



## EVALUATION OF ELDERLY PATIENTS WITH HEARING IMPAIRMENT.

1. MD, FCPS (ENT)  
Professor of ENT  
Islamabad Medical and Dental  
College, Islamabad.
2. MBBS, FCPS (ENT)  
Consultant ENT  
Ayub Medical Complex,  
Abbottabad.
3. MBBS, FCPS (ENT)  
Senior Registrar ENT  
Hazrat Bari Sarkar Medical College  
Islamabad.
4. MBBS, FCPS (ENT)  
Senior Registrar ENT  
Holy Family Hospital, Rawalpindi.
5. MBBS, FCPS (ENT)  
Associate Professor ENT  
Ayub Medical Complex,  
Abbottabad.
6. MD, MCPS, FCPS (ENT)  
Senior Registrar ENT  
Benazir Bhutto Hospital, Rawalpindi.

**Correspondence Address:**  
Dr. Syed Ali Naqi  
Department of ENT  
Islamabad Medical and Dental College,  
Islamabad.  
greatsheragha@gmail.com

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**Syed Ali Naqi<sup>1</sup>, Syed Maisam Ali<sup>2</sup>, Arslan Akhtar<sup>3</sup>, Tabassum Aziz<sup>4</sup>, Tahira Sajid<sup>5</sup>, Akhtar Zaman<sup>6</sup>**

**ABSTRACT...** Hearing is decreased in later age is due to aging and is normally seen in most of the elderly people all over the world. **Objectives:** To ascertain the degree of hearing in elders in relation to age, pattern and extent of hearing weakness in old age so that interventional strategies can be planned to improve their wellbeing. **Study Design:** Cross Sectional Study. **Setting:** ENT Outdoor Clinic of Akbar Niazi Teaching Hospital of Islamabad Medical and Dental College, Bhara Kahu, Islamabad. **Period:** December 2017 to October 2018. **Material & Methods:** 200 patients were part of the study with age > 50 years and no past history of drug therapy. Data was gathered by detailed clinical history, clinical examination and audiometric findings. **Result:** 57% patients were found with normal hearing and 43% had variable degree of hearing deterioration. Highest number of hearing weakness was found in 9th decade. Most of hearing deterioration was found in both the ears and that of sensorineural in type. **Conclusion:** Sensorineural type of hearing impairment is very frequently occurring problem seen in the latter part of life in our community. The frequency and severity of decreased hearing is directly proportional to age.

**Key words:** Age Related Hearing Loss, Elderly Patients.

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### INTRODUCTION

In this new era of 21<sup>st</sup> century, there is a lot of increasing interest of medical researchers in the elderly population and age related changes in human body. The epidemiological data from the United Nations Population Division estimates that about 583 million population is affected by hearing deterioration in old age around the globe. This figure is estimated to get doubled by the mid of this century.<sup>1-2</sup> The prevalence of hearing deterioration causing disability and effecting day to day activities for both adults and younger people is greatest in South Asia followed by Asia Pacific and Sub-Saharan Africa being on 3<sup>rd</sup> place.<sup>3</sup> In later age there is every possibility for having other co-existing ailments because of generalized degenerative age related changes in the body which results in overall decrement in sensory, neural, and immunological activities.<sup>4</sup>

Severity of hearing deterioration may be divided into mild, moderate and severe to profound

hearing loss, affecting either one or both the ears leading to social isolation because of social attitude taking hearing impairment as social stigma, friends loss resulting loneliness, difficulties in relationships which also causes loneliness, feeling of being embarrassed, all these resulting in depression, psychiatric disturbances. Relatively low earning jobs with restricted career choices (in young patients) and occupational stress.<sup>5</sup> Age related hearing impairment can be defined as mid to late adult onset, progressively increasing sensorineural decreased hearing in both ears, while the other possible underlying causes of hearing loss have been excluded like hearing loss that is caused by primary factors including exposure to high and loud intensity sound, the intrinsic ear diseases (like; Otosclerosis, chronic discharging ear and Meniere's disease), hearing loss because of the underlying medical diseases causing loss as secondary effect (e.g. myxedema, hypertension, atherosclerosis, Paget's disease of bone, diabetics), injury to head and injury to ear

