

Does Anti Vertiginous drugs have any role in BPPV management: A study in East Singhbhum population

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Abstract: *Background:* Repositional manoeuvres are the mainstay in the management of positional vertigo but there are times when there are relapses and these manoeuvres are required multiple times making it a necessity to add some adjuvant like antivertiginous drugs or rehabilitation exercises. *Aims and Objectives:* Role of Anti Vertiginous drugs in the management of BPPV. *Material and Method:* It was a prospective double blinded randomized study, on a total of 120 patients with positional vertigo. Patients divided into two groups. Group A of 60 patients received only positional maneuver and Group B received positional maneuver with 5 days course of Tab Betahistine 24 mg twice daily. The results obtained between two groups were compared on the basis of number of repositioning maneuvers specified as number of visits. SPSS v 16.0 software was used to analyse the data obtained. Chi square /Fisher Exact test was used to find the significance of study. *Results:* Group B fared significantly better. *Conclusion:* We suggest starting a 5 days course of Tab Betahistine 24 mg twice daily in cases requiring multiple visit.

Keywords: Benign, Paroxysmal, Positional Vertigo, Betahistine.

Introduction

BPPV (Benign Paroxysmal Positional Vertigo) is the most common cause of vertigo with lifetime prevalence of around 3%. It can appear at any time from childhood to senility, but the idiopathic form is typically a disease of the elderly, peaking in the sixth and seventh decades. More than 95% of all cases are classified as degenerative or idiopathic (Women/men= 2:1), whereas the symptomatic cases (Women/Men =1:1) are most frequently caused by Head injury (17%) or Vestibular neuritis (15%) [1].

Repositional manoeuvres are the main stay in the management of BPPV. Sometimes patient requires multiple visits as one repositioning manoeuvre is not enough to repose the otolith. This is the situation where the patient needs some adjuvant in the form of antivertiginous drugs or rehabilitational exercises so as to reduce the multiple visits. Multiple authors have reported the cure rate with Epleys ranging from 57% to 90% therefore emphasising the need for some adjuvants.

Aims and Objectives: Was to find out whether Anti Vertiginous drugs had any role in the management of BPPV.

Material and Methods

A total of 120 patients were taken up for study who had presented with history of episodic giddiness lasting for few seconds to few minutes. Patients were explained about the study, after their due consent, double blinded randomized selection for the two groups was done. Details of history and routine examination were recorded in the proforma and DHI score of individual patient was calculated. Patients were subjected to various positional maneuvers for diagnosing so as to which canal was involved (Dix Hall pike for Posterior SCC, McClure Pagnini test for Horizontal SCC).

The patients were divided into two groups, in first group (A) only the repositioning maneuver (Epleys for Posterior SCC and Gufoni's maneuver for Horizontal SCC) were

done and in the second group (B) the positioning maneuver was followed by a course of Tab Betahistine 24 mg twice daily for 5 days. Video nystagmography was done in all cases to record the nystagmus. Postural restriction was advised in both groups for two days. Blood investigations for Glucose (Fasting and Post Prandial), Lipid profile, Serum Calcium, Vitamin B12, Vitamin D were advised in all cases. Patients were reviewed after 2 days, 1 week thereafter in ENT OPD and positional maneuver were repeated. The results obtained between two groups were compared on the basis of number of repositioning maneuvers specified as number of visits also termed as relapse and improvement in the DHI score of the patient.

Inclusion Criteria: All patients with peripheral positional vertigo.

Exclusion Criteria:

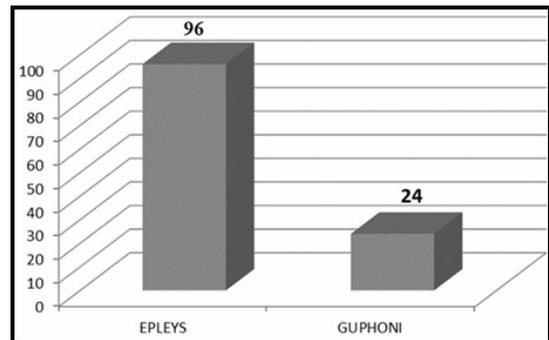
1. Patients with central vertigo
2. Patients with other causes of peripheral vertigo
3. Patients with known cardiac complaints
4. Patients with severe cervical spine disease
5. Patients lost to follow-up

Data collection started after obtaining clearance from the ethical committee. SPSS v 16.0 software was used to analyse the data obtained. Student t test was used to find the significance of study parameter. Chi square /Fisher Exact test was used to find the significance of study parameters on categorical scale between two groups.

