



ROLE OF OTOSTRNGTH PLUS IN SENSORINEURAL HEARING LOSS, VERTIGO AND TINNITUS

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Abstract:

Background: Sensorineural hearing loss, vertigo 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* and *magnesium oxide* is frequently used in the treatment.

Aims and objectives: To study the efficacy of Otostrngth plus (Ginkgo Biloba+Methylcobalamin+ Magnesium oxide) in cases of sensorineural hearing loss along with regard to improvement in hearing, vertigo and tinnitus. **Material and Methods:** 200 patients with sensorineural hearing loss were included and randomly allocated into any of 2 groups being studied. Group- A received Otostrngth plus and Group – B received conventional regimen (oral vitamin A and vitamin B complex).

Results: There were subjective improvement in hearing in 80 patients in Group A compared to 60 in Group B. 64 patients in Group A compared to 44 patients in Group B showed subjective improvement in tinnitus. 26 patients in Group A showed greater than 10 db improvement in hearing compared to only 14 patients in Group B.

Conclusion: Otostrngth plus together with conventional therapy helps in better patient management and improved symptomatology.

Keywords: otostrngth plus, tinnitus, hearing loss, vertigo, magnesium oxide, ginkgo biloba.

INTRODUCTION

Sensorineural hearing loss , vertigo 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* along with *magnesium oxided* 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 , vertigo 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 can cause 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 plus 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 and anti-vertigo effects of Otostrngth plus [2,3,4] as Magnesium oxide in otostrngth plus may play a role in managing vertigo, particularly in conditions like vestibular migraines and Persistent Postural-Perceptual Dizziness (PPPD), by helping to reduce the frequency and severity of symptoms. It may help regulate neuronal excitability and stabilize neuronal membranes, potentially reducing excessive firing that can contribute to migraine and vertigo.

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 200 patients were included in the study (100 in each group). All cases of sensorineural hearing loss , vertigo and tinnitus , except those due to sudden sensorineural hearing loss, congenital/hereditary disorders, autoimmune diseases, neoplasms and c-p angle pathology were studied. A detailed case history with special stress on hearing loss , vertigo and tinnitus was recorded and the cases underwent a thorough ENT examination.

First hearing assessment with Pure tone audiometry along with vestibular function test was done as baseline for the intiation of therapy. Pure tone audiometry was repeated at monthly intervals for 3 months. Assesment of tinnitus was done before starting any modality of treatment and it was reassessed 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 plus (two times daily) was given for 3 months. Group - B: In these cases, 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 tone thresholds - 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

RESULT

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 80 patients in Group A compared to 60 in Group B. 64 patients in Group A compared to 44 patients in Group B showed subjective improvement in tinnitus. 26 patients in Group A showed greater than 10db improvement in hearing compared to only 14 patients in Group B.

	GroupA (n=100)	GroupB(n=100)
1. Subjective improvement in hearing	76%	60%
2. Objective improvement in hearing		
Class 1		
Class 2	23.3%	40%
Class 3	53.3%	46.6%
	7(23.3 %)	13.3%
3. Subjective improvement in tinnitus and vertigo	66.6%	50%

Discussion

The commonest probable etiology of sensorineural hearing loss was presbycusis (36.5%) followed by idiopathic (28.8%) and ototoxicity (11.5%). 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. Chessebeuf et al [6] in 1979 reported significant audiometric hearing improvement in 12% of patients treated with *Ginkgo biloba* and magnesium oxide 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* and magnesium oxide group as seen by Dubreil et al[8] in 1986.

Conclusion:

Otostrngth plus is more efficacious in symptomatic as well objective improvement in hearing as well as vertigo and tinnitus in patients.

References:

1. Kleijnen J, Knipschild P. *Ginkgo biloba*. Lancet. 1992;340(8828):1136- 9.
2. Diamond BJ, Shiflett SC, Feiwei N, Matheis RJ, Noskin O, Richards JA, et al. *Ginkgo biloba* extract: mechanisms and clinical indications. Arch Phys Med Rehabil. 2000;81(5):668-78.
3. Louajri A, Harraga S, Godot V, TOUBIN G, KANTELIP JP, MAGNIN P. The effect of ginkgo biloba extract on free radical production in hypoxic rats. Biological and Pharmaceutical Bulletin. 2001;24(6):710-2.
4. Droy-Lefaix M, Cluzel J, Menerath J, Bonhomme B, Doly M. Antioxidant effect of a *Ginkgo biloba* extract (EGb 761) on the retina. Int J Tissue React. 1994;17(3):93-100.
5. Lobel M. J. Is hearing loss due to nutritional deficiency. Archives of Otolaryngology, 1951, 53: 515 - 576.
6. Chessebeout L., Herard J., Trevin J., Edude Comparativede drux varooregulateus dans les hypo acouseies et les syndroms vertigo neus. Med. Nord. EST 3, 1979:534 -539.
7. Coles. Trial of an extract of *Ginkgo Biloba* for tinnitus & hearing loss Clinical Otolaryngology 1988, 13: 501- 502.
8. Dubreil C., Comparative therapeutic trial of *Ginkgo biloba* extract & Nicergoline in acute cochlear deafness. Presse Med. 15: 1559- 1561.