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Original Article

Patients' Perception of a Symptomatic Tinnitus among Nigerians: A multi-institutional study.

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Abstract

Tinnitus is a very common otologic symptom presented by patients worldwide yet it's a poorly understood disorder. This study is aimed at assessing the perception of patients of their tinnitus.
A multi-center prospective study carried out in Ear, Nose and Throat Department of two tertiary health institutions in Nigeria over a period of 12 months using a semi-structured Modified Tinnitus Impairment Questionnaire (THI-12) from Greimel et al after an informed consent. Information collected is entered into SPSS statistical software version 16.0 and analysed descriptively and results presented in tables and figures
All consecutive adult patients who presented for the first time at these clinics with complaints of tinnitus were included in the study.
A total of 168 patients with tinnitus consented to partake in the study comprising 38.2% males and 61.8% females with M: F ratio of 1:1.6. The age ranged from 18-80years, with a mean of 46.8 years. About 48.5% had tertiary education and 38.1% are self-employed, duration varied from 3 days to 25 years. The degree of discomfort experienced in the presence of tinnitus was said to be much in 16.2%, little in 63.2% while 17.7% experience no discomfort and no response in 2.9% patients. The degree of hearing loss varied with severity of tinnitus however none had profound hearing loss.
Tinnitus is still a problem among the sufferers as 16.2% describes it as bothersome, the need for proper evaluation of all medical problems and the need for a community based programme to assess the degree of disability of clinical tinnitus in the population will go a long way in defining its gravity.

Keywords: Tinnitus; hearing loss; Perception; Impairment

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Introduction

Tinnitus is derived from the latin word "tinnire" which means ringing in the ear and this was first introduced by Pliny and Elder in AD 23-79 (Feldmann, 1991). Tinnitus is a very common symptom presented by patients worldwide yet it's a poorly understood disorder. The phenomenon is as old as existence of mankind and as such, different meanings have been given to it. In a book titled "Model of Tinnitus" It was defined as a sound perceived in the ear for more than five minutes in the absence of any external acoustical or electrical stimulation of the ear and not occurring immediately after exposure to loud noise (Stephens, 2000) previous writers have described it as a phantom auditory perception (Jastreboff, 1990) while some described it as a head noise (Fowler, 1965). Tinnitus itself is a symptom and not a diagnosis. It is characterized as either objective or subjective depending on the ability of the examiner to perceive the tinnitus. Tinnitus differs from the word auditory hallucination which is usually described as a form of repetitive voices or musical themes and is common among the elderly, psychiatry patient or patients suffering from chronic alcoholism (Borka & Linda, 2008).
Data from the National Center for Health Statistics show that tinnitus is more common in men than women and increases in prevalence with advancing age. It is frequently associated with hearing impairment (Adams et al 1999). Previous studies have shown a tinnitus prevalence of 38% in patients less than 40years and 62% in those who were 40years and above (Coles,1984). Studies exploring the relationship between melanin pigmentation in humans and tinnitus shows that tinnitus is commoner among the blacks than the Caucasians (Borka & Linda, 2008). Study of US patients with chronic tinnitus show that only 25% of sufferers perceived their tinnitus as bothersome (Seidman & Jacobson, 1996) while only 14% of sufferers in the United Kingdom considered their tinnitus a significant problem (Seidman & Jacobson, 1996). Perception of Individuals differ in the manner they perceive a particular stimulus or situation and this may have led House to stating that "The same level of tinnitus may be described by one patient as intolerable, may be describe by another as barely noticeable (Seidman & Jacobson, 1996). The factors responsible for this difference in perception is not well understood and this have made the evidence based therapy unsuccessful.

This study is aimed at assessing the perception of patients of their tinnitus.

Material and Methods:

Design

This is a multi-center prospective study carried out in two tertiary health institutions in Nigeria. The study was carried out over a period of 12 months at the Ear, Nose and Throat Clinics of the University of Benin Teaching Hospital Benin City and the Kogi State Specialist Hospital, Lokoja, Kogi state both in the South-South and North-Central Geo-political zones of Nigeria.