Results

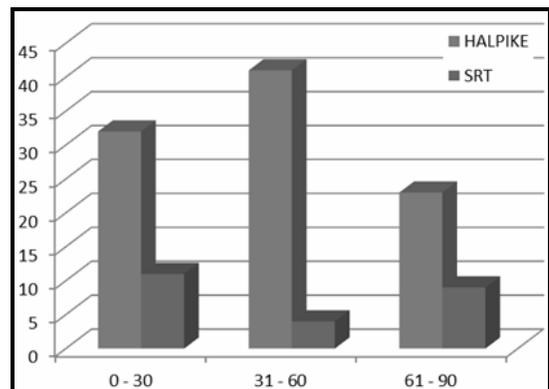
120 patients were taken for study. All patients had positional giddiness which was positive for “Dix Hallpike test (Posterior canal BPPV) in 96 cases” and “McClure Pagnini test” (Horizontal canal BPPV) in 24 cases. The patients were divided into two groups A&B each of 60 patients. The first group (A) were treated only with repositioning maneuver and second group (B) were treated with repositioning maneuvers combined with Tab Betahistine 24 mg twice daily for 5 days. The effects of the two modalities were compared as to the number of revisits required by the patients for curing the vertigo [Fig1].

Fig-1: Total no of patients N=120. DHT/Epleys=96 patients. Mc Clure Pagnini test/Gufoni's=24



The age group 31 to 60 were most commonly affected in our study, 79 were female and 41 were male. Right side was more commonly affected. Majority of the patients i.e. 52.5% had moderate sensorineural loss. Blood profiles like Sugar, Cholesterol, Vit D and Vit B12, statistically didn't affect the final outcome of the disease. Serum Triglyceride though raised but statistically not associated with the disease. PTA was done in all cases and Moderate hearing loss was found in majority of cases but was not statistically significant [Fig 2].

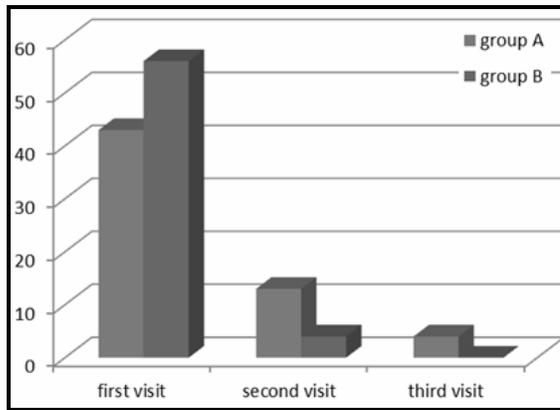
Fig-2: Age group and number of Dix Hallpike/ Epleys and Mc Clure Pagnini /Gufoni maneuver



In group A where patients were treated only with maneuver (Epleys+ Gufoni's maneuver) 71.7% got relieved in their first visit whereas in group B treated with maneuver and Tab Betahistine 24mg, 93.3% got fully cured in their first visit alone and none of the patients required third visit whereas 4 patients required third visit for getting fully cured in group A. The P value was .005, which was statistically significant. Here revisit is done by patients

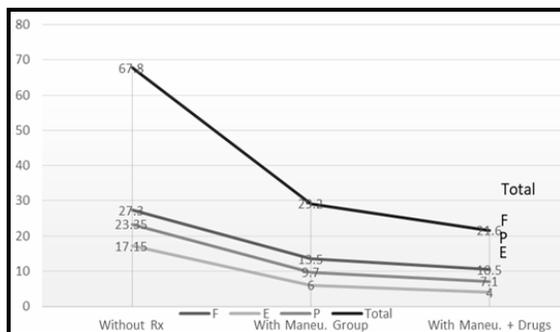
with relapse of the same symptoms after full recovery [Fig 3].

Fig-3: Number of revisits by the relapse patents in the Group A and Group B



DHI-Dizziness Handicap Inventory score was calculated in all patients. Emotional, Functional and Physical score of every individuals were calculated, the mean was F-27.3 ,E-17.15 ,P-23.35 .and the total of 120 patients before treatment was 67.8.Post treatment with only maneuver i.e. with group A the DHI score, mean was F-13.5,E-6.0,P-9.7 and total was 29.2.Post treatment Maneuver with Medication i.e. Group B the mean was F-10.5,E-4.0,P-7.1 score with total of 21.6.There was statistically significant improvement when pre and post treatment DHI was compared with $p < .005$.But on comparing the two groups the DHI score was almost similar with no statistical difference. This proves that medication only reduced the relapse rate and had no effect in the quality of improvement [Fig 4].

Fig-4: DHI Score Functional, Emotional, Physical Score in Pre Treatment Group A and Group B



Discussion

BPPV is the most common cause of peripheral vertigo and perhaps also the most common

treatable cause .Many patients are getting benefit from the repositonal maneuver. DHI score pre and post treatment proves that these maneuvers are very efficient. Problem occurs with some patients who come with relapse of symptoms after few days and sometimes these patients require multiple visits. Most of our patients were females mainly of post-menopausal age group and it has been found in the literature that BPPV is common among postmenopausal women. To establish this relationship, Vibert et al [2] conducted study on rats and found reduced density and increased volume of otoconia in osteoporotic rats.

