variables can harm the cochlea in addition to the central nervous system and vestibular system, and they may be the first indication of poisoning.[10] In the range of high frequencies, noise from vehicles, workplace machines, and personal listening devices (PLDs) can impair hearing in 22-25% of people.[11-12] Chronic suppurative otitis media is the most common infectious cause of hearing loss in underdeveloped nations. In addition to these reasons, hearing loss might be a sign of a collection of illnesses including Meniere's disease.[13] Pure tone audiography (PTA) is the first assessment method used to identify the kind and degree of hearing impairment, in addition to clinical evaluation, which is accurate. Certain medical conditions result in characteristic audiograms that aid in patient diagnosis. The objective of our study was to determine the frequency of type of hearing loss in individuals presenting to ENT outpatient clinics.[13]

MATERIAL AND METHOD

This prospective study was conducted at the Department of ENT, Bolan Medical College / Complex Hospital, Quetta from January July 2022 to December 2022 after taking approval from the research committee of the institute. The sample size was find out using the WHO sampling calculator With a 95% confidence level and a 5% margin of error, it is supposed that 17% of people have hearing impairment. The none probability sampling technique was used. A total of 410 individuals of both genders and different age groups (5 years or above) presented sudden sensorineural hearing loss in one or both ears were included while Deaf and mute individuals those examined with instruments other than pure tone audiography for hearing evaluation were excluded. After taking a written consent from each participant a thorough history was obtained that included information on the following: the beginning and duration of the hearing loss, related vertigo and tinnitus, ear discharge, nasal obstruction, ear trauma, medications, allergic reactions, interaction with sudden loud noises, occupation, and the adoption of headphones and personal listening devices (PLDs). Children's upper respiratory tract infections, sore throat episodes, and nasal blockage were investigated. Epistaxis, prior ear surgery, head trauma, birth asphyxia meningitis, seizures, family history of hearing loss, and the presence of ontological abnormalities were among the other questions. Otoscopy was performed to check for any disease in the middle ear, tympanic membrane, and ear canal. Prevalence of tympanic membrane perforation and choleasteatoma, regardless of location or size, was observed. Rinnie, Weber, & Absolute Bone conduction tests were among the tuning fork experiments that were conducted. To evaluate the degree of clinical hearing, tests using conversational and whispered voices were conducted. In order to determine

whether the vestibular system is involved in the occurrence of suppurative otitis media, balance tests were conducted. The rest of the neck and ENT were thoroughly inspected. For every patient, pure tone audiograms (PTA) were acquired. Where applicable, impedance audiography was used.

Analyses was based on PT . A hearing impairment was classified as:

1. Conductive hearing loss (air-bonr gap > 15 decibels and bone conduction = normal thresholds)
2. Bone conduction thresholds >30 dB and air-bone gap >15 dB are indicative of mixed hearing loss.
3. Sensorineural hearing loss (no air-bone gap, air-conduction and bone-conduction thresholds >30 dB).

All the data was recorded on specific proforma and analyzed through SPSS version 16 and presented in the form of percentages and frequencies and presented in tables and figures.

RESULTS

A total of 410 individuals were examined in the study out of which 242(59%) were male and 168(61%).the mean age of the study population was 30 (ranged 15-85) years. Hearing loss was most prevalent in the 5-10 years age group 113(27.5%) as presented in table 1.The most common type of hearing impairment was Conductive deafness 200(48.7%) followed by Sensorineural loss 160(39.0%) and Mixed 50(1.2%) respectively as shown in table 2. Among the etiologies the most prevalent reason of hearing loss was Chronic suppurative otitis media 190(46.3%) followed by presbyacusis 72(17.5%), NIHL 58(14.1%), and OME 52(12.6%) as shown in table 3. The most prevalent condition causing conductive & mixed hearing loss was chronic suppurative otitis media, while the most common condition causing sensorineural loss was presbyacusis as presented in table 4. Conductive loss was most prevalent in the younger age group, n=110 (5–10 years), whereas sonsorineural loss was more prevalent in the elder age group, n= 45 (61 years and above) as presented in Table 5.