and hearing loss due to use of medicines which are ototoxic.<sup>6</sup>

Age related hearing decrement is sensorineural and termed as “presbycusis” and it is this type of hearing loss which is most frequently causing chronic hearing loss in aged people.<sup>7</sup> Microscopic studies of inner ear in cadaveric dissection of such ears was carried by Schuknecht & colleagues in which they defined and explained six different categories of histopathological transformations in the cochlea of the ear 1. Loss of sensory type of hair cell 2. Degenerative loss of neurons of the cochlear nerve. 3. Atrophy of the cochlear vessels; stria vascularis 4. Mechanical Type 5. Alteration in the cochlear duct characteristics that are not evident on light microscopy but alter function at a submicroscopic level. 6. Mixed type- involving some contribution of the all the above five.<sup>6-8</sup> Pure Tone Audiometry is a simple diagnostic test tool which is performed by the audiologists and gives important information regarding the nature and intensity of hearing weakness for which further management plans can be executed.<sup>9</sup>

**MATERIAL & METHODS**

This Cross Sectional study was conducted in ENT outdoor patient department of Akbar Niazi teaching hospital Bhara Kahu, Islamabad from December 2017 to October 2018. Total 200 patients with decrease hearing were registered and data collected from detailed history, clinical examination and Pure Tone Audiometry (PTA). PTA was performed by single audiologist using Inventis corso stati uniti 1/3 audiometer and data was analyzed with SPSS version20. The results were expressed in number and percentage. Degree of Hearing loss was measured.

**Selection of Cases**

**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.

**RESULTS**

Among 200 patients 57% (114) were found with normal hearing and 43% (86) had variable degree of hearing impairment. (Figure-1) The maximum occurrence of hearing impairment was detected in 9th decade (100%) and (69%) found in 8<sup>th</sup> decades while lowest was (30%) in 6th decade. (Table-I) Most of the patients were found to be bilateral 67.44% (58) while 32.56% (28) had unilateral ear involvement. (Figure-2) Sensorineural type of hearing loss (69.76%) which is significant number of patients in our study while (18.60%) of conductive type and (11.62%) had mixed type respectively. (Table-II) 44.45% of hearing impaired patients of 6th decade showed mild hearing loss while in the 7th decade maximum (50%) had moderate to severe hearing loss whereas 31% patients of 8th decade and 50% of 9th decade had severe degree of hearing loss. (Table-III)

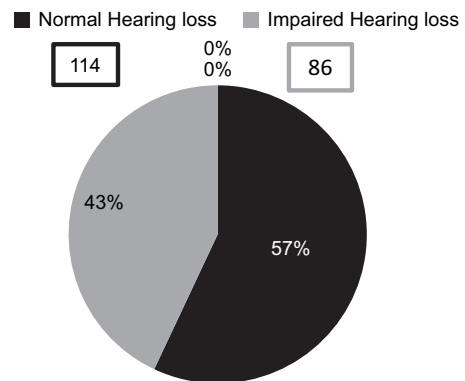


Figure-1. Distribution of hearing status (n=200).

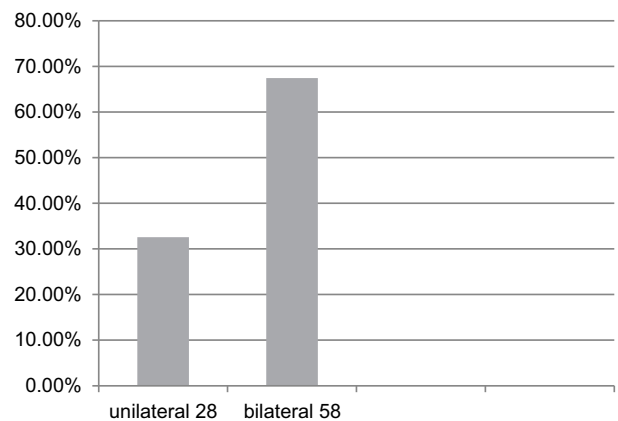


Figure-2. Involvement of unilateral/bilateral hearing loss population (n=86).

