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Original Research Article

Comparison Between Efficacy of Epley's Maneuver with Medical Therapy Versus Medical Therapy Alone in Treating BPPV Patients

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Abstract

Aim: To Epley's maneuver with medical therapy versus medical therapy alone in patients with BPPV.

Materials and Methods: This prospective observational study was conducted among the patients attending Department of ENT, ANMMCH, Gaya, Bihar, India, for a period of 12 months.

In this study 100 Patients presenting to OPD who have been diagnosed with BPPV via a Positive Dix Hallpike were randomized into two age and sex matched groups of 25 each: 50 to the group A, and 50 to the group B.

Results: A total of 100 patients were divided into two groups: 50 to the group A which received Epley's maneuver with drug therapy and 50 to the group B which received only drug therapy. In our study, Epley's maneuver with medical therapy was found to be more effective than medicine given alone.

Conclusion: This study shows that the Epley maneuver with medical therapy provides effective and long-term control of symptoms in patients with BPPV. It benefits over medical therapy alone in terms of avoiding the delay in vestibular compensation and recurrence.

Keywords: Epley's maneuver, BPPV patients, medical therapy.

Introduction

Benign paroxysmal positional vertigo (BPPV) is considered to be the most common peripheral vestibular disorder, particularly in the elderly. By the age of 70 years, about 30% of all elderly individuals have experienced BPPV at least once [1]. This condition is characterized by brief attacks of rotatory vertigo and concomitant positioning rotatory-linear nystagmus, which are elicited by rapid changes in the head position relative to gravity.

It is known that BPPV develops in stages: first, the otoconia detach from the utricular matrix, and then they enter into a semi-circular canal when the head assumes a critical position. Furthermore, it has been shown by means of physiomathematical models that the prerequisites for BPPV are: (i) there should be ~62 otoconia

within the semi-circular canal and (ii) these particles have to agglomerate to exert a hydrodynamic effect when moving in the canal [2, 3].

The subjective impression of attack reported by the patient frequently is longer. In most cases of BPPV, no specific etiologic disorder can be identified. The most common known cause was closed head injury, followed by vestibular neuritis. BPPV will eventually develop in nearly 15% of patients suffering from vestibular neuritis. Other cited predisposing events include infections and certain surgical procedures, including stapedectomy and insertion of a cochlear implant [4]. Prolonged bed rest and Meniere's disease [5] also are predisposing factors. Schuknecht observed granular deposits on the cupula of the posterior semi-circular canal in temporal bone specimens and proposed the "cupulolithiasis" theory to explain the pathophysiology.

Otoconia do not because a problem until patient moves in a manner that stimulates the offending semi-circular canal. Patients typically report brief episodes (less than 1 minute) of intense vertigo, usually brought on by lying down, rolling over in bed, or titling the head back. The objective of the Epley's maneuver is to move the debris out of the canal to the utricle.[6]

This study aims to compare the response to Epley's maneuver with medical therapy versus medical therapy alone in patients with BPPV.

Materials & Methods:

This prospective observational study was conducted among the patients attending Department of ENT, ANMMCH, Gaya, Bihar, India, for a period of 12 months. They were followed at the end of 1st week, 1st month and 2nd month.

Inclusion criteria:

Patients with age >20 years and with history suggestive of BPPV and positive Dix-Hallpike maneuver. A Dix- Hallpike maneuver is considered positive when the patient experiences nystagmus but resolves or fatigues in less than 60 seconds.

Exclusion criteria:

Subjects with severe cervical spine disease, known cerebral vascular disease like carotid stenosis, history of Meniere's disease, cardiac complaints and vertigo due to other CNS cases.

Methodology

In this study 100 Patients presenting to OPD who have been diagnosed with BPPV via a Positive Dix Hallpike were randomized into two age and sex matched groups of 25 each: 50 to the group A, and 50 to the group B. Informed written consent was taken.

Each patient in group A was treated with the Epley's maneuver - canalith repositioning maneuver and cinnarizine (25 mg BD). Group B received the more common conventional medication therapy (cinnarizine 25 mg BD) till patient was symptom free. All the patients were followed for 2 months.

