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A CLINICAL STUDY ON TINNITUS

ENT

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ABSTRACT

Introduction – Ringing noise in the ear is called tinnitus. There are various causes of it. Though it is not life threatening, sometimes it is more disturbing for the patient causing psychological problem.

Aims and objectives – A clinical study of tinnitus and evaluate the treatment protocol used at our institute.

Materials and methods – This is a Retrospective study of 60 patients with tinnitus. Patients previously treated with certain protocol were evaluated and data was analysed.

Observation - 41% patients were responded to medical therapy alone.83.3% (50) patients were improved from tinnitus, 6.6% (4) remained same and 10% (6) deteriorated. But it is statistically significant.

Conclusion – The treatment protocol used in our institute is effective statistically. But further study has to be done on it.

KEYWORDS

INTRODUCTION

Tinnitus can be defined as conscious experience of sound that originates in absence of any acoustic electrical or other external stimulation[1].The prevalence of tinnitus is estimated to be 30% in the adult population, with 8% of this population reporting bothersome tinnitus[2,3,4].

Epidemiological studies have implicated risk factors associated with the tinnitus like age, cardiovascular or cerebrovascular disease, drugs, ear infections/inflammation, thyroid abnormalities, head or neck trauma, loud noise exposure, Meniere's disease, otosclerosis, vestibular schwannoma, sudden deafness, anxiety, depression, familialinheritance, health status, body mass index, education, socioeconomic status, cigarette use and certain drugs like Quinine and Cisplatin etc [2].

The discordant dysfunctional theory states that tinnitus can result from damaged outer hair cells and relatively better functioning inner hair cells. The signal source for tinnitus perceived at high cortical level is thought to be due to increased neuronal activity in dorsal cochlear nucleus, which is generated in response to decreased signal from type-II auditory fibres originating from outer hair cells[1,2].

One of the most important aspect in treating tinnitus patients is counseling and reassurance,as emotional impact on these patients is large. Treatment modality can be grouped into hearing aids/masking therapy, tinnitus retraining therapy [TRT], psychological, pharmacological, surgical and others. Total masking therapy is the use of sound with spectral characteristics and sufficient volume to render the tinnitus inaudible. Tinnitus retraining therapy is aimed at habituation of tinnitus evoked reactions[2,3].

There is no proven pharmological therapy in treatment of tinnitus[2]. Drugs such as antidepressants, antiepileptics like gabapentin, benzodiazepines are found beneficial[2,3]. Gingko biloba,an extract from the leaves of maindenhair plant has been reported to be effective in some cases[4]. Trans tympanic therapy with corticosteroids can also be used[2].Cochlear implantation can be successful in treating patients with tinnitus ,whose audiogram has been documented a PTA showing hearing loss of 70 db bilaterally[2,3].Microvascular decompression is found beneficial in some cases[2].

Tinnitus remains one of most common auditory symptoms with its high impact on quality of life. Individuals suffering from tinnitus are usually associated with emotional disturbances. There is no proven pharmological therapy in treatment of tinnitus. Henceforth in the present study,we would like to know the efficacy of treatment protocol followed in our institute.

AIMS OF THE STUDY

1) Epidemiological study of patients with tinnitus.
2) To analyze the efficacy of treatment protocol for tinnitus.

MATERIALS AND METHODS:

It is a retrospective study conducted over period of 18 months (June 2017 to January 2019). Total 60 patients were selected from all the tinnitus patients coming to Ear Nose Throat (ENT) department.

EXCLUSION CRITERIA: All the relevant data is not available in medical record department (MRD).

METHODOLOGY: All data of the above said period were collected from the MRD. Tinnitus handicap inventory[THI] score was used to evaluate pre and post treatment status and analyzed using paired t-test. The protocol followed in our institute for tinnitus is as follows. Patients were given medical therapy with neurovitamins with antioxidants and gingko bilova for 15 days. If symptom did not subside, then same treatment was continued for another 15 days. If patient responded, then same treatment was continued for 3 months period. If tinnitus did not subside after 1 month of medical treatment, they were subjected to TRT, twice every weekly for 1 month and if still symptoms persists, intratympanic steroid (dexamethasone) was given every weekly for one month. All the patients were evaluated after 3 months period.

