



A Clinico Epidemiological Study of Elderly Patients (≥ 60 Years) Suffering from Presbycusis Visiting Tertiary Centre at Gorakhpur District

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Abstract

Objective: *To study clinico-social correlates of presbycusis in elderly patients of age ≥ 60 years.*

Study Design: *A cross-sectional study*

Study Setting: *ENT Department of B.R.D. Medical College, Gorakhpur*

Study Period: *October 2017 -February 2018*

Result: *Out of 138 patients examined for age related hearing loss 60.14% were male and 39.86% were female which shows male predominance. Most of the elderly patients belonged to 60 – 69 years of age group (49.28%), of urban area (62.32%), Hindu (65.94%), unemployed (89.13%). Majority were married (72.46%) and belonged to lower socioeconomic class (42.03%). Majority of males (83.13%) and females (67.27%) having hearing loss suffered from hypertension (83.13%). 19.27% males and 36.36% females suffering from hearing loss also suffered from diabetes mellitus. 27.27% elderly females having hearing loss had tinnitus and 45.45% had vertigo as associated symptom while only 12.05% elderly males having hearing loss were suffered from tinnitus and 27.71% males suffered from vertigo.*

Keywords: *Presbycusis, Elderly, vertigo, tinnitus.*

Introduction

Presbycusis or age related hearing loss is the most common type of sensorineural hearing loss caused by the natural aging of the auditory system. It occurs gradually and initially affects the ability to hear higher pitched (higher frequency) sounds. Over time, it can result in individuals being unable to clearly hear sounds at progressively lower frequencies. People with presbycusis often notice that speech is loud enough, but not clear – as if the talker is mumbling.

As per WHO estimates in India there are approx 63 million people who are suffering from significant auditory impairment, this places the estimated prevalence at 6.3% in Indian population. The National Sample Survey 58th round (2002) surveyed disability in Indian household and found that hearing disability was the second most common cause of disability. In urban area loss was 9% of all disabilities and in rural area it was 10%.¹

Hearing disability is an important issue in geriatric medicine because it is associated with numerous

health issues, including accelerated cognitive decline, depression, increased risk of dementia, poorer balance, falls, hospitalizations, and early mortality. There are also social implications, such as reduced communication function, social isolation, loss of autonomy, impaired driving ability, and financial decline. This study was an attempt to know the socio-demographic and related clinical factors among elderly patients suffering from age related to hearing loss.

Material and Methods

An interview based cross sectional study was done on 138 elderly patients (≥ 60 years) who came to ENT department of B.R.D. Medical College from October 2017 to February 2018. Prevalence is taken as 9% (based on earlier study done by Varshney Saurabh *et al.*¹ A total of 153 elderly

patients came for consultation for hearing loss out of which 15 refused to give consent. Therefore a total of 138 patients were enrolled for study of socio-demographic profile and clinical history. An interviewer based detailed history of socio-demographic profile questions were asked from these 138 patients. In case patients had severe hearing loss questions were asked to their attendants on taking consent. Data regarding sociodemographic profile and clinical history of elderly patients suffering from hearing loss were recorded by using predesigned and pretested questionnaire. Data collected through questionnaire was entered in the MS Excel spread sheet and analysed using SPSS and chi square test was applied to show the significance between the variables

Results

Table 1 Description of studied elderly patients according to socodemographic profile (N=138)