Results:

Table 1: Gender profile

Gender	Total n%
Male	35
Female	65

Table 2: Age profile

Age group	Total n%
21 – 30	15
31 – 40	9
41 – 50	15
51 - 60	23
61 - 70	33
>70	5

The median age of the participants was 51 years and mean age was 50 years. Table 2 shows age profile of the patients. Patients from age group 61 to 70 were involved maximum in our study. Majority of patients were from 61-70 years age (33%), followed by 51 – 60 years (23%)

Table 3: Side involved

	Group A	Group B	Total
Left	10	8	36
Right	15	17	64

In our study, right side was found to be more involved than left. Out of 100 patients, Right side was involved in 64 patients and left side was involved in 36 patients.

Table 4: Associated symptoms

Associated symptom	Total n%
Tinnitus	31
Nausea and vomiting	61
Tinnitus, nausea and vomiting	8

Out of 100 patients, 31 had tinnitus, 61 had nausea and vomiting and 8 had tinnitus as well as nausea and vomiting.

Table 5: Comorbidities

Comorbidities	Total
Hypertension	72
Diabetes	28

Out of 100 patients, 72 patients had hypertension and 28 had diabetes.

Table 6: Comparison of efficacy of Epley's maneuver along with medical therapy (group A) and medical therapy alone(group B)

Treatment	Follow up	Group A	Group B	Total	P value
1 st		40	0	40	0.0005
2 nd	1 week	8	38	46	
3 rd	1 month	1	6	7	
4 th	2nd month	1	6	7	
Total		50	50	100	

Among 50 patients from group A, 80% recovered from vertigo immediately after the Epley's maneuver and total 90% patients recovered from vertigo at first

week of follow-up. Out of remaining 2 patients, one patient recovered from vertigo in the second follow-up visit at the end of 1st month and the other at 2nd month follow up.

Among 50 patients from group B, 46patients recovered from vertigo at the end of 1st week and total 6 participants recovered from the vertigo at the end of 1stmonth. Remaining 6 patients recovered at the end of 2nd month.

For these data chi square for linear trend was 10.62, which gave a P-value of 0.0005, which was significant (p value<0.001).

At the end of 2nd month, all 50 patients had recovered from BPPV. The patients were followed for recurrence at the end of 6th month. In our study, total 18 patients had recurrence after 6 months, out of them, only 10% belonged to the group in which epley maneuver was used along with medical therapy whereas 58% belonged to group in which medical therapy was used alone.

Table 7: Duration of usage of cinnarizine (25 mg BD)

Mean duration of usage in weeks	No. of patients	
	Group A	Group B
1 week	45	0
4 week	5	37
8 week	0	13

In our study, cinnarizine 25 mg BD was given in both the groups till symptoms of vertigo subsided. So, it was observed that 90% patients from group A had to use the drug for less than 1 week whereas, 74% patients from group B had used the drug up to 4 weeks and 26% had used it for 8 weeks.

Discussion:

Sugita-Kitajima *et al.*[7]hypothesized that ROM mechanically promotes loosening of the otolithic debris from the cupula and dispersion of the debris into the canal. The fatigability of vertigo in patients with BPPV during individual sessions was too rapid for a habituative central mechanism that required hundreds of repetitions and longer term. The same mechanism was proposed by Brandt *et al.* [8] who reported that positional vertigo resolved within 14 days and who considered the mechanism to be a mechanical loosening and dispersion of otolithic debris from the cupula.

BPPV affects all age groups, though it appears to be more common in the elderly. This condition seems to have a predilection for the older population.[9, 10]

In a randomized study, 90% of patients were either improved or cured after a single session with either Semont's or Epley maneuver [11]. Epley himself reported a success rate of more than90%following a single treatment session. Among 25 case patients, 18 (72%) recovered from vertigo immediately after the Epley maneuver and 23 (92%) patients recovered from vertigo at first week of followup. The remaining 2 case patients recovered from vertigo during second and third follow-up visits, whereas, among 25 control patients, 3 (12%) recovered from vertigo at first follow-up and 19 (76%) participants recovered from the vertigo at third follow-up. This clearly indicates the efficacy of Epley maneuver in treatment of BPPV against the medical therapy.[11]