RESULTS

Table I(Age and sex distribution)

Age	male	Female	Total	%
20-30	4	6	10	16.6
31-40	4	7	11	18.3
41-50	9	4	13	21.6
51-60	7	12	19	31.6
>60	2	5	7	11

Table I shows, the peak age of presentation is 51-60 years and least age group is >60 years in our study.

Table II(Duration of symptoms)

Duration of symptoms	No. of patients	%
<3 months	9	15
3-6 months	22	36.6
6 months -1 year	18	30
>1 year	11	18.3

Table II shows that the maximum number of patients were having history of tinnitus, 3-6 months duration.

Table III(Risk factors associated with tinnitus)

Risk factor	No of patients	%
Work place noise	27	45
hypertension	39	65
diabetes	34	56.6
smoking	24	40
Thyroid diseases	10	16.6

Table III shows, the major risk factor in our study is hyper tension followed by diabetes.

Table IV(Degree of hearing loss)

Hearing loss	No of patients	%
Normal[0-25db]	07	11.6
Mild[26-40db]	24	40
Moderate[41-55db]	16	26.6
Moderate-severe[56-70db]	10	16.6
Severe[71-90db]	2	3.3
Profound[>90db]	1	1.6

Table IVshows that the majority of the patients were having mild hearing loss followed by moderate.

Table V(Treatment response)

Treatment responded by pts	No of patients	Percentage
Medical therapy	41	68.3
TRT	09	15
Intratympanic steroid	10	16.6

Table Vshows that maximum number of patient responded to medical therapy followed by intratympanic steroid (dexamethasone) and least number of patients were responded to TRT.

Table VI(Pretreatment and post treatment THI scores)

Based on THI score	Pretreatment score	Percentage	Posttreatment score	Percentage
Slight/no handicap[0-16]	9	15	37	61.67
Mild handicap[18-36]	22	36.67	13	21.67
Moderate handicap[38-56]	14	23.34	06	10
Severe handicap[58-76]	12	20	03	5
Catastrophic handicap [78-100]	03	5	01	1.67

[Pre treatment Standard deviation (SD) = 18.5957, Post treatment SD = 17.272, P value = 0.000025 (P< 0.05 is significant)]

Table VI, shows the pre and post treatment THI scores. Improvement of tinnitus is statistically significant shown by paired t test.

DISCUSSION:

In the present study, we got female predominance ie male 26 and female 34, out of 60 members. So male to female ratio is 1: 0.67. This female predominance is supported by the study of Leske, 1981[5] and Cooper, 1994[6]. But some of the studies are in contradiction with these studies. A study by Nondahl D et al (2011), shows that male to female ratio is 11.9 : 9.4 [7]. Another study by Bhatt J M et al shows male to female ratio 10.5 : 8.8 [8]. However Sindhusake et al were found no difference either unadjusted (2003a) [9] or adjusted (2003 b) [10].

In our study, male predominance was found in the age group 41 to 50 years of age group (male 9, female 4). This is comparable to a study by Axelsson and Ringdahl 1989 (40- 59 Yrs) [11].

Majority of the patients in our study, presented with 3 to 6 month duration of tinnitus. Bhatt et al[8] 2016 , have found that the majority of the respondents are having symptoms for 12 months.

In the present study, most of the patients with tinnitus are having mild hearing loss ie 24 (40%). A study by Sereda M et al 2015 [12], degree of hearing loss ranges from 0 to 126.76 dB/ octave (mean =57.05; SD = 24.94).

In our study, the majority of the patients were responded to medical therapy ie 41 (68.3%). And as per AAO-HNSF guideline, the most commonly discussed treatment for tinnitus management was medical therapy [12]. The AAO-HNSF recommends that the clinician should not use medical therapy, including antidepressant, anticonvulsant and intratympanic medication for routine management of tinnitus. Anxiolitics are not recommended due to lack of consistent benefit and potential adverse effects. The recommendation against medical therapy is primarily due to the insufficient data from clinical trial and meta-analyses to reliably demonstrate a reduction in the perception of tinnitus [13].

CONCLUSION

The protocol for tinnitus therapy used in this study in our institute is affective and also statistically significant. But because of less sample size, it is not conclusive and more study has to be done to have a definitive conclusion.

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