Original Article

Comparison Of Efficacy In Performing Epley's Maneuver Alone Versus Betahistine Along With Epley's In Diagnosed Patients Of Benign Paroxysmal Positional Vertigo

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Abstract

Objective: To compare the effectiveness of Epley's manoeuvre alone and Betahistine with Epley's in patients with Benign paroxysmal positional vertigo.

Methods: After the ethical approval from the institutional review board, this comparative study was conducted at the Department of Otorhinolaryngology Head and Neck Surgery, District Headquarters Hospital, Rawalpindi, Rawalpindi Medical University, Rawalpindi, from February 2024 to August 2024. Through the non-probability consecutive sampling, 60 patients aged between 18-65 years, of either gender, with Vertigo who got a positive Dix-Hallpike test were included in the present study. After the informed consent form, patients were randomly divided into two study groups: Group A-Betahistine + Epley's (n=30) and Group B-Epley's (n=30).

Results: After 10 days of follow-up, only one patient in Group A remained positive for the Dix-Hallpike test, in contrast to 11 patients in Group B, demonstrating a statistically significant improvement in Group A (P<0.0001). On the first day, the mean Vertigo Symptom Scale (VSS) score was 12.6±3.6 in Group A and 14.6±3.03 in Group B, with Group A exhibiting significantly lower symptom severity (P<0.0001). Furthermore, the mean reduction in VSS score was greater in Group A (8.2±3.3) compared to Group B (7.3±2.6), also showing a statistically significant difference (P=0.042).

Conclusion: The use of Betahistine in conjunction with Epley's maneuver outperforms the application of Epley's maneuver alone in the treatment of BPPV

Keywords: Vertigo, Epley's, Dix Hall Pike, VSS, betahistine.

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Introduction

Benign Paroxysmal Positional Vertigo or BPPV is one of the most common causes of vertigo, in which the patient experiences sudden bouts of vertigo or dizziness occasioned by changes in the position of the head.[1] It results from disintegrated otoconia – calcium carbonate crystals in the inner ear that contribute to balance. BPPV also affects the lives of patients as they cannot sit or lie in certain positions, they experience nausea, and also a higher propensity to falls.[2] The different treatment approaches in BPPV include: physical therapy, medications, surgery, and Epley's maneuver which involves a sequence of head movements that help in the repositioning of the displaced otoconia and is among the most effective.[3] Nevertheless, the rate of reinfections is still a problem. Another drug used in the management of vertigo symptoms in BPPV patients is the histamine analog known as betahistine which enhances the microcirculation in the inner ear.[4] Epley's maneuver also known as the canalith repositioning procedure is one of the main conservative treatment procedures with a high rate of effectiveness.[5] One study indicates that the first time effectiveness rate ranges from 83-95% whereby 50% of each patient's symptoms are resolved.[6] Several studies have investigated new, adjuvant treatments such as; Betahistine to boost the current treatment efforts.[7,8] It is postulated that betahistine increases the blood flow to the cochlea and decreases the endolymphatic pressure thus; treating vertigo.[9] According to investigations, it is possible to decrease the frequency of vertigo attacks and to shorten the period of the illness with the help of Betahistine and Epley's maneuver.[10] But other trials show no disparity in its efficacy compared to Epley's maneuver alone.[11] Epley's maneuver is still the mainstay in the treatment of BPPV; however, the use of Betahistine as an additional treatment needs to be further examined regarding its long-term effectiveness in preventing recurrences.[12,13] The objective of the present study was to compare the effectiveness of Epley's manoeuvre alone and Betahistine plus Epley's in patients with Benign paroxysmal positional vertigo.

Materials And Methods

After the ethical approval from the institutional review board, this comparative study was conducted at the Department of Otorhinolaryngology, Head and Neck Surgery, District Headquarters Hospital Rawalpindi, Rawalpindi Medical University, Rawalpindi from February 2024 to August 2024. Through the non-probability consecutive sampling, 60 patients aged between 18-65 years, either gender, with Vertigo who got a positive Dix-Hallpike test were included in the present study. Patients with restricted ambulation, history of cervical spine disease, Head Trauma, Hypertension, Cardiac Complaints, and Meniere's Disease were excluded from

the present study. After the informed consent form, patients were randomly divided into two study groups using a computer-generated random number sequence; Group A-Betahistine + Epley's (n=30) and Group B- Epley's (n=30). The thorough history was documented for the patients and Dix-Hallpike was carried out on all of them to diagnose BPPV. Then the patients in Group A received a combination of Betahistine (16mg B.D) and the Epley maneuver, and Group B received only the Epley maneuver. After 10 days of follow-up, Dix Hall pike was performed again as well as symptoms recorded on the Vertigo Symptom Scale (VSS) to check for efficacy between the two groups. The data were analyzed using descriptive statistics to compare the results of Dix Hall Pike and VSS between the two groups. A paired t-test was used to compare pre- and post-treatment VSS within each group, while an independent t-test was applied to compare the two groups. Statistical significance was set at a p-value of < 0.05. SPSS version 26 was used for data analysis.