Groups	Subgroups	Total (N= 138)	Male (n=83)	Female (n=55)	Test of significance
Age in years	60 - 69	68(49.3%)	33(39.76%)	35(63.64%)	$\chi^2=13.75, p<0.05, df=2$
	70-79	42(30.4%)	25(30.12%)	17(30.9%)	
	>80	28(20.3%)	25(30.12%)	3(5.45%)	
Area of residence	Rural	52(37.7%)	30(36.14%)	22(40%)	$\chi^2=.209, p>0.05, df=1$
	Urban	86(62.3%)	53(63.86%)	33(60%)	
Religion	Hindu	91(65.9%)	52(62.6%)	39(70.9%)	$\chi^2=1.005, p>0.05, df=1$
	Muslim	47(34.1%)	31(37.3%)	16(29.09%)	
Marital status	Married	100(72.5 %)	69(83.1%)	31(56.36%)	$\chi^2=12.61, p<0.05, df=2$
	Unmarried	8(5.8%)	4(4.82%)	4(7.27%)	
	Widow	30(21.7%)	10(12.05%)	20(36.36%)	
Educational qualification	Illiterate	31(22.5%)	20(24.1%)	11(20%)	$\chi^2=3.91, p>0.05, df=3$
	Primary	39(28.3%)	26(31.33%)	13(23.6%)	
	Middle	31(22.5%)	14(1.87%)	17(30.9%)	
	Higher	37(26.8%)	23(27.71%)	14(25.45%)	
Occupation	Employed	15(10.9%)	13(15.66%)	2(3.64%)	$\chi^2=4.94, p< 0.05, df=1$
	Unemployed	123(89%)	70(84.34%)	53(96.36%)	
Socio-economic status	Class 1	34(24.6%)	19(22.89%)	15(27.27%)	
	Class 2	27(19.6%)	10(12.05%)	17(30.9%)	
	Class 3	22(15.9%)	11(13.25%)	11(20%)	
	Class 4	26(18.8%)	20(24.1%)	6(10.91%)	
	Class 5	32(23.2%)	23(27.7%)	9(16.36%)	

Table 1 shows out of 138 elderly patients of presbycusis 83(60.14%) were males and 55(39.86%) were females. 68 patients 49.28% were of age group 60-69 years, 42(30.43%) were of 70-79 years and 28 (20.3%) were more than 80 years. Majority of patients (62.32%) came from urban region and (37.68%) came from rural area.

Overall presbycusis was found more in subjects of 60-69 years of age group (49.3%), Hindus (65.95%), in married males (83.13%), in unemployed (89.13%) subjects. The distribution of hearing loss in elderly patients of different marital and employment status was compared and significant association was found.

Table 2 Distribution of hearing loss of elderly patients as per their history of chronic illness

Chronic illness	Status of patients	Male	Female	Total	Test of significance
Hypertension	YES	69(83.13%)	37(67.3%)	106(76.8%)	$\chi^2=4.67$, P=0.03
	NO	14(16.87%)	18(32.3%)	32(23.2%)	
Diabetes mellitus	YES	16(19.27%)	20(36.4%)	36(26.1%)	$\chi^2=5.01$ P=0.025
	NO	67(80.72%)	35(63.6%)	102(73.9%)	

Table 2 shows that among studied subjects majority of males 69(83.13%) and majority of females 37(67.27%) were suffering from hypertension. Among males 16(19.27%) were suffering with diabetes mellitus and among

females 20(36.36%) were suffering with diabetes mellitus. Association of hypertension and diabetes mellitus among both male and female patients suffering from hearing loss was found to be statistically significant ($p<0.05$).

Table 3 Distribution of hearing loss in elderly patients as per their symptoms

Associated symptoms		Male	Female	Total	Test of significance
Tinnitus	Yes	10(12.05%)	15(27.27%)	25(18.11%)	$\chi^2=5.17$, P=0.023 ($p<0.05$)
	No	73(87.95%)	40(72.72%)	113(81.9%)	
Vertigo	Yes	23(27.71%)	25(45.45%)	48(34.8%)	$\chi^2=4.59$ P=0.03 ($P<0.05$)
	No	60(72.29%)	30(54.55%)	90(65.2%)	
Total		83(100%)	55(100%)	138(100%)	

Table 3 shows that 10 (12.05%) males and 15(27.27%) females were having tinnitus along with hearing loss. Proportion of female patients having tinnitus was found more than male patients. 23(27.71%) males and 25(45.45%) females were having vertigo along with hearing loss. Thus proportion of female patients having vertigo was also found more than male patients. Association of tinnitus and vertigo among both male and female patients with hearing loss was found to be statistically significant ($p<0.05$).

