

## Efficacy of Canalolith Repositioning Manoeuvre in Posterior Semicircular Canal Benign Paroxysmal Positional Vertigo: A Comparative Study - Epley's Manoeuvre vs Semont's Liberatory Manoeuvre

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### Abstract:

The study was carried out to compare the efficacy of Epley's manoeuvre with that of Semont's manoeuvre in the treatment of Dix Halpike-positive cases of BPPV in the department of ENT, JLNMCH, Bhagalpur Between October 2021 to October 2022. Two groups of 50 patients each were assessed. Weekly canalolith repositioning manoeuvres were done, till they got complete symptomatic relief, with a maximum of 6 sessions and were followed up for 6 months. Their DHI scores were assessed both before and after treatment. Though Epley's manoeuvre has proved its efficacy since ages, we observed that Semont's manoeuvre too had a significant impact on DHI scores and was found to be easily understood by the patient and which helped in its ease of performance. Hence, this study stresses on advocating Semont's liberating manoeuvre, which is much simpler and scientifically efficient in treating BPPV.

**Keywords:** BPPV, Semont's Liberatory Manoeuvre, Epley's manoeuvre, Vertigo.

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### Introduction

Benign Paroxysmal Positional Vertigo (BPPV) being the most common cause of vertigo, with an annual incidence of 10.7 to 140 cases per 1,00,000, makes it significant to conduct a study on manoeuvres done for relief in patients. [1] Posterior canal BPPV (p-BPPV) is the most common variant and constitutes over 60-90% of cases. [2]

P-BPPV can be diagnosed easily, as a good history, examination, and Dix-Hallpike tests (DHT) are sufficient to establish its diagnosis. [3] The DHT is considered to be positive when it causes both vertigo and nystagmus. This form of BPPV is known as objective BPPV (O-BPPV).

The treatment of choice for BPPV is the Epley manoeuvre (EM), a canalolith repositioning manoeuvre, whose effectiveness has been well established. [1,4-6] It has been associated with improved symptomatic relief and decreased disability among BPPV patients. [7,8] It has also been effective in elderly patients [9] and in the long standing disease. [10] though its performance is feasible in primary care set up, we should assess the feasibility of its performance in a tertiary care set up, since most of the studies conducted earlier were in specialized clinical setup. [11]

Semont's manoeuvre is much more simpler canalolith repositioning manoeuvre with lesser studies conducted with it to establish its authenticity. Here, we have tried to assess and compare the efficacies in providing symptomatic relief for patients.

### Aim

In this study we have made an attempt to compare the efficacy of Semont's manoeuvre with that of Epley's manoeuvre for the repositioning of canaloliths.

### Materials and Methods

A comparative study was conducted in the department of ENT, JLNMCH, Bhagalpur from October 2021 to October 2022 in patients with Benign Paroxysmal Positional Vertigo (BPPV). The study was conducted on a total of 100 patients, who were grouped into Groups A and B, with 50 cases in each. Group A cases were treated with Semont's manoeuvre and group B with Epley's manoeuvre.

The patients irrespective of their age, sex and duration of symptoms were included in this study, after a detailed history taking and thorough clinical examination, to exclude any other cause of

peripheral or central vertigo. Those with any comorbidities such as diabetes, hypertension, thyroid dysfunction, anemia, cervical spondylosis or orthostatic hypotension were excluded from this study. We have also excluded those with any history of head injury, stroke, ear discharge, diplopia, severe loss of vision or anxiety disorders. Those who were included in this study had normal otoscopic findings and positive Dix Hallpike’s test, with strong history of positional provocation.

A properly informed written consent was taken from the patients, who were willing to be included in this study. A Dizziness Handicap Inventory(DHI) questionnaire was applied to assess the impact of vertigo or dizziness and dizziness associated handicap in physical, functional and emotional domains of a patient’s life. Later, each of them were evaluated and underwent Dix- Hallpike manoeuvre by a doctor, who was blind of their DHI scores.

**Procedure**

No premedications were given in any of our cases. Epley’s manoeuvre was performed in group A cases and Semont’s liberatory manoeuvre in group

B cases. We waited for 10 min after the manoeuvre was performed. This was to avoid quick spins or brief bursts of vertigo, and not to move head violently to avoid quick spins. Patients were made to lie in semi reclining position while sleeping for the next 48 hours. For at least 1 week, they were advised to avoid provoking head positions that provoked BPPV and to use two pillows at night. They were also asked to avoid sleeping on the affected side and not to turn the head far up or down. At least 1 week after treatment, they were reassured to put themselves in the position that provoked vertigo.