Similarly Jeong et al [3] conducted study on 209 patients diagnosed with BPPV and established that the presence of osteopenia or osteoporosis alone increased the risk of BPPV. A study by Yamanaka et al [4] found that presence of osteoporosis posed a risk of BPPV recurrence. However study by Karatas et al [5] didn't find any correlation between osteoporosis and BPPV. There have been postulations that Calcium and Vitamin D levels do play a role in the occurrence of BPPV although the calcium and Vit D levels were statistically not significant as causative factors in our study. The study by Jeong et al. established lower serum levels of vitamin D in idiopathic BPPV patients regardless of age, gender, body mass index, hypertension, diabetes, proteinuria, regular exercise, and reduced bone mineral density [2].

Buki et al. [6] found that serum levels of vitamin D in BPPV patients were similar to the rest of the population, but showed that such levels were further lower in patients with recurrent BPPV compared to those with the first BPPV attack. The study by Talaat et al. [7] established that improvement of serum 25-hydroxyvitamin D3 levels was associated with substantial decrease in the recurrence of BPPV.

Similarly, Sheikhzadehet al [8] indicated in their study that the correction of vitamin D deficiency in BPPV provides additional benefit to rehabilitation therapy (Epley maneuver) regarding the duration of improvement. There has been relationship

between Homocysteine and Vitamin B12 metabolism and vertigo in general. Homocysteine which induces vascular oxidative stress, is one of the vasoconstrictive factors. Hyperhomocysteinemia is a risk factor for atherosclerosis [9]. Hyperhomocysteinemia occurs in two ways. In one way it occurs by the inability of homocysteine to remethylate to methionine and in the other by Trans sulfuration of methionine to cysteine. Folic acid, vitamin B6, vitamin B12 are important factors in these two processes [10]. The labyrinthine branches are small and receive less collateral flow from the internal carotid artery so that it becomes a target of the effects of atherosclerosis [11].

This study was conducted upon two groups with sixty patients each. One group underwent only repositioning manoeuvres whereas in the second group repositioning manoeuvres were combined with Tab Betahistine 24 mg twice daily for 5 days. The effectiveness of the treatment modalities were evaluated on the basis of number of visits patient required in getting their symptoms fully relieved. In a study conducted by Epley in 1992 on 30 patients with BPPV with positive Dix Hall Pike test there was 90% cure rate after Epley's manoeuvre [12] whereas in our study the manoeuvres were effective in 71.7% of cases. Cavaliere et al in their study on 103 patients found that repositioning manoeuvres with Betahistine were significantly more effective than manoeuvres alone [13].

Japneet Kaur et al [2] in their study of 90 patients divided into three groups i.e. Epley alone, Epley with Betahistine and Betahistine alone found that the post treatment DHI score improvement was statistically significant in 94.8% of cases. In our study Epley with Betahistine group (B) showed improvement in 93.3% of cases. There was improvement in the DHI score between Group A and B but was not statistically significant. Stambolieva K et al in their study on the effect of Betahistine on postural stability after Epley's manoeuvre in patient with BPPV evaluated by static posturography found that Betahistine normalized postural stability of patient with duration of stability less than 60 days. They assumed that after removing the otoconia,

Betahistine plays an important role in improving the blood flow in the inner ear [14]. We had started Betahistine after first visit i.e. after two days. The mechanism of action in Betahistine is based on its interaction with histamine receptor. Histamine has been shown to play a significant role in sensory coding, in the vestibular periphery. Histamine was found to increase the spike discharge of the afferent neurons of semi-circular canal, in the frog [15]. Pharmacological evidence indicates that H₁, H₂ and H₃ histamine receptors exist in the vestibular periphery [16-17] and that histamine modifies the intracellular Ca²⁺ through action on these receptors [17-18].

At the vestibular nuclei level, Betahistine significantly reduces the excitation caused by histamine and, at the semi-circular canal; Betahistine decreases the spike discharge of the ampullar hair cells [19-20]. It has also been suggested that Betahistine actions are due to an improvement in the microcirculation of the labyrinth [10, 21] and a reduction in endolymphatic pressure [22].

SUMMARY

BPPV is the most common cause of peripheral vertigo, and also has the most definitive treatment. It's also very rewarding as patients get quick relief that too without any need of medication. There are few cases which relapse after few days and require multiple times Epley's manoeuvre, this situation challenges the credibility of the treating surgeon also its tiring for the patients to come to OPD and undergo the same manoeuvre. Literature has shown some ray of hope for these patients as various other modalities have also been tried such as Anti vertiginous drugs in the form of Tab Betahistine and Vestibular rehabilitation exercise. Tab Betahistine was tried in such relapse patients and was found to be effective. Therefore our recommendation based upon our finding is to start Tab Betahistine 24mg twice daily for 5 days once there is a relapse after a successful Epley's manoeuvre. Though the blood parameters showed no significant relation with BPPV but it's a subject of further research particularly the Serum Calcium, Serum Vitamin D and B12.

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