Settings, Study participants and Procedure

Using a semi-structured Modified Tinnitus Impairment Questionnaire (THI-12) from Greimel et al. (Greimel et al 1999) a German version of the Tinnitus Handicap Inventory (THI) adapted from Newman et al (Newman et al, 1996). All consecutive adult patients who presented for the first time at these clinics with complaints of tinnitus were included in the study. Informed consent was obtained from the patients and the structured questionnaire was then administered. Those excluded from the study were all patients less than 18 years of age, those who did not give express consent and those patients who were on a follow up appointment. The information collected from patients/respondents included their biodata, presence of tinnitus, associated otological problems, associated problems or likely aetiology of tinnitus, their perception of the severity and hearing assessment using pure tone audiometer. The data obtained was analyzed using SPSS version 16.0 statistical software. The results are presented in tables and figures.

Results:

A total of 168 patients with tinnitus consented to partake in the study comprising 64(38.2%) males and 104(61.8%) females with M: F ratio of 1:1.6. The age ranged from 18-80years with the distribution as seen in figure 1, with a mean of

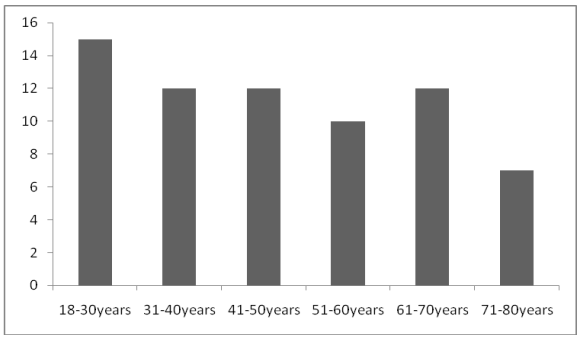

Figure 1: Age-frequency distribution chart

46.8 years (SD=17.2 ± 2.1). A majority of the respondents were self-employed in 38.1% mostly trading and artisans and the least being the unemployed in 13 (7.7%) table 1.0. About half (48.5%) of the respondents had tertiary education in both institutions, 25% had primary education and 16.2% had secondary education while 10.3% had no formal education.

The least complaint about tinnitus was among those with no formal education (10.3%),

About 32.4% complained of the tinnitus on the right side while 33.8% on the left side and another 33.8% said it was present in both ears. The duration of tinnitus varied from 3days to 25years with 16.2% of the patients presenting within one month of the onset of the symptom, while 27.9% noticed it for about 1-6months before presentation. Another 14.7% had the symptom for about 6-12 months before presentation, 10.3% presented between 12 to 24 months after the onset of the symptom and 30.9% had the symptom for over 24months.

Table 1: Occupation of the Respondents

Occupation	**Frequency**
Civil servants	41 (24.4%)
Self employed	64 (38.1%)
Students	32 (19.1%)
Unemployed	13(7.7%)
Pensioner/Retiree	18 (10.7%)
Total	168 (100%)

Table 2 shows correlation of respondents' sex with site of tinnitus indicated that there is no relationship between the sex of patient and the site of tinnitus

	Males	Females	Total
Right	27 (16.1%)	27 (16.1%)	54 (32.2%)
Left	20 (11.9%)	37 (22%)	57 (33.9%)
Bilateral	17 (10.1%)	40 (23.8%)	57(33.9%)
Total	64 (38.1%)	104 (61.9%)	168 (100%)

Chi square= 5.12, 2 degrees of freedom and P value = 0.0774

Table 3 shows symptoms and severity index with the risk factors.

Associated symptoms	
Hearing loss	106 (63.1%)
Otalgia	27 (16.1%)
Otorrhea	22 (13.1%)
Vertigo	42 (25%)
Risk factors	
Hypertension	59 (35.1%)
Diabetes	17 (10.1%)
Fever	45 (26.8%)
Loud noise	32 (19.1%)
Severity index	
Irritability	67 (39.9%)
Tired	42 (25%)
Difficult to relax	70 (41.7%)
Loss of concentration	69 (41.1%)
Uncomfortability in quiet room	64 (38.1%)
Interfere with pleasantries	32 (19.1%)
Feeling of suicide	05 (3%)
Interfere with social activities	08 (4.8%)
Interfere with other activities	30 (17.9%)
Interfere with overall enjoyment of life	47 (30%)
Interference with sleep	64 (38.1%)

Hearing loss constitute the major associated symptoms with tinnitus in 63.1% while hypertension was the commonest reported risk factor in 35.1% table 3.

On the treatment risk, 59 patients are on treatment for high blood pressure 52 were on various medications which included moduretic/methyldopa in 15, moduretic alone in 15 Nifedipine/moduretic in 10 then nifedipine alone in 7 and vasartan in 5 patients. The degree of tinnitus disturbance was found to be low in 41.2%, moderate in 44.1% high in 13.2% and no response in 1.5%.

Little effort was required to ignore the tinnitus in 66.2% of the patients, much more effort was required to ignore the tinnitus in 30.9% and no response in 2.9%.

The degree of discomfort experienced in the presence of tinnitus was said to be much in 16.2% of the respondents, little discomfort was experienced by 63.2% of the patients while 17.7% of the patients said they had no discomfort. No response was obtained in 2.9% patients.

The respondents have various degree of hearing loss however none had profound hearing loss. The degree of hearing loss found in the patients is presented in Figure 2.0 below

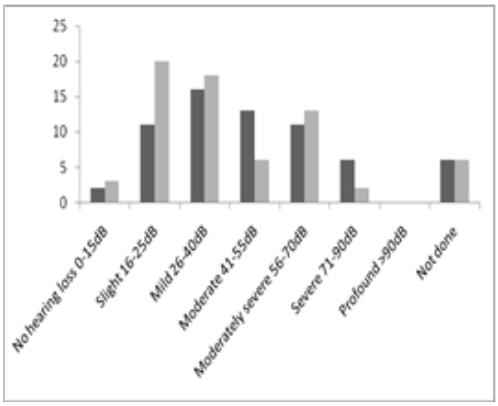

Figure 2: Degree of hearing loss

Discussion

Tinnitus is not just unwanted noise; it is extremely unpleasant and often interferes with one's concentration and attention. Previous studies have associated depression and insomnia to tinnitus severity and loudness (Former & Grist, 2000). Our study involved only adults however some reports have found tinnitus in children which is rarely expressed in our settings (Baguley & McFerran, 1999).

Prior studies about gender differences in the severity of tinnitus are inconsistent (Coles 1984, Axelsson & Ringdahl 1989). However, our study revealed that females are more affected than the males which is similar to some reports (Baguley & McFerran, 1999, Borka & Linda, 2008), but at variance with others (Alan, 2002, Folmer, 2002). Previous report of socio-demographic variables revealed that female and male individuals are often affected identically by tinnitus and that tinnitus can begin at any age, although more typically the onset occurs between the ages of 40 and 60 years (Erlandsson, 1992**)**. The average age of presentation in our study is 46.8yrs (modal age = 18-30yrs) and about 60.2% of the patients are above 40yrs which is close to the 62% quoted in another study (Coles, 1984) while 39.8% were less than 40years and this compares favourably to the 38% quoted in a similar study above (Coles, 1984). To our knowledge occupation has not been listed as a risk factor for the development of tinnitus and hearing loss except occupations which are associated with exposure to loud noise. However, our study revealed majority of our patient who presented with tinnitus are self-employed most of whom are either traders or artisans. The market place where these groups carry out their business is usually characterized by the presence of chronic noise which the patients have grown accustomed to hence, they no longer consider the environment as noisy Ologe et al 2006). The least was surprisingly found among the older people who were no longer gainfully employed with a supposedly degenerating auditory system. This may not be representative being a hospital based study, thus the need for a community based study to ascertain if there is any occupational risk for the development of tinnitus. The educational status of the respondents appears to play a role in their perception of their symptom. The evaluation of level of education showed significant differences between highly educated and less-educated people, such that highly-educated

