DESCRIPTIVE STUDY OF RATE AND PRESENTATION OF HEARING LOSS IN DISTRICT HOSPITAL- HASSAN

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ABSTRACT

BACKGROUND

There is not much documenting as of how many hearing loss cases have been reported in district level hospitals in India. Therefore, a study was undertaken to document the patterns of hearing loss who came to the district hospital of Hassan, Karnataka, India over a period of 5 years (between Jan 2012 and Dec 2016).

MATERIALS AND METHODS

Patients who came with the complaints related to ear with hearing loss and willing are all included in this study. All the patients with ear complaints noted with detailed case history and otoscopic examination and basic hearing assessment like Pure Tone Audiometry (PTA), Tympanometry and Otoacoustic Emission (OAE- in case of infant) done to know the rate and presentation of hearing loss.

RESULTS

Results were analysed in data forms. The mean values were obtained from these data and later converted into percentages across the distribution of the Age, Gender, Causes, Laterality of hearing loss, Type of hearing loss and Degree of hearing loss. In the distribution of different ages, males had higher rates than the females, in the age range 0 - 10 caused highly due to acute otitis media and other age ranges corresponding to different causes. Unilateral hearing loss was higher than the bilateral and mixed type of hearing loss being at the high rate with a degree of hearing loss more at the moderate level.

CONCLUSION

In this study the patients with hearing disorders with hearing loss had been documented more with presbycusis; it was highest in all the age groups and more with the age of 60 years than the other age groups.

KEYWORDS

Type, Degree, Hearing Loss, Screening.

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BACKGROUND

Hearing loss due to various ear problems is common in India. It is seen across the various age groups from birth to the old age. The cause and severity may vary. There is no proper documentation. In this study, we are going through the various factors, in which hearing problems were seen. This will help in the proper implementation of the various programs related to hearing and speech problem and also early rehabilitation.

Review of Literature

Indian Public Health Standards (IPHS) document besides the basic specialty services, due importance has been given to Newborn Care, Physical Medicine and Rehabilitation Services.⁽¹⁾ Documenting newborn screening is important to remember that screening is only the first step in the process of helping those with hearing loss, which achieves good outcome as it is linked to an Early Hearing Detection and Intervention (EHDI) program.⁽²⁾

For effective implementation, EHDI programs must rely on an interdisciplinary team approach. Essential team members are families, audiologists, paediatricians and/or primary care physicians, otolaryngologists, speech-language therapists, educators, nurses and community workers.⁽³⁾

Patterns of Hearing Loss Presentations in Maitama District Hospitals, Abuja-Nigeria reports inadequate facilities and lack of well-trained manpower are some of the challenges faced.⁽⁴⁾ Collaboration at all levels of professional organisations, federal and state governments, hospitals, the medical home and families has contributed to this remarkable success.⁽⁵⁾

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The success of EHDl programs depend on families working in partnership with professionals as a well-coordinated team.⁽⁶⁾

A study on effects of hearing loss and age of intervention on some language metrics in young hearing impaired children's data is consistent with some of the arguments to be found in the small body of data addressing the question of early intervention.⁽⁷⁾ The role of parents and caregivers in seeking early help should be strengthened, while capacity building for the training of more audiologists and speech therapists should be pursued rapidly.⁽⁸⁾ Parents were often told that their children were "slow starters" and would outgrow the speech delays only to be enrolled in schools for the deaf when this optimism failed.⁽⁹⁾ Organisation for Economic Cooperation and Development (OECD) report states primary prevention of deafness through awareness campaign at the primary care level is still the best option.⁽¹⁰⁾

MATERIALS AND METHODS

Study Design

Descriptive study (observational study) of rate and presentation of hearing loss in district hospital.

Objective

To document the patterns of hearing loss who came to the district hospital of Hassan, Karnataka, India over a period of 5 years (between 2012 and 2016). Also help to provide proper basic intervention for hearing loss.