Discussion

In our study most of the patients were clustered in the age group 60-69 years. Only 28(20.29%) patients were above 80 years. In a similar study done by *Ravindra sikh Bisht et al.*² in Uttarakhand in 2016; reported the similar finding that most of the elderly patients of hearing loss were of 60 years which coincided with the demographic data and surveys were done in India, which have shown that 56% and 62% have onset of hearing loss at ≥ 60 years of age in rural and urban backgrounds, respectively. In our study no of

males having hearing loss is more than females having hearing loss. Out of 138 patients 83 (60.14%) males and only 55(39.86%) females had hearing loss. In a study done by *Manish Sharma et al*³ male: female sex ratio was found 1.35:1 . Another study done in India by *Trilok C Guleria et al*⁴ in Shimla Himanchal Pradesh hearing loss was more common in elderly males than females. Similar findings were reported by *Hannula S. et al* in Northern Finland in which 36.8% elderly men and 18.4% elderly women were suffering from hearing loss.

In our study majority of patients were Hindu i.e. out of 138 patients 91(65.94%) were Hindu and 47(34.06%) were Muslims. This might be due to high population of Hindus in this region. Rest other religions are not seen in the study. Similar was also found by *Ravindra sikh Bisht*² in his study in Uttarakhand where Hindus contributed 95.6% and Muslims only 4.4%.

In this study 123(89.13%) patients were unemployed and 15(10.87%) were employed .In a study done by *Susan et al*⁵ it was found that hearing loss was the only factor that was

independently associated with all three measures of socioeconomic status: low educational attainment, low income, and unemployment/underemployment.

In our study; it was observed that more no. of male patients 69(88.13%) (with hypertension) had hearing loss than female patients 37 (67.27%) (having hypertension). More no. of females (36.4%) suffering from Diabetes mellitus showed hearing loss than males (19.27%) suffering from diabetes mellitus.

Similar results were found in a study done by *In Hwan Oh*⁶ in which The prevalence rates of hearing loss were significantly greater in subjects with than without hypertension (10.9% vs. 6.6%, $p<0.05$) and in subjects with than without DM (17.3% vs. 6.5%, $p<0.05$). DM and hypertension, which are common degenerative diseases frequently accompanying aging, have been reported to be closely related to aging-related hearing loss.^{7,8} In our study it was observed that vertigo was more common in elderly females (27.27%) than males(12.05%). Tinnitus was observed more in elderly females (45.45%) than males (27.71%).

In a study done by *L C Carmo*⁹ in 2008 the incidence of tinnitus (64.4% and 72.5%, for men and women, respectively. They stated that such difference may be associated with the fact that they included in their study only elderly with one or more hearing complaints. About dizziness, there was a relationship with gender ($p<0.05$) being more common in the elderly women (20.0%). In their investigation done by *Kamierczak & Doroszewska*¹⁰ it was concluded that despite not finding any difference in the distribution of dizziness between elderly men and women, vertigo was more frequent in women.

Conclusion and Recommendations

In our study incident of hearing loss was more in elderly males than elderly females. A majority of patients lie in the age group 60-69 years (68;49.28%). There was a higher percentage of presbycusis reported among urban, married,

unemployed Hindu male. Public should be educated about the problems elderly persons face due to their hearing loss and the persons having hearing loss him/herself should have knowledge how to cope with the problem. They should talk about their difficulty with their family and friends. Elderly persons should be counseled so that they can tell their friends and family about their hearing loss. An elderly person having hearing loss must 1) speak face to face so that you can see the faces. Watch face movement and see the expressions, it may help to understand better.2) Ask people to speak louder, but not shout. Tell them they do not have to talk slowly, just more clearly. 3)Turn off the TV or the radio if you aren't actively listening to it. 4)When you go to a restaurant, do not sit near the kitchen or near a band playing music. Background noise makes it hard to hear people talk. 5)Aware of your need for proper posture while doing your routine work if you are suffering from vertigo and tinnitus.

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