patients exhibited higher values on the emotional-cognitive tinnitus impairment assessment. These results are in agreement with studies by Hallberg & Carlsson 1991 and Hallberg et al 1993, who observed that years of education correlated with perceived handicap in subjects with acquired hearing loss and in patients with tinnitus (Carlson et al 1993). However, it underscores the study by Entertainer et al, 2001)[25]

On the laterality of the tinnitus about 33.8% reported that the tinnitus was perceived equally on both ears while unilaterality is reported among 67.2% with 33.8% on the left side and 32.4% on the right side. This is at variance with findings in other studies that found the disturbance to be more on the left than the right side (Meilke & Walsh 1984). The correlation study showed that there is correlation between the laterality and the sex of the patient thus not significant (P value >0.05). This is at variance with another study that found a relationship (Fowler 1965, Borka & Linda, 2008).

In about 50% of the population with self-reported tinnitus, hearing from the patients' perspective have been adjudged to be normal (MRC 1981), however this is at variance with our study that found 63.2% of the patients reporting hearing loss of unspecified type as associated symptoms. Other symptoms reported are otorrhea as seen in chronic otitis media & otitis external then otalgia as seen in some patients with temporomandibular joint problems and vertigo.

Tinnitus is frequently a symptom of an associated disease process. Occasionally treatment of the disease may not relieve tinnitus, an accurate diagnosis and treatment are important to prevent additional disability. The medical conditions observed among our patients are hypertension, diabetes mellitus some of whom are on medications such as loop diuretics which may also induce or exacerbate tinnitus (Folmer, 2002).

The severity index found includes a high index of loss of concentration, irritability, loss of sleep, uncomfortability in a quiet room, inability to relax, interference with overall enjoyment, tiredness, interference with pleasantries and low index of suicidal attempt among the patients. The contribution of personality traits, such as social adjustment problems, excessive personality sensitivity or coping problems to the severity of the tinnitus perception has been suggested by some researchers in the past (Attias et al 1995).

It is important to evaluate the effect of tinnitus on daily life. Surprisingly most patient evaluated the degree of disturbance to be moderate and the perceived severity of tinnitus is related to measurements of its loudness which is at variance with other studies that found it to be unrelated (Shergill et al, 2001). The effect of tinnitus is greatest in patients who report loss of concentration, irritability, sleeplessness, and difficulty to relax and among those who are depressed, who are socially isolated, or who have psychiatric symptoms (Alan et al 2002). Treating these problems may reduce the effect of tinnitus, even though the percept is unchanged (Hunter et al 2003, Brandy & Lynn 1995). The exact prevalence of hearing loss among patients with tinnitus is high but difficult to determine. Among Patients with normal hearing, typically defined as audiometric (or hearing-level) thresholds that are 20 to 25 dB or less at frequencies ranging from 250 to 8000 Hz, it is likely that many once had better hearing or have impairments at frequencies higher than 8000 Hz (Alan et al 2002). A comprehensive audiologic evaluation is essential. To quantify any hearing loss and identify any treatable conductive component of hearing loss in the patients. However, our study revealed that most patient had hearing level on the right hear is between 26-40dB while on the left is between 16-25dB, the least Audiological findings was normal hearing and profound hearing however it is surprising to note that no patient had profound hearing loss.

In conclusion tinnitus is still a problem among the patients with both otological and non otological problems as about 16.2% described it as bothersome, the need for proper evaluation of all medical problems and the need for a community based programme to assess the degree of disability of clinical tinnitus in the population will go a long way in defining its gravity.

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