Subjects

Patients who came with the complaint of ear diseases with hearing loss and willing were included. Those who were not willing were excluded.

Materials

Case history was used to document all the personal and aetiological factors. Otoscopy, Audiometer, Tympanometer and Otoacoustic Emission (OAE- in case of infants) were used to assess ear abnormality and hearing loss.

Procedure

All the patients with ear complaints noted with detailed case history and otoscopic examination and basic hearing assessment like Pure Tone Audiometry (PTA), Tympanometry and Otoacoustic Emission (OAE) were done to know the patterns of hearing loss.

Analyses

Results were analysed in both data forms. The mean values was obtained by these data and was converted into percentages across the distribution of the following-

1. Age.
2. Gender.
3. Causal factors.
4. Laterality of hearing loss.
5. Type of hearing loss.
6. Degree of hearing loss.

RESULTS

Effect of Age

Results of percentage scores across ages indicated out of 2662 patients. The following are the high scores obtained for each cause in the ascending order.

1. The ages between 0-10 years.
2. The ages between 21-30 years.
3. The ages between 11-20 years.
4. The ages between 41-50 years.
5. The ages between 31-40 years.
6. The ages between 51-60 years.
7. The ages more than 60 years.

The results are shown in Table I.

Age Groups	No. of Cases	Percentage of Cases
0-10	485	21.4
11-20	255	11.3
21-30	330	14.5
31-40	183	8.2
41-50	201	8.9
51-60	108	4.8
More than 60 years	700	30.9
Total	2262	~100

Table I. Distribution of Age

Distribution of Gender

Results of percentage scores between genders indicated out of 2662 patients, males were higher than female patients.

The results are shown in Table II.

Gender	No. of Cases	Percentage of Cases
Males	1256	55.5
Females	1006	44.5
Total	2262	~100

Table II. Distribution of Gender

Effect of Causes

Results of percentage scores for different causal factors indicated out of 2662 patients, the following were the high scores obtained for each cause in the ascending order.

1. Acute Otitis Media had higher scores followed by,
2. Otitis Media with Effusion (OME).
3. Chronic Suppurative Otitis Media (CSOM- tubotympanic type).
4. Chronic Suppurative Otitis Media (CSOM- attic antrum type).
5. Wax impaction.
6. Presbycusis.
7. Congenital malformation.
8. Noise-induced hearing loss.
9. Others.

The results are shown in Table III.

Causal Factors	Total	Total % of Cases
Acute Otitis Media	606	26.8
Otitis Media with Effusion (OME)	460	20.3
Chronic Suppurative Otitis Media (CSOM- tubotympanic type)	290	12.9
Chronic Suppurative Otitis Media (CSOM- attic antrum type)	218	9.6
Wax Impaction	201	8.9
Presbycusis	191	8.4
Congenital Malformation	171	7.6
Noise-Induced Hearing Loss (NIHL)	50	2.2
Others	75	3.3
Total	2262	~100

Table III. Distribution of Causal Factors

Effect of Laterality of Hearing Loss

Results of percentage scores for different causal factors indicated out of 2662 patients, unilateral hearing loss were higher than bilateral hearing loss.

The results are shown in Table IV.

Laterality of Hearing Loss	No. of Cases	Percentage of Cases
Unilateral	1345	59.5
Bilateral	917	40.5
Total	2262	~100

Table IV. Laterality of Hearing Loss

Effect of Type of Hearing Loss

Results of percentage scores for different causal factors indicated out of 2662 patients, the following are the high scores obtained for the types of hearing loss in the ascending order.

1. Mixed hearing loss.
2. Conductive hearing loss.
3. Sensorineural hearing loss.

The results are shown in Table V.

Type of Hearing Loss	No. of Cases	Percentage of Cases
Mixed hearing loss	815	36
Conductive hearing loss	803	35.5
Sensorineural hearing loss	644	28.5
Total	2262	~100

Table V. Type of Hearing Loss

Effect of Degree of Hearing Loss

Results of percentage scores for different causal factors indicated out of 2662 patients, the following are the high scores obtained for the degree of hearing loss-

1. Moderate hearing loss.
2. Moderately severe hearing loss.
3. Mild hearing loss.
4. Severe hearing loss.
5. Minimal hearing loss.