Age Group (years)	Study Population	Normal	No. of Impairment	%age
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-I. Frequency of hearing impairment in different age group (n=200).**

Pattern	Number of Impaired Patients	%age
Sensorineural	60	69.76
Conductive	16	18.60
Mixed	10	11.62

**Table-II. Pattern of hearing impairment (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%)	

**Table-III. Relation of age with degree of hearing (n=86).**

## DISCUSSION

Hearing impairment is one of the significant health problems of the community worldwide and especially prevalent in low economic societies of the developing countries like Pakistan. The prevalence of decrease hearing in adults is significantly higher in the middle and low income countries compare to well doing economic and developed countries of the world.<sup>2</sup> Awareness regarding the pattern and severity of hearing loss can help the health professionals to make a proper diagnosis and provide better and timely treatment and rehabilitation facilities, but the pattern of hearing impairment may vary among different communities of the society, from one place to other, from one geographic region to other and from one hospital to other hospital. Such study helps in early disease detection and intervention, so helping in reducing disease morbidity and enhancing well-being and quality of life of the elder population.

Total of two hundred (200) patients above 50 years old, were studied after taking relevant thorough history, clinical examination and audiological investigation. In our study, minimum number of hearing impaired patients (30%) was noted in the 6<sup>th</sup> decade and gradually

increasing the number of hearing impairment with increasing age and the maximum number (100%) was found in the 9<sup>th</sup> decade. Bent S et al. which showed results that the prevalence of hearing loss was maximum in age group of 61-80 years followed by age group of 41-60 years which was 45.3%.<sup>10</sup> We found 43% patients had impaired hearing in our study while Lee KY et al. also observed similar results of impaired hearing in Korean population which is comparable to our study.<sup>11</sup> Our study shows, 67.44% patients were found bilateral hearing impairment and 32.56% unilateral whereas Balatsouras DG et al. study consistent with the findings of our study. (Bilateral involvement was 65.85% and unilateral 34.15%).<sup>12</sup> In present study (69.76%) cases were found to have sensorineural hearing impairment, (18.60%) conductive impairment and followed by (11.62%) mixed type. Our results are very much similar with the findings of Yamasoba T et al where sensorineural impairment 65.85% followed by conductive impairment 21.95%.<sup>13</sup>

We found gradual increase in the severity of hearing loss with increasing age in our study where (44.45%) patients have been found to have mild degree (26-40db) hearing loss in the 6<sup>th</sup> decade while 50% had moderate to severe degree (56-

70db) in 7th decade and maximum percentage of severe degree (71-90db) seen in 8th and 9th decade. Ciorba A et al have found increase in the severity of hearing loss with increasing age in Italian population, which supports our study.<sup>14</sup>

## CONCLUSION

Our study concludes that age related sensorineural type is one of the major health issue and its prevalence and severity increases with increasing age.


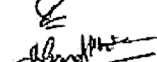

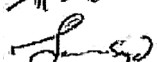
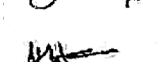
With the development in health care delivery system and awareness programs can help in early diagnosis, screening programs oriented to old age, treatment and rehabilitation of hearing impairment for the improvement in the overall wellbeing and everyday patients' quality of life.

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**AUTHORSHIP AND CONTRIBUTION DECLARATION**

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Syed Ali Naqi	Design, Data collection, Drafting, Writing.	
2	Syed Maisam Ali	Writing, drafting, Proof reading.	
3	Arslan Akhtar	Writing, drafting, Proof reading.	
4	Tabassum Aziz	Writing, drafting, SPSS statistics.	
5	Tahira Sajid	Design, drafting, writing, proof reading.	
6	Akhtar Zaman	Writing SPSS, Proof reading.	