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ROLE OF OTOSTRNGTH IN SENSORINEURAL HEARING LOSS AND TINNITUS

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Abstract
Background: Sensorineural hearing loss and tinnitus is one of the most frequently encountered problem in day-to-day practise. Despite best medical management, these patients often remain dissatisfied with improvement and search for more treatment strategies continues. Among the used medicinal plants, *Ginkgo biloba* is frequently used in the treatment.
Aims and objectives: To study the efficacy of Otostrngth (Ginkgo Biloba+Methylcobalamin) in cases of sensorineural hearing loss along with regard to improvement in hearing and tinnitus.
Material and Methods: 100 patients with sensorineural hearing loss were included and randomly allocated into any of 2 groups being studied. Group- A received Otostrngth and Group – B received conventional regimen (oral vitamin A and vitamin B complex).
Results: There were subjective improvement in hearing in 40 patients in Group A compared to 30 in Group B. 34 patients in Group A compared to 22 patients in Group B showed subjective improvement in tinnitus. 13 patients in Group A showed greater than 10db improvement in hearing compared to only 7 patients in Group B.
Conclusion: Otostrngth together with conventional therapy helps in better patient management and improved symptomatology.

Keywords: otostrngth , tinnitus ,hearing loss , ginkgo biloba.

Introduction :

Sensorineural hearing loss and tinnitus is one of the most frequently encountered problem in day-to-day practise. Patients presenting with sensorineural hearing loss often remains unsatisfied with the improvement shown despite best possible medical scenario leading to several mental and physical impairments and can impair the quality of life. Common causes include old age, prolonged exposure to loud noise, viral infections, various drug induced ototoxicity, idiopathic etc. Among the used medicinal plants, *Ginkgo biloba* is one of the herbals that frequently used in the treatment and has been studied in various studies. *Ginkgo biloba* [1] belongs to Ginkgoaceae family and its leaf has a range of phytochemicals, including alkanes, lipids, sterols, benzoids, carotenoids,

phenylpropanoids, carbohydrates, flavonoids and terpenoids. Studies show that *Ginkgo biloba*, which is a monoamine-oxidase inhibitor (MAOI) can effectively improve patients with Sensorineural hearing loss and tinnitus caused by ischemia due to having myricetin and quercetin flavonoids and ginkgolide and bilobalide terpenoids. It improves blood flow and appropriately regulates vascular tone. Cardiovascular problems cancause problems in blood supply to labyrinthine artery and this causes hypoxia in the outer hair cells of the cochlea and lead to subjective tinnitus. Adequate blood supply to the cochlea, which can be justified by Otostrngth, can stop this process. Antioxidant and protective effects on nerve cells in the brain, auditory cortex, and sub-cortical area can also justify the anti-tinnitus effects of Otostrngth [2,3,4].

Material and methods:

After written informed consent, this randomised prospective clinical study was conducted at our tertiary care centre over period of 6 months and 100 patients were included in the study (50 in each group). All cases of sensorineural hearing loss and tinnitus , except those due to sudden sensorineural hearing loss, congenital/hereditary disorders, autoimmune diseases, neoplasms were studied. Cases of sensorineural hearing loss presenting with vertigo and with past history of otitis media were also excluded from the study. A detailed case history withspecial stress on hearing loss and tinnitus was recorded and the cases underwent a thorough ENT examination.

First hearing assessment with Pure tone audiometery was done as baseline for the intiation of therapy. Pure tone audiometery was repeated at monthly intervals for 3 months. Assesment of tinnitus was done before starting any modality of treatment and it was reassesed at the end of treatment (3 months) using subjective assessment of the patient

All the cases were randomly allocated into any of two groups: Group- A: In these cases, Otostrngth (two times daily) was given for 3 months. Group - B: In thesecases, conventional regimen with oral vitamin A (once daily), vitamin B complex (twice daily)was used for three months.

Subjective and objective improvement in hearing was considered when the patient had lessening of symptom of hearing impairment (or even a feeling of "well being" in relation to the hearing) Subjective improvement in tinnitus was assessed by patients satisfaction of improving symptoms Objective improvement was based on improvement in hearing on pure tone audiograms and were divided into 3 classes:

Class- I: No subjective (symptomatic) improvement. No Objective (pure tone audiogram) improvement in pure tonethresholds - No effect of drug

Class- II: Subjective improvement only. Objective improvement < 10dB

Class - III: Subjective improvement with objective improvement> 10dB but hearing not returning to near normal

Results:

Both groups were comparable in respect to age, sex and other demographic profile. The detailed observation is shown in table -1. There was subjective improvement in hearing in 40 patients in Group A compared to 30 in Group B. 34 patients in Group A compared to 22 patients in Group B showed subjective improvement in tinnitus. 13 patients in Group A showed greater than 10db improvement in hearing compared to only 7 patients in Group B.

Table 1: Comparable in respect to age, sex and other demographic profile

		Group A (n=50)	Group B (n=50)
1.	Subjective improvement in hearing	76%	60%
2.	Objective improvement in hearing Class 1 Class 2 Class 3	 23.3% 53.3% 7 (23.3 %)	 40% 46.6% 13.3%
3.	Subjective improvement in tinnitus	66.6%	50%

Discussion:

The commonest probable etiology of sensorineural hearing loss was presbycusis (36.5%) followed by idiopathic (28.8%) and ototoxicity (ll.5%). Below 50 years of age the common cause of hearing loss was idiopathic and above that age it was presbycusis.

Lobel et al[5] (1951) showed improvement of 17-18% in hearing threshold by parenteral Vit A alone or in combination with Vit B complex in patients of sensorineural hearing loss of various degrees and etiologies. Chessebeouf et al[6] in 1979 reported significant audiometric hearing improvement in 12% of patients treated with *Ginkgo biloba* extract as compared to vasodilator (Nicergoline). A study by Coles et al[7] (1988) reported improvement in tinnitus with *Ginkgo biloba* extract to be 24%. However, there were lot of side effects noted by Coles et al, (1988) which were not seen in the present study. A comparative therapeutic trial of *Ginkgo biloba* extract and Nicergoline (Vasodilator) in acute cochlear deafness showed a significant improvement based on audiometry and symptom severity in both therapeutic groups but improvement was distinctly better in the *Ginkgo biloba* groupas seen by Dubreil et al[8]in 1986.

Conclusion:

Otostrngth is more efficacious in symptomatic as well objective improvement in hearing as well as tinnitusin patients with sensorineural hearing loss.

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