Table 1**:** demographic features of the study participants

Features	N (%)
Gender	
Male	242(59%)
Female	168(41%).
Age in years	
5-10	113(27.5%)
11-20	74(18%)
21-30	66(16%)
31-45	70(17%)
46-60	44(10.7%)
Above 60	43(10.4%)
Total	410

Table 2*:* Hearing loss types

Types	N (%)
Sensorineural	160(39.0%)
Mixed	50(1.2%)
Conductive deafness	200(48.7%)
Total	410

Table 3: Hearing loss etiologies

Cause	N (%)
Chronic suppurative otitis media	190(46.3%)
Presbyacusis	72(17.5%)
Otosclerosis	5(1.2%)
Noise induced hearing loss	58(14.1%)
Meniere's disease	24(5.8%)
Familial	5(1.2%)
OME	52(12.6%)
Miscellaneous	5(1.2%)
Total	410

Table 4: Hearing loss etiologies and cross tabulation

Cause	Conductive deafness	Mix hearing loss	Sensorineural	Total
Chronic suppurative otitis media	145	45	Zero	190
Presbyacusis	zero	zero	68	68
Otosclerosis	8	Zero	zero	8
Noise induced hearing loss	Zero	Zero	58	58
Meniere's disease	Zero	Zero	20	20
Familial	Zero	Zero	13	5
OME	45	5	zero	50
Miscellaneous	3	3	5	11
Total	201	53	155	410

Table 5: different types of hearing loss on the basis of age (Cross tabulation)

Age groups	Conductive deafness	Mix hearing loss	Sensorineural	Total
5-10	110	4	Zero	114
11-20	46	8	22	76
21-30	33	6	25	64
31-45	8	26	30	64
46-60	3	6	38	47
Above 60	zero	Zero	45	44
Total	200	50	160	410

DISCUSSION

Our community has a high prevalence of hearing loss, which can be caused by a number of factors. Pure tone audiometry (PTA) with impedance is the first screening method used in primary care outpatient settings to identify both the degree and type of hearing loss because medical evaluations of hearing are extremely imprecise. Individuals can be treated appropriately. The most common cause of hearing impairment that may be treated is conductive hearing loss. Children with otitis media with effusion should receive the proper care if they have hearing loss. Conductive hearing loss is caused by chronic suppurative otitis media (CSOM), which can affect both adults and children. Depending on the kind of CSOM, appropriate treatment can both prevent hearing loss and promote hearing rehabilitation. On PTA, noise-induced loss of hearing has a certain pattern. Reducing exposure to noise can help these patients maintain their hearing. There are limited of date available to ascertain the kind & severity of hearing that varies among the communities and different age groups. It is very hard to draw a genuine comparison with the current study. In the present study a total of 410 individuals were examined out of which 59% were male and 41%.the mean age of the study population was 30 (ranged 15-85) years. Hearing loss was most prevalent in the 5-10 years age group 27.5%. Age and gender statistics are comparable to a research conducted in Bangladesh where participants were between the ages of 5 and 60 and males made up 59.33% and females 44.67%.[14] our study findings are also simiar to a local study conducted by Masud-Ul-Haq et al [15] in which they showed that hearing loss was more common in male population as compared to female and their research included individuals with ages ranging from 13 to 62, with

a mean age of 26.3 years. Similarly, a different research found that 58% of men had hearing loss, which was greater than the rate for women.[16] As a result, these consistent findings demonstrate that men are more likely than women to have hearing loss. In the present study there types of hearing loss were evaluated. in our study the most common type of hearing impairment was Conductive deafness 48.7% followed by Sensorineural loss 39.0%and mixed 50(1.2% respectively. our study results are similar to the findings of Lasisi et al[17] .they stated that the most common type was conductive deafness. Another study that evaluated the various forms of hearing loss in children with syndromic disorder also showed nearly consistent findings: conductive hearing loss (37%) continued to be the most prevalent type, followed by sensorineural hearing loss (33. %) and mixed hearing loss (29%).[19] Contrary to our research's results, an Indian study indicated that sensorineural hearing loss was the most prevalent form, occurring in fifteen percent of respondents, followed by conductive hearing loss & mixed hearing loss in 0.8%.[20] Nonetheless, local research results corroborate our findings about the prevalence of different forms of hearing loss. According to a research on the prevalence and causes of hearing impairment at tertiary care centres conducted by Musani MA and colleagues, 50% of people have conductive hearing loss, 20% have sensorineural hearing loss, and 30% have mixed hearing loss.[21] Similar findings were found in another local research evaluating various types of hearing loss, which found that the majority of the participants had conductive type (80.8%), followed by mixed (17.17%) & sensorineural (8.1%).[14] In the present among the etiologies the most prevalent reason of hearing loss was Chronic suppurative otitis media 46.3%)followed by presbyacusis 17.5%, NIHL 14.1% and OME 12.6% . These findings are similar to the previous study by Musani in which the most prevalent etiology was otitis media and presbyacusis.[21]

CONCLUSION

The current study concluded that according to pure tone audiography, conductive hearing loss is the most common kind of hearing loss among individuals who attend ENT clinics, and it mostly affects children. The most frequent causes are otitis media with effusion and chronic suppurative otitis media.

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