The patients were followed up on a weekly basis for about 6 months and the manoeuvres of the respective groups were repeated if needed. DHI scores were reassessed at the end of 6 months of their first visit and the results were derived.

**Results**

There was a strong female predominance in our study, with about 63% of the patients being females. We also found a peak incidence in the age group of 51 to 70 years, with a mean of  $53 \pm 9.16$  years and a median of 53 years.

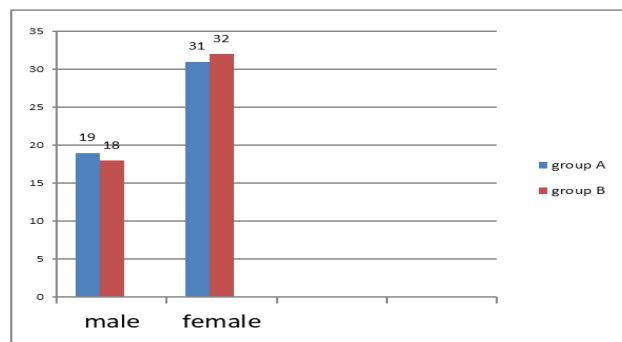


Figure 1: Sex distribution

Table 1: Age wise distribution

Age group	Group A	Group B	Total
31-40 years	9	10	19
41-50 years	11	10	21
51-60 years	17	18	35
61-70 years	13	12	25

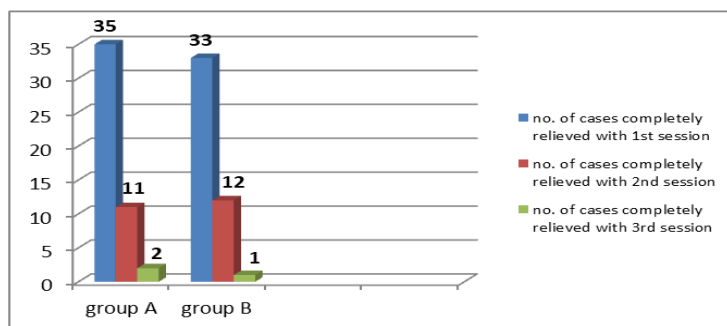


Figure 2: Improvement with each session of canalolith repositioning manoeuvres

In group A, we observed that 35 cases (70%) showed complete relief with one session of Epley’s manoeuvre. 11 patients showed complete relief with the 2<sup>nd</sup> session of Epley’s manoeuvre i.e., 92% showed relief with 2 sessions of Epley’s manoeuvre.

In group B, we observed that 33 patients (66%) got complete relief with the 1<sup>st</sup> session of Semont’s manoeuvre. 12 got relieved with 2 sessions, i.e., about 90% got cured with 2 sessions of Semont’s manoeuvre.

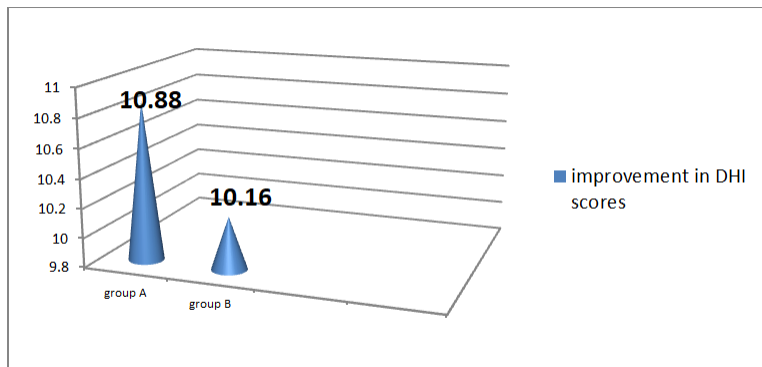


Figure 3: Improvement in DHI Scores

DHI scores improvement were noted and a mean improvement of about  $10.88 \pm 4.59$  in group A and that of  $10.16 \pm 2.32$  in that of group B.

SPSS version 26 was used to analyze the results and we found significant correlation between pre-treatment DHI scores and improvement in DