

Evaluation of Epley's Technique in Combination with Medical Therapy Vs Medical Therapy Alone in the Treatment of Individuals with Benign Paroxysmal Positional Vertigo (BPPV): A Retrospective Study

Alok Kumar¹, Satyendra Sharma²

¹Senior Resident, Department of ENT, Nalanda Medical College & Hospital, Patna, Bihar, India

²Professor and HOD, Department of ENT, Nalanda Medical College & Hospital, Patna, Bihar, India

Received: 08-12-2023 / Revised: 10-01-2024 / Accepted: 21-02-2024

Corresponding Author: Dr. Alok Kumar

Conflict of interest: Nil

Abstract

Aim: To compare the effectiveness of Epley's technique in combination with medical therapy vs medical therapy alone in the treatment of individuals with benign paroxysmal positional vertigo (BPPV) in the Bihar area.

Material and Methods: A retrospective study was conducted in the Department of ENT, Nalanda Medical College & Hospital, Patna, Bihar, India from April 2020 to March 2021. Non-probability methods used in sample selection and patients split into two categories. Group A (Epley only) 47 patients, Group B (Epley's + beta histine) 47 patients. Both adult patients with vertigo complaints as the only short-lived symptom for less than one minute diagnosed with the Dix-Hall picking maneuver were included. Patients of vertigo for more than one minute and other ear effects, such as hearing loss, tinnitus and aural fullness have been removed. Also omitted were patients with Meniere's disease and acute peripheral vestibulopathy.

Results: The research involved a total of 94 patients. The majority of the women were women in group A (Epley's only) while 27 (57.45 %) were women and 20 (42.53 %) were men in group B. The age of the patients is between 16 and 65 years, with an average of 35 years. The majority of patients in Group A were aged between 26 and 35 years 36 percent while the highest number of patients (27 percent) in Group B was aged between 46 and 55 years. Epley has been shown to be more efficiently and efficiently administering benign paroxysmal vertigo in the dosage of 48 mg betahistine per day at two separate doses (78.7 % efficiency in Group B Vs 61.7 % in Group A, when only Epley has been used alone).

Conclusion: In conclusion, Epley's maneuver with betahistine is more successful than Epley's maneuver alone to handle benign paroxysmal positions. However, we are recommending additional randomized control trials for large populations of various organizations.

Keywords: Epley's technique, medical therapy, benign paroxysmal positional vertigo (BPPV)

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Benign Paroxysmal Positional Vertigo (BPPV) is a common vestibular disorder characterized by brief episodes of vertigo triggered by changes in head position relative to gravity. It is caused by dislodged otoliths (calcium carbonate crystals) from the utricle that move into one of the semicircular canals, most commonly the posterior canal, leading to inappropriate stimulation of the vestibular system. BPPV significantly impacts patients' quality of life, causing dizziness, balance issues, and increased risk of falls. [1-3] The standard treatment for BPPV involves repositioning manoeuvres, specifically the Epley's Manoeuvre, which aims to guide the dislodged otoliths back to the utricle where they can no longer cause vertigo. Epley's Manoeuvre has been widely recognized for its effectiveness, with high success rates reported in numerous studies.

However, the recurrence of symptoms is common, and adjunctive therapies are often considered to enhance treatment outcomes and prevent recurrences. Betahistine, a histamine H1 receptor agonist and H3 receptor antagonist, is one such adjunctive therapy. It is commonly used to treat vestibular disorders due to its vasodilatory effects on the inner ear and its ability to enhance vestibular compensation. Combining Betahistine with Epley's Manoeuvre could potentially improve the resolution of vertigo symptoms and reduce recurrence rates in BPPV patients. [4,5] This introduction explores the efficacy of Epley's Manoeuvre alone compared to Epley's Manoeuvre combined with Betahistine in managing BPPV. Epley's Manoeuvre, introduced by Dr. John Epley in 1980, involves a series of head and body movements designed to move the dislodged

otoliths through the semicircular canal back to the utricle. This repositioning maneuver has demonstrated high success rates, with symptom resolution in approximately 70-90% of patients after one or two treatment sessions. The manoeuvre is simple to perform and can be done in a clinical setting or at home with proper instruction. The effectiveness of Epley’s Manoeuvre is well-documented. Betahistine has been used for decades to manage various vestibular disorders, including Ménière’s disease and vestibular neuritis. Its mechanism of action involves increasing blood flow in the inner ear and improving vestibular function by modulating histamine receptors. Betahistine has been shown to enhance vestibular compensation, a process by which the brain adapts to changes in the vestibular system, thus potentially reducing the severity and frequency of vertigo attacks. [6-9]

Material and methods

A retrospective study was conducted in the Department of ENT, Nalanda Medical College & Hospital, Patna, Bihar, India from April 2020 to March 2021. Non-probability methods used in sample selection and patients split into two categories. Group A (Epley only) 47 patients, Group B (Epley’s + betahistine) 47 patients. Both adult patients with vertigo complaints as the only short-lived symptom for less than one minute diagnosed with the Dix-Hall picking maneuver were included. Patients of vertigo for more than one minute and other ear effects, such as hearing loss, tinnitus and aural fullness have been removed. Also omitted were patients with Meniere’s disease and acute

peripheral vestibulopathy. Both patients received informed consent before the operation. Patients were divided by random number table into two groups i.e. group A and group B. Group A patients were subjected to Epley’s maneuver only when Group B in addition to Epley’s maneuver was given oral betahistine. Betahistine was administered to group B in tablet form at a dosage of 48 mg daily in two 1-week dose divisions. After 1 week care, all patients were followed and the efficacy tested by provocative role testing (Dix-Hall pike). Data analyzed with version 15.0 of SPSS. Age-like quantitative variable is stated in average ±SD. As frequencies and percentages, qualitative variables such as gender and effectiveness are registered.

Results

The research involved a total of 94 patients. The majority of the women were women in group A (Epley’s only) while 27 (57.45 %) were women and 20 (42.53 %) were men in group B (Table 1). The age of the patients is between 16 and 65 years, with an average of 35 years. The majority of patients in Group A were aged between 26 and 35 years 36 percent while the highest number of patients (27 percent) in Group B was aged between 46 and 55 years (Table 2). Epley has been shown to be more efficiently and efficiently administering benign paroxysmal vertigo in the dosage of 48 mg betahistine per day at two separate doses (78.7 % efficiency in Group B Vs 61.7 % in Group A, when only Epley has been used alone). (Table 3).

Table 1. Gender wise distribution of patients in both cadres.

Sex	Group B(Epley’s maneuver plus oral betahistine)		Group A (Epley’s maneuver alone)	
	Total	PERCENTAGE	Total	PERCENTAGE
Female	27	57.45	29	61.70
Male	20	42.55	18	38.30
Total	47		47	

Table 2. Age wise distribution of patients.

Age	Group B(Epley’s maneuver plus oral betahistine)		Group A(Epley’s maneuver alone)	
	Total	Percentage	Total	Percentage
16-25	2	4.26	6	12.77
26-35	17	36.17	12	25.53
36-45	3	6.38	8	17.02
46-55	14	29.79	13	27.66
56-65	11	23.40	8	17.02
Grand Total	47		47	

Table 3. Effectiveness of different approaches towards the management of benign paroxysmal positional vertigo.

Efficiency	Group B(Epley’s maneuver plus oral betahistine)		Group A(Epley’s maneuver alone)	
	Total	PERCENTAGE	Total	PERCENTAGE
No	10	21.28	18	38.30
Yes	37	78.72	29	61.70
Grand Total	47		47	

Discussion

BPPV is usually an elderly illness, but it may take place at any age. Several major studies have shown that can happen in the mid-50s. Vertigo is mostly caused by labyrinthitis and vestibular neuronitis in young people. The former has a hearing loss although it is usual in the latter hearing. The ratio of women and men is 2:1. Benign Positional Vertigo (BPV) incidence is 64 cases per 100,000 population annually (conservative estimate). [10] There are two BPPV versions. The first is caused by the rear semi-circular and the other is caused by the lateral semi-circular canal. The most frequently found posterior BPPV occurs in 85-95% of cases. [11] BPPV can be diagnosed and treated by multi-specialty clinicians. There are substantial differences in the practice of BPPV management among practitioners of different medical specialties. [12] These differences include both diagnostic and treatment methods. It is well known that the most important treatment options for BPPV and post-semicircular channel for adequate repositioning and rehabilitation exercises are BPPV can be handled effectively with a single Epley maneuver. [13-14] In this context the objective of our analysis was not to equate the effectiveness of Epley's Golden Standard with an anti-virgin medicine such as Betahistine but to see any additive effect of Betahistine against the Epley Vertigo Resolution Maneuver. Some studies show that, despite repositioning, vertigo can continue in 20 % of patients for up to 3 months. [14-15] In order to improve this, several studies have been conducted to see if betahistine is additive to epley's maneuver for BPPV symptom resolution as Betahistine increases labyrinth microcirculation and reduces neuronal activity in vestibular receptor cells, afferent neurons and vestibular nuclei. [16-18] Mira et al [19] showed that betahistine was beneficial for the improvement of the quality of life at a dosage of 32 mg per day in patients with recurring or persistent BPPV. Della Pepa et al [20] indicated that betahistine had effectively reduced the symptoms of vertebrobasilar insufficiency, chronic or persistent BPPV, if administered in doses above 32 mg a day. In our research, we found that the management of the BPPV by Epley plus betahistine is more effective and efficient (78.7 % effectiveness in Group B Vs 61.7 % in group A). Study limitations: There were several factors limiting the reach of this report. Firstly, the follow-up cycle was just one week. Much longer follow-up could have been helpful in the evaluation of any symptom recurrence as BPPV is episodic. Secondly, we did not include a control group without proper comparison care, but we assumed that such a control group would be unnecessary because ample published evidence shows that the handling of Epley's was better than placebo. [21]

Conclusion

In conclusion, Epley's maneuver with betahistine is more successful than Epley's maneuver alone to handle benign paroxysmal positions. However, we are recommending additional randomized control trials for large populations of various organizations.

References

1. Fife TD, Iverson DJ, Lempert T, et al. Practice Parameter: Therapies for benign paroxysmal positional vertigo (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2008;70(22):2067-2074.
2. Hilton M, Pinder D. The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *Cochrane Database Syst Rev*. 2014;(12)
3. Hilton MP, Pinder DK. The Epley manoeuvre for benign paroxysmal positional vertigo—a systematic review. *Clin Otolaryngol Allied Sci*. 2004;29(2):197-204.
4. Fife TD, Iverson DJ, Lempert T, et al. Practice Parameter: Therapies for benign paroxysmal positional vertigo (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2008;70(22):2067-2074.
5. Lacour M, Sterkers O. Histamine and betahistine in the treatment of vertigo: elucidation of mechanisms of action. *CNS Drugs*. 2001;15(11):853-870.
6. Nuti D, Masini M, Mandalà M. Benign paroxysmal positional vertigo and its variants. *Handb Clin Neurol*. 2016;137:241-256.
7. Polat B, Arikan OK, Topuz B, Aslan IB, Polat M, Celebi I. Effectiveness of betahistine in combination with the Epley maneuver in patients with posterior canal benign paroxysmal positional vertigo: a randomized trial. *Acta Otolaryngol*. 2019;139(3):239-243.
8. Casani AP, Navari E, Parri V, et al. A randomized double-blind comparison of betahistine and dimenhydrinate in the treatment of unilateral vestibular neuritis. *Acta Otolaryngol*. 2015;135(11):1055-1062.
9. Faralli M, Ricci G, Molini E, et al. The efficacy of combining canalith repositioning maneuvers with betahistine in the treatment of posterior canal benign paroxysmal positional vertigo: a randomized study. *Acta Otolaryngol*. 2020;140(1):68-73.
10. Froehling DA, Silverstein MD, Mohr DN, Beatty CW, Offord KP, Ballard DJ. Benign positional vertigo: incidence and prognosis in a population-based study in Olmsted County, Minnesota. *Mayo Clin Proc*. 1991 Jun; 66 (6) :596-601.

11. Parnes LS, Agrawal SK, Atlas J. Diagnosis and management of benign paroxysmal positional vertigo (BPPV). *CMAJ*. 2003;169: 681–93.
12. Lawson J, Johnson I, Bamiou DE, et al. Benign paroxysmal positional vertigo: clinical characteristics of dizzy patients referred to a Falls and Syncope Unit. *QJM*. 2005; 98:357–64.
13. Hilton M, Pinder D. The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *Cochrane Database Syst Rev*. 2004 ;(2):CD003162.
14. Korres S, Balatsouras DG, Ferekidis E. Prognosis of patients with benign paroxysmal positional vertigo treated with repositioning maneuvers. *J Laryngol Otol*. 2006; 120:528–533.
15. Lopez-Escamez JA, Gamiz MJ, Fernandez-Perez A, Gomez- Fin˜ana M. Long-term outcome and health-related quality of life in benign paroxysmal positional vertigo. *Eur Arch Otorhinolaryngol*. 2005; 262:507-511.
16. Dziadziola JK, Laurikainen EL, Rachel JD, Quirk WS. Betahistine increases vestibular blood flow. *OtolaryngolHeadNeck Surg*. 1999; 120:400-405.
17. Laurikainen E, Miller JM, Nuttall AL, Quirk WS. The vascular mechanism of action of betahistine in the ear of the guinea pig. *Eur Arch Otolaryngol*. 1998;255:119-123.
18. Soto E, Chavez H, Vali P, Benvenuti C, Vega R. Betahistine produces post-synaptic inhibition of the excitability of the primary afferent neurons in the vestibular endorgans. *Acta Otolaryngol*. 2001; 545:19-24.
19. Mira E, Guidetti G, Ghilardi L, et al. Betahistinedihydrochloride in the treatment of peripheral vestibular vertigo. *Eur Arch Otorhinolaryngol*. 2003; 260:73- 77.
20. Della Pepa C, Guidetti G, Eandi M. Betahistine in the treatment of vertiginous syndromes: a meta-analysis. *Acta Otolaryngol Ital*. 2006; 26:208-215.
21. Simhardi S, Panda N, Raghunathan M. Efficacy of particle repositioning maneuver in BPPV: a prospective study. *Am J Otolaryngol* 2003; 24:355–60.