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Original Article

Frequency of Tinnitus in Hypertensive Patients, A Cross Sectional Survey

Maria Tabassum,[1] Atia Ur Rehman,[2] Tahira Ashraf,[1] Azmat Tahira,[1] Safdar Ali,[1] Tahira Nomani[1]

[1]*District Headquarter Hospital (DHQ), Vehari.*
[2]*University Institute of Public Health Lahore.*

Abstract

Objective: The aim of our study was to evaluate the frequency of idiopathic tinnitus in patients with hypertension

Methodology: It was cross sectional study. A total of 159 patients with hypertension were screened for presence of tinnitus in medical outpatient department of District Headquarter Hospital (DHQ), Vehari. Subjects were asked to complete a standardized Tinnitus handicap inventory questionnaire (THI) to assess the presence, frequency and severity of tinnitus followed by Otoscopy.

Results: The frequency of tinnitus in patients with hypertension was 29.6 %. There was no statistical difference between males and females. Tinnitus patients were slightly older than non-tinnitus patients.

Conclusions: The frequency of idiopathic tinnitus in patients with hypertension was high substantial in the area.

Key words: Tinnitus, Hypertensive patients.

Corresponding Author: Maria Tabassum

Email: mariatabassum@gmail.com

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Introduction

Tinnitus is a ringing sound that has no external auditory source. Its excessive noise can be distracting and highly distressing, with 0.5 percent of the population suffering from serious symptoms that prevent them from living a normal life.[1] Tinnitus is the perception of sounds in the absence of external stimuli. It may be subjective (heard only by the patient) or objective (heard by everyone).[2] It is a frequent symptom in adults, particularly those over the age of 50. The etiology of tinnitus has been linked to a number of causes.[3]

Most of them is hypertension (HTN) or high blood pressure (BP).[4] Stage 1 hypertension is defined as a systolic blood pressure of 130 to 139 mm Hg or a diastolic blood pressure of 80 to 89 mm Hg, and stage 2 hypertension is defined as a systolic blood pressure of 140 mm Hg or more and a diastolic blood pressure of 90 mm Hg or more.[5] Damage to the inner ear's microcirculation is one of three essential mechanisms that may be involved in the pathogenesis of tinnitus,[6] increase perception of blood vessel noise caused by antihypertensive drugs.[7]

Shah et al. recorded a high prevalence of HTN in Pakistani adults of 26.34 percent in a meta-analysis of published papers compared to data in local and international literature.[8] Tinnitus prevalence varies greatly according to reports from various parts of the world.[9] 11.43% tinnitus reported in an Egyptian study,[10] 18.6% in a Japanese study.[11] There is a shortage of tinnitus literature in Pakistan, with just a few reports on the prevalence of tinnitus in HTN patients.

The main aim of this research is to establish the frequency of tinnitus in hypertensive patients as there is rare local literature on frequency of tinnitus in hypertensive patients.

Methodology

In this cross sectional study, we collected data of 159 hypertensive patients from medical out patients department of District Headquarter Hospital (DHQ), Vehari, using non-probability purposive sampling technique. The sample size of 159 was calculated by the bio-statistician. We included all the adult patients of age 25- 70 years of both gender with diagnosis of hypertension. We excluded the patient having tinnitus due to diabetes, we also excluded the patients who were suffering with

tinnitus due to noise induced hearing loss and impacted wax. We used the following instrument:

Tinnitus Handicap Inventory: Tinnitus and its severity were measured with the help of tool called tinnitus handicap inventory. It was validated and reported in 1996. The tinnitus handicap was evaluated with 25 item THI questionnaire. Research approval was taken from research committee of university of Lahore, Pakistan. Letter ref No: IRB-UOL-FAHS/716-||/2020 dated: 28 July 2020. After taking informed consent from the population, basic demographic data were collected and they were screened by using Tinnitus Handicap Inventory (THI) followed by Otoscopy. Data was collected from July 2020 to March 2021. The data was analyzed using SPSS version 20. Age was expressed as a Mean ± Standard Deviation, while categorical variables such as gender and tinnitus were expressed as a frequency and percentage. P-value of less than or equal to 0.05 was taken as significant.

