

ORIGINAL ARTICLE

Evaluation of type and degree of unilateral hearing loss in patients

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ABSTRACT:

Background: Hearing impairment cannot be seen, and hence, its effects are not visible to others, so deaf suffers in silence. The present study was conducted to record unilateral hearing loss (UHL) in patients. **Materials & Methods:** 265 patients age ranged 20-45 years of both genders were included. The types and degrees of unilateral sensorineural hearing impairment was recorded. **Results:** Type of hearing loss was sensorineural in 110, conductive in 75, mixed in 50 and normal in 30. Severity of hearing loss was mild in 20, moderate in 100, moderately severe in 50, severe in 35 and profound in 25. The difference was significant (P< 0.05). **Conclusion:** SNHL type is the most common type of hearing impairment among patients complaining of HL.

Key words: Sensorineural hearing impairment, Deaf, Pure tone audiogram

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INTRODUCTION

Hearing impairment cannot be seen, and hence, its effects are not visible to others, so deaf suffers in silence.¹ In unilateral sensorineural HL (USNHL), HL is present only in one ear. The other ear will have normal hearing capacity. It can be just a mild HL that does not affect daily functioning, or it can be a very major loss with a severe or profound intensity, causing hearing handicap.²

HL is an extremely common disorder, but there are very few studies on incidence and characteristics of USNHL.³ With approximately 32 million Americans having some degree of hearing impairment, SNHL accounts for 90% of the cases. The vast majority of patients with SNHL have bilateral HL. In the United States, approximately 60,000 new cases of USNHL occur annually and far more occur internationally.⁴

The diagnosis and management of pediatric hearing loss have undergone significant changes in the past 30 years. In 1993, the National Institutes of Health recommended newborn hearing screening within the first 3 months of life.⁵ The Joint Committee on Infant Hearing, consisting of representatives from many national organizations dedicated to ensuring early identification, intervention, and follow-up care of

infants and young children with hearing loss, published statements in 1994, 2000, 2007, and 2019 to establish guidelines for newborn hearing screening and for early hearing detection and intervention programs, benchmarks for quality, tracking of outcomes, and initial management of infants with hearing loss.⁶ The present study was conducted to record unilateral hearing loss (UHL) in patients.

MATERIALS & METHODS

The present study comprised of 265 patients age ranged 20-45 years of both genders who visited the department with the complaint of hearing difficulty. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. A through ear examination was performed by ENT surgeon. Pure tone audiogram (PTA) records of patients who had complained of hearing impairment were analyzed. The types and degrees of unilateral sensorineural hearing impairment was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 265		
Gender	Males	Females
Number	165	100

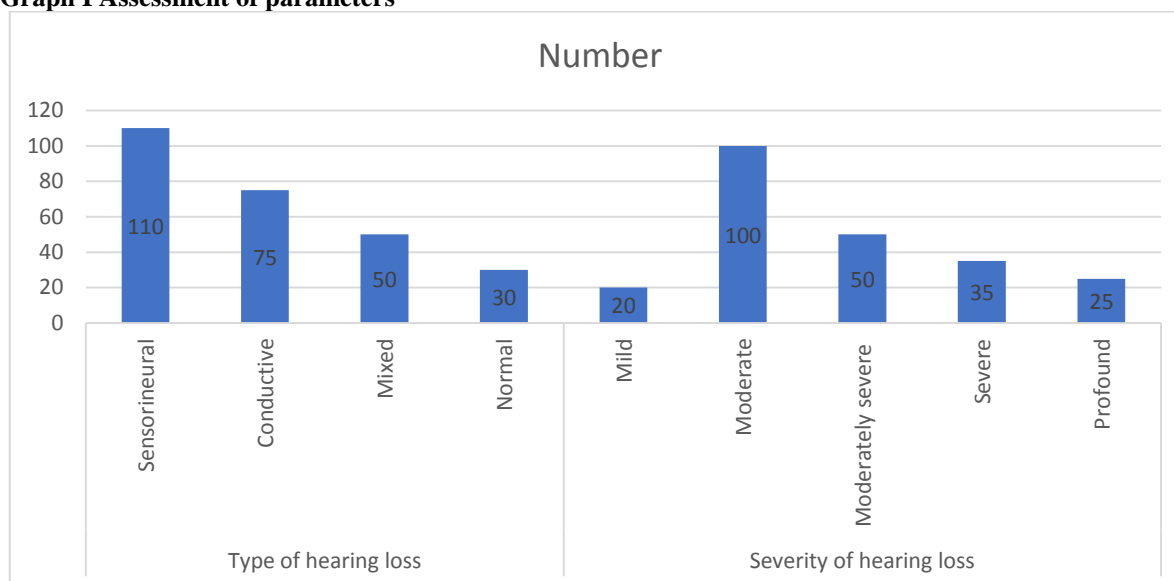
Table I shows that out of 265 patients, males were 165 and females were 100.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Type of hearing loss	Sensorineural	110	0.02
	Conductive	75	
	Mixed	50	
	Normal	30	
Severity of hearing loss	Mild	20	0.01
	Moderate	100	
	Moderately severe	50	
	Severe	35	
	Profound	25	