6. Profound hearing loss.

7. Normal hearing.

The results are shown in Table VI.

Type of Hearing Loss	No. of Cases	Percentage of Cases
Normal hearing (-10 to 15 dB)	183	8
Minimal hearing loss (16 to 25 dB)	287	12.6
Mild hearing loss (26- 40 dB)	371	16.4
Moderate hearing loss (41- 55 dB)	446	19.8
Moderately severe hearing loss (56- 70 dB)	411	18.2
Severe hearing loss (71- 90 dB)	288	12.8
Profound hearing loss (> 90 dB)	276	12.2
Total	2262	~100

Table VI. Type of Hearing Loss

DISCUSSION

The results indicated two points of interest. First of all, age groups above 60 years were in higher rate of presentation of hearing and related difficulties, especially with complaint of reduced hearing sensitivity. One of the reasons could be the natural ageing phenomenon called Presbycusis, in which the hearing loss increases as age increases. Secondly, more male patients were reported than female because Presbycusis is more seen in male than females. 0-10 years age group had the second highest rate of presentation of hearing loss which is because of upper respiratory tract infections, which causes acute otitis media. Also, there are other causes involved in the other age groups which includes Wax impaction, middle ear infectious conditions like Otitis Media with Effusion (OME), Chronic Suppurative Otitis Media (CSOM- tubotympanic type) and Chronic Suppurative Otitis Media (CSOM- attic antrum type). Noise-induced hearing loss was seen in the age group between 31 - 40 years exclusively.

In case of causal factors most middle ear infectious condition was higher in most age groups because of climatic condition in the Hassan district with Acute Otitis Media being higher followed by other infectious causes followed by wax impaction and other causes. Laterality of hearing loss was seen more with unilateral infections, more likely seen in one ear than the other ears. Since the causal factors are more due to middle ear infections, unilateral hearing loss are seen to be greater than bilateral hearing loss.

Types of hearing loss were seen more with mixed hearing loss because most of the patients with longstanding middle ear infections and came repeatedly to the district hospital with previous treatment. This is followed by conductive hearing loss and sensorineural hearing loss.

Normal hearing was seen in some cases of initial stage of middle ear infections and impacted wax. Rest of the patients mostly had moderate hearing loss, because they noticed the problem. This is followed by moderately severe and severe hearing loss. Minimal hearing loss and profound hearing loss are kind of patients with no hopes as minimal hearing loss patients tend to have difficulty understanding whether they have hearing loss or not and profound hearing loss lose hopes because of communication gap.

CONCLUSION

In this study patients with hearing disorders with hearing loss had been documented more with presbycusis; it was highest in all the age groups, more in 60 years than the other age groups. When carrying out such documenting it went smoothly with no problems except for the fact of climatic variation and poor socio-economic status as major issues to the patients. An interesting future study might involve evaluating in different climates, i.e. seasonal variation should document specific type of ear and hearing disorders with rehabilitative measures taken up like cochlear implants, acquisition of hearing aids and its maintenance is still a challenge for the future directions. However, well-trained manpower should be adequate in evaluating the hearing disorders by Speech Language Pathologist cum Audiologist alongside Otologist.

Summary

The present study was done to document the patterns of hearing loss that came to the district hospital of Hassan, Karnataka, India over a period of 5 years (between 2012 and 2016). The results indicated that age groups more than 60 years are more than the other age groups. Irrespective of causative factor, factors attributing to the middle ear infections such as acute otitis media was higher than the other, which may be associated with unilateral hearing loss more at the moderate level of hearing loss being more than the others. These hearing loss patients can be intervened early either by medical, surgical or rehabilitative methods like hearing aids so that further hearing loss can be prevented.

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