Results

The study involved 60 participants divided into two groups: Group A, consisting of 30 patients treated with a combination of Betahistine and Epley's maneuver, and Group B, comprising 30 patients who underwent only Epley's maneuver. The average age of participants in Group A was 41.9±12.1 years, while Group B had an average age of 45.6±11.3 years, with no significant difference between the groups (P=0.239). Gender distribution was also comparable, with 18 males and 12 females in Group A, and 12 males and 18 females in Group B (P=0.11) (Table 1).

Table 1: Demographic parameters of the study participants

Parameters	Group A-Betahistine + Epley's (n=30)	Group B-Epley's (n=30)	P Value
Age	41.9±12.1	45.6±11.3	0.239
Gender			
Male	18	12	0.11
Female	12	18	

Regarding the Dix-Hallpike test results, all 30 patients in both groups tested positive for BPPV on the first day of evaluation (P<0.0001). However, after 10 days of follow-up, only 1 patient in Group A still tested positive, compared to 11 patients in Group B, indicating a statistically significant improvement in Group A (P<0.0001) (Table 2).

When assessing the Vertigo Symptom Scale (VSS), on the first day, the mean VSS score was 12.6±3.6 in Group A and 14.6±3.03 in Group B, with Group A showing significantly lower symptoms (P<0.0001). After 10 days of follow-up, Group A's mean VSS score had decreased to 4.3±1.2, while Group B's score was 7.4±1.40, demonstrating a significant difference between the groups (P<0.0001) (Table 3).

Table 2: Comparison of Dix Hill Spike results in both groups on the first day and after 10 10-day follow-ups.

Dix Hall Pike	Group A-Betahistine + Epley's (n=30)	Group B-Epley's (n=30)	P Value
1st Day			
Yes	30	30	
No	0	0	
10th day Follow-up			<0.0001
Yes	1	11	
No	29	19	

Table 3: Comparison of Vertigo Symptom Scale results in both groups on the first day and after 10 days of follow-up

VSS Score	Group A-Betahistine + Epley's (n=30)	Group B-Epley's (n=30)	P value
1st Day	12.6±3.6	14.6±3.03	<0.0001
10th day Follow-up	4.3±1.2	7.4±1.40	<0.0001
Mean decrease	8.2±3.3	7.3±2.6	0.042
P value	<0.001	<0.001	

The mean decrease in VSS score was greater in Group A (8.2±3.3) compared to Group B (7.3±2.6), with a statistically significant difference (P=0.042) (Figure 2). Both groups showed a significant reduction in symptoms from the first day to the 10-day follow-up (P<0.001 for both). These results indicate that the combination of Betahistine and Epley's maneuver led to more significant symptom improvement compared to Epley's maneuver alone (Figure 1).

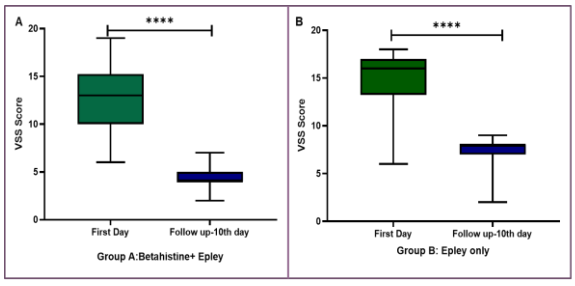

Figure 1: Comparison of VSS score within the group on the first day and at the 1oth day of follow-up

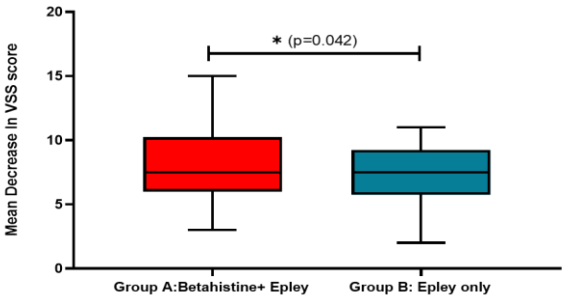

Figure 2: Comparison of mean decrease in VSS in both groups

Discussion

Benign Paroxysmal Positional Vertigo (BPPV) is a widespread vestibular condition marked by short bursts of dizziness initiated by head movements. This study's goal is to evaluate the effectiveness of Epley's maneuver individually against its combination with Betahistine for the treatment of individuals diagnosed with BPPV. The results of this study corroborate and advance the knowledge of the literature with respect to the effectiveness of the Epley maneuver and Betahistine in the case of BPPV. Moreover, the findings seem to support the effectiveness of Betahistine administered together with the Epley maneuver since patients who received both treatment methods reported less severe vertigo symptoms and improved outcomes after the Dix-Hallpike test and the VSS test than the patients treated only with the Epley maneuver. A few investigations on the effectiveness of the Epley maneuver confirm that the maneuver is effective.[14] Hence, it should be the initial treatment for BPPV. In a study done by Hilton & Pinder (2014, the author determined that the Epley maneuver, as a standalone, possesses an efficacy of over 80% in the short-term treatment of symptoms of vertigo.[15] However, the rates of recurrence are high especially in the first one to two weeks following the treatment, similar to von Brevern et al.[16] This is the reason why in the present research Group B (Epley only) still had 14 patients with a positive Dix-Hallpike result after 10 days.

Different investigations on the applicability of Betahistine when used as a supplementary medicine for the treatment of vertigo have been made. Betahistine which acts as a histamine H3 receptor antagonist has been used to address inner ear microcirculation and endolymphatic pressure, and is believed to help in relieving symptoms of vertigo.[16] Similar to Talha et al.'s study, the current study also revealed that the integration of Betahistine with the Epley maneuver had an improved benefit on the alleviation of symptoms, together with a decreased relapse of vertigo.[17] In the present study we found out that after 10 days, only one patient in the Betahistine plus Epley group (Group A) was positive in the Dix-Hallpike test while as compared to eleven patients of the Epley only group (Group B) were positive in the Dix-Hallpike test, which means that Betahistine was beneficial.

The findings of the study that revealed a lower VSS score among patients in Group A than in Group B are indicative of the efficacy of Betahistine in managing symptoms among patients. Singh et al, also observed that while receiving betahistine in combination with positional manoeuvres,[11] the patients demonstrated a lower vertigo severity score; in accordance with the findings of the current work, the mean decrease in VSS score was significantly higher in the combination therapy group.

However, several of the present studies have yielded inconsistent findings. For instance, a trial by Sanchez et al revealed no significant difference in the long-term recurrences between the patients treated using Betahistine and the patients treated using the Epley maneuver only.[18] Hence, there is sufficient evidence to establish that Betahistine has a short-term positive effect on BPPV but more research is required to determine if it has long-term efficacy.

On the basis of the study's outcomes, a number of recommendations can be made for the future with the goal of enhancing the management of Benign Paroxysmal Positional Vertigo (BPPV) and boosting patient outcomes. Firstly, undertaking bigger RCTs would support the continued evaluation of the efficacy of combining Betahistine with Epley's maneuver. While this exploration has yielded important short-term benefits, future investigations are required that look at the recurrence rates of BPPV over a longer follow-up period to appraise the sustainability of the Betahistine benefits beyond the treatment period. In addition, investigations into the future ought to look into the effective dosage and duration of Betahistine therapy integrated with Epley's maneuver. In this study, the Betahistine dosage was settled, even though individual reactions to the therapy may vary depending on characteristics of the sufferers, such as their age, sex, and the severity of their vertigo. Inquiries should investigate whether targeted dosing programs might substantially improve results even further. Also important is to take into account the potential position of additional pharmacological agents in conjunction with Betahistine for the treatment of BPPV. As an example, comparing common medications and treatments such as vestibular suppressants, anti-nausea drugs, or circulation improves for the inner ear with those of Betahistine combined with Epley's maneuver allows the monitoring of which adjunct therapy is the most effective. At last, quality-of-life assessments and patient-reported outcomes ought to be used in upcoming trials to evaluate the broader influence of combination therapy on day-to-day functioning and well-being, which are of central importance for estimating the total effectiveness of treatments under real-world circumstances.

Conclusions

The study shows that the use of Betahistine in conjunction with Epley's maneuver outperforms the application of Epley's maneuver alone in the treatment of BPPV. In this combination therapy group, patients had confirmed faster improvement of symptoms, a lower proportion of Dix-Hallpike test result positivity, and lower VSS scores than the Epley group alone after 10 days. This implies that Betahistine increases the effectiveness of Epley's maneuver by lessening the symptoms of vertigo and the rate of relapse. However, to establish the efficacy of this combination therapy in the treatment of BPPV, more studies with special reference to the long-term implications are required.

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