Table II, graph I shows that type of hearing loss was sensorineural in 110, conductive in 75, mixed in 50 and normal in 30. Severity of hearing loss was mild in 20, moderate in 100, moderately severe in 50, severe in 35 and profound in 25. The difference was significant ($P < 0.05$).

Graph I Assessment of parameters



DISCUSSION

The prevalence of permanent bilateral severe to profound hearing loss in newborns is 1.1 per 1000 newborns and has not changed significantly over time. In addition, another 1 to 2 per 1000 new borns have bilateral mild to moderate hearing loss or unilateral hearing loss of any degree.⁷ However, the age at which hearing loss is detected has decreased substantially due to successful screening programs. Any impairment in the ability to hear sounds at thresholds considered normal. For children, a pure tone threshold average of more than 15 dB at 500, 1000, 2000, and 4000 Hz is considered outside the normative range, with larger reductions in hearing levels classified by severity. Severity of hearing loss is categorized below. Deaf is often used as an alternative to profound hearing loss when a person cannot hear typical conversations without hearing amplification.⁸ Hard of hearing is a general term for anyone who has some hearing loss that ranges from mild to moderate to moderately severe and who often benefits from hearing aids. Severity of hearing loss is slight: hearing thresholds 16 to 25 dB Mild: hearing

thresholds 26 to 40 dB Moderate: hearing thresholds 41 to 55 dB Moderately severe: hearing thresholds 56 to 70 dB Severe: hearing thresholds 71 to 90 dB Profound: hearing thresholds more than 90 dB.⁹ The present study was conducted to record unilateral hearing loss (UHL) in patients.

In present study, out of 265 patients, males were 165 and females were 100. Bansal et al¹⁰ studied the incidence of pure USNHL (other ear being normal) in patients complaining of HL and to establish the type and degree of USNHL in patients. A total of 1800 OPD patients who had a complaint of HL and had undergone pure tone audigram (PTA). SNHL type was the highest with 802 cases (44.55%). Out of 802 cases of SNHL, 257 (32.05%) were USNHL – out of which, only 155 patients (60.31%) had pure USNHL with other ear being normal; this constituted the study group, i.e., 155 patients (8.6%) out of 1800. Age of patients ranged from 9 years to 76 years (mean age - 41.5 years). Male: female ratio was 1.31:1. Both ears were almost equally involved. The highest numbers of USNHL patients were seen in the age group of 31–40

years (23.87%). Most cases presented with mild (34.2%), followed by profound (31.6%) USNHL.

We found that type of hearing loss was sensorineural in 110, conductive in 75, mixed in 50 and normal in 30. Severity of hearing loss was mild in 20, moderate in 100, moderately severe in 50, severe in 35 and profound in 25. Sharma et al¹¹ among pure unilateral cases reported right ear involvement in 48.2% of cases and left ear involvement in 51.8% of cases, which is in alignment to our study in which 74 patients (47.7%) had their right ear involvement and 81 patients (52.3%) had their left ear involvement, which is also consistent with the findings of Brookhouser et al¹² who in their study of 324 children and adolescents with USNHL at the Boys Town Research Hospital found that the left ear was affected in 52% and the right ear in 48%.

USNHL is known to cause irritability, body language and mannerisms which appear socially awkward or unusual, frequent headaches, stress, social isolation, chronic interpersonal communication difficulties due to inability of brain to isolate or beam form sounds and voices of other individuals, appearance of anxiousness even in low-noise situations, jumpiness, trouble figuring out where sounds are coming from, trouble paying attention to what people are saying: “Evasive” behavior misdiagnoses as attention deficit hyperactivity disorder, seeming lack of awareness of other people’s personal space and moods since brain is hyperfocused on deciphering auditory information in lieu of nonverbal social cues.¹³

CONCLUSION

Authors found that SNHL type is the most common type of hearing impairment among patients complaining of HL.

REFERENCES

1. Noble W, Gatehouse S. Interaural asymmetry of hearing loss, speech, spatial and qualities of hearing scale (SSQ) disabilities, and handicap. *Int J Audiol* 2004;43:100-14.
2. American Academy of Audiology Clinical Practice Guidelines: Evidence-Based Best Practice Guideline for Adult Patients with Severe-to-Profound Unilateral Sensorineural Hearing Loss; June, 2015. Available from: <http://www.audiology.org>. [Last accessed on 2016 May 22].
3. Kanjekar S, Doddamani A, Malige R, Reddy N. Audiometric analysis of type and degree of hearing impairment and its demographic correlation: A retrospective study. *J Adv Clin Res Insights* 2015;2:189-92.
4. Hughes GB, Freedman MA, Haberkamp TJ, Guay ME. Sudden sensorineural hearing loss. *Otolaryngol Clin North Am* 1996;29:393-405.
5. Varshney S. Unilateral sensorineural hearing loss (USNHL) – Still a challenge to manage. *Otolaryngol Int* 2016;1:19-22. 7.
6. Hol MK, Kunst SJ, Snik AF, Cremers CW. Pilot study on the effectiveness of the conventional CROS, the transcranial CROS and the BAHA transcranial CROS in adults with unilateral inner ear deafness. *Eur Arch Otorhinolaryngol* 2010;267:889-96.
7. Popelka G. Sound Bite hearing system by sonitus medical: A new approach to single-sided deafness. *Semin Hear* 2010;31:393-409.
8. Stenfelt S. Bilateral fitting of BAHAs and BAHA fitted in unilateral deaf persons: Acoustical aspects. *Int J Audiol* 2005;44:178-89.
9. Hol MK, Bosman AJ, Snik AF, Mylanus EA, Cremers CW. Bone-anchored hearing aids in unilateral inner ear deafness: An evaluation of audiometric and patient outcome measurements. *Otol Neurotol* 2005;26:999-1006.
10. Bansal D, Varshney S, Malhotra M, Joshi P, Kumar N. Unilateral sensorineural hearing loss: A retrospective study. *Indian J Otol* 2016;22:262-7.
11. Sharma M, Singh P, Kapoor M, Goel M. Pattern of sensorineural hearing loss in patients attending ENT OPD. *Int J Oral Health Med Res* 2015;2:5-8.
12. Brookhouser PE, Worthington DW, Kelly WJ. Unilateral hearing loss in children. *Laryngoscope* 1991;101 (12 Pt 1):1264-72.
13. Christensen L, Richter GT, Dornhoffer JL. Update on bone-anchored hearing aids in pediatric patients with profound unilateral sensorineural hearing loss. *Arch Otolaryngol Head Neck Surg* 2010;136:175-7.