Results

An aggregate of 159 patients took part in this investigation. The mean age of patients with hypertension was 53.28 ± 10.25 years. Out of 159 hypertensive patients there were 64 (40.3%) males and 95(59.7%) females. Majority of individuals were belong to rural area as 114 (71.7%) and from urban 45 (28.3%). Out of 159 patients 116 (73.0%) were unemployed and 43 (27.0%) were employed.

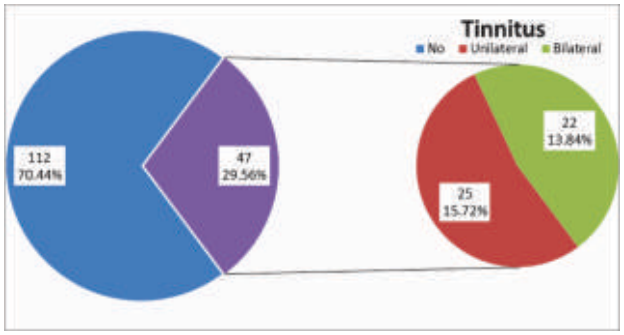

Figure 1: *Frequency Distribution of History of Tinnitus Patients*

Out of 159 Participants 47 (29.6%) have history of tinnitus and 112 (70.4%) have no history of tinnitus. 25(15.7%) were having unilateral tinnitus while 22 (13.8%) were having bilateral tinnitus. 149(93.7%) were taking anti hypertensive drugs while 10 (6.3%) were not taking anti hypertensive drugs.

The mean THI score was 13.19 ± 21.11 with minimum and maximum scores reported as 0.00 and 82.00 respectively .Out of 159 participants 70.4% did not have tinnitus, 5% had mild tinnitus, 23.9% showed moderate tinnitus while 0.6% showed catastrophic tinnitus. (Table 1).

A very high prevalence of tinnitus 29.6 % found in hypertensive patients in our study.

Discussion

In our study, 29.6 % of hypertensive patients had idiopathic tinnitus, with 64 males (40.25 %) and 95 females participating (59.75 %). In contrast Shahana Azmat et al., 2020 found a very high frequency of tinnitus (47.25 %) in hypertensive patients.[12] Nabil Abdulghany Sarhan et al., 2016 Found that 11.43% tinnitus in hypertensive patients in an Egyptian study.[13] X Xu et al., 2011found 14.5% tinnitus in a Chinese study.[14] T Michikawa et al., 2010 found 18.6% tinnitus in a Japanese study.[11] Borghi et al., 2005 found that 17.6% of hypertensive patients reported prolonged pontaneous tinnitus.[7] Fasce et al., 2002 found an incidence of 9.1 % of tinnitus in hypertensive patients which was not significantly different from that in non hypertensive patients (9.4%).[15]

Studies that looked at the presence of HTN in patients with tinnitus found a stronger connection between the two than studies that looked at the presence of tinnitus in HTN patients.[4] In the current report,there was no significant contrast in the commonness of tinnitus among people. Similarly, other studies have shown an equivalent male to female prevalence.[12-14,16]

Limitation & Recommendations

The data was collected only from patients coming from District Vehari and its periphery. Due to limited resources the data from other districts was not collected and compared.

Studies should be conducted to determine the association between tinnitus and various forms and classes of drugs used to treat hypertension. This may be a good starting point for further study, as well as preparing prevention and rehabilitation strategies.

Conclusion

For many patients, tinnitus is a very bothersome symptom and it has very high prevalence in the society and it is preferable to seek care as soon as possible to reduce its effect on quality of life. There is clinical evidence of a correlation between systemic arterial hypertension

Table 1: *Descriptive Analysis for Tinnitus Handicap Inventory (THI) Category and Score*

Category	None	Mild	Moderate	Catastrophic	Score
Frequency (percentage)	112 (70.4%)	8 (5.0%)	38 (23.9%)	1 (0.6%)	13.19 ± 21.11

and tinnitus, which supports the hypothesis.

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