The dislodgement of otoconia is more common in the elderly, because during lifetime the number and volume of otoliths are progressively reduced and the interconnecting fibers between the otoliths may weaken from age-related reduction of calcium carbonate crystals in the process of demineralization. The result is the separation of the otoconia from the otolithic membrane and free movement within the endolymph. [12]In accordance with our study, Faralli et al. [13] concluded that as age advances, there is a higher rate of paroxysmal positional vertigo as well as worse prognosis, but this is strictly due to the fact that advanced age is also associated with a higher incidence of vascular risk factors. Whereas, Sertac Yetiser et al., in a study of 263 patients, found that BPPV was more common in 30 to 50 age group.[14]

A review of the literature revealed the extremely good results of the Epley maneuver. In one study, the success rate after 1 week was 63.6%, which increased to 72.7% after 2 weeks [15]. One Brazilian study also revealed similar results [16]. A meta-analysis done by Prim-Espada et al. on the efficacy of Epley's maneuver in benign paroxysmal positional vertigo using a critical review of the medical literature concluded that the patients on whom Epley's maneuver was performed had six and half times more chance of their clinical symptoms improving compared to the control group of patients (OR = 6.52; 95% CI, 4.17–10.20) [17]. The efficacy of Epley's maneuver in the treatment of BPPV was assessed in a study of 62 patients conducted by Khatri et al. Patients were selected based on symptoms of positional vertigo and positive Dix-Hallpike's test. At the end of 1 month patients were assessed subjectively by visual analogue scale (VAS) and objectively by Dix-Hallpike's positional test. On VAS, 85.7% of patients had complete resolution of symptoms of BPPV in both groups. Objectively 88.2% did not have positional nystagmus after 1 month in first group, whereas in the second group 86% had complete response at the end of 1 month of therapy [18].

Recently, it has been shown that the side affected by BPPV correlates with the preferred position in bed, In 33 of 45 patients with BPPV of the posterior canal, the side of the involved semicircular canal was the side patients used to lie on. Most patients slept in the right lateral position and had BPPV on the right. [19]

In another study Kaur et al. [20]evaluated BPPV patients in three groups: Epley maneuver alone, Betahistine alone and Betahistine plus Epley maneuver groups. They concluded that concurrent prescription of Betahistine and Epley maneuver is superior to other two options. They have also suggested Betahistine alone as an appropriate alternative treatment for patients who cannot tolerate repositioning maneuvers.[21,22]

Conclusion:

BPPV is common among the elderly and Comorbid conditions do have a role in causative factors.

This study shows that the Epley maneuver with medical therapy provides effective and long-term control of symptoms in patients with BPPV. It benefits over medical therapy alone in terms of avoiding the delay in vestibular compensation and recurrence.

Epley's maneuver can be considered safe and effective bedside procedure for treating benign paroxysmal positional vertigo. Application of Epley's maneuver concurrently with medication also decreases the quantity of anti-vertigo medicine as well as also avoids the delaying of vestibular rehabilitation. So we can conclude that Epley's maneuver is better in reducing the symptoms, and signs

of BPPV when compared to drug therapy alone without any major side effects.

References:

1. Nedzelski JM, Barber HO, McIlmoyl L. Diagnosis in a dizziness unit. J Otolaryngol 1986; 15:101–104.
2. Epley J. Positional vertigo related to semicircular canalithiasis. Otolaryngol Head Neck Surg 1995; 112:154–161.
3. Welling D, Parnes L, O'Brien B. Particulate matter in the posterior semicircular canal. Laryngoscope 1997; 107:90–94.
4. M. Viccaro, P. Mancini, R. La Gamma, E. De Seta, E. Covelli, and R. Filipo, "Positional vertigo and cochlear implantation," Otology & Neurotology, vol. 28, no. 6, pp. 764–767, 2007.
5. E. M. Gross, B. D. Ress, E. S.Viirre, J. R. Nelson, and J. P. Harris, "Intractable benign paroxysmal positional vertigo in patients with Meniere's disease," Laryngoscope, vol. 110, no. 4, pp. 655–659, 2000.
6. Krima Kavathia, Meeta Bathla1, Hiren Doshi1, Hemangi Patel1, Priyanka Bhagat. Comparison between efficacy of Epley's maneuver with medical therapy versus medical therapy alone in treating BPPV patients. IP Journal of Otorhinolaryngology and Allied Science 2020;3(4):120–12.
7. Sugita-Kitajima A, Sato S, Mikami K, Mukaide M, Koizuka I. Does vertigo disappear only by rolling over? Rehabilitation for benign paroxysmal positional vertigo. Acta Otolaryngol 2010; 130:84–88.
8. Brandt T, Steddin S, Daroff R. Therapy for benign paroxysmal positioning vertigo, revisited. Neurology 1994; 44:796–800.
9. R. W. Baloh, V. Honrubia, and K. Jacobson, "Benign positional vertigo: clinical and oculographic features in 240 cases," Neurology, vol. 37, no. 3, pp. 371–378, 1987.
10. E. Marciano and V. Marcelli, "Postural restrictions in labyrintholithiasis," European Archives of Oto-Rhino-Laryngology, vol. 259, no. 5, pp. 262–265, 2002.
11. S. J. Herdman, R. J. Tusa, D. S. Zee, L. R. Proctor, and D. E. Mattox, "Single treatment approaches to benign paroxysmal positional vertigo," Archives of Otolaryngology: Head and Neck Surgery, vol. 119, no. 4, pp. 450–454, 1993.
12. Balatsouras D, Koukoutsis G, Fassolis A, Moukos A, Aspris A. Benign paroxysmal positional vertigo in the elderly: current insights. Clin Interv Aging. 2018; 13:2251–6.
13. Faralli M, Ricci G, Molini E, Bressi T, Simoncelli C, Frenguelli A, et al. Paroxysmal positional vertigo: the role of age as a prognostic factor. Acta Otorhinolaryngol Ital. 2006;26(1):25–31.
14. Yetiser D, Ince D. Demographic analysis of benign paroxysmal positional vertigo as a common public health problem. Ann Med Health Sci Res. 2015;5(1):50–3.
15. Hasibuan, D. A., & Petrus, A. (2021). Character Determination in Elementary School Children of Madrasah Ibtidaiyah Al Jamiyatul Washliyah in 2021 Based on the Fingerprint of Right Hands. Journal of Medical Research and Health Sciences, 4(11), 1545–1550.
16. S. S. U.Waleem, S. M.Malik, S. Ullah, and Z. ul Hassan, "Office management of benign paroxysmal positional vertigo with Epley'smaneuver," Journal of AyubMedical College, Abbottabad, vol. 20, no. 1, pp. 77–79, 2008.
17. De Leo, S. (2021). Effectiveness of the mRNA BNT162b2 vaccine against SARS-CoV-2 severe infections in the Israeli over 60 population: a temporal analysis done by using the national surveillance data: Effectiveness of the

mRNA BNT162b2 vaccine. Journal of Medical Research and Health Sciences, 4(10), 1511–1517.
18. L. J. Teixeira and J. N. P. Machado, “Manoeuvres for the treatment of benign positional paroxysmal vertigo: a systematic review,” Brazilian Journal of Otorhinolaryngology, vol. 72, no. 1, pp. 130–139, 2006.
19. M. P. Prim-Espada, J. I. De Diego-Sastre, and E. P´erez- Fern´andez, “Meta-analysis on the efficacy of Epley’s manoeuvre in benign paroxysmal positional vertigo,” Neurologia, vol. 25, no. 5, pp. 295–299, 2010.
20. M.Khatri, R. M. Raizada, andM. P. Puttewar, “Epley’s can alithrepositioning manoeuvre for benign paroxysmal positional vertigo,” Indian Journal of Otolaryngology and Head and Neck Surgery, vol. 57, no. 4, pp. 315–319, 2005.
21. Lopez-Escámez JA, Gámiz MJ, Fiñana MG, Perez AF, Canet IS. Position in bed is associated with left or right location in benign paroxysmal positional vertigo of the posterior semicircular canal. AmJ Otolaryngol . 2002;23(5):263–6.
22. Kaur J, Shamanna K. Management of Benign Paroxysmal Positional Vertigo: A Comparative Study between Epleys Manouvre and Betahistine. Int Tinnitus J. 2017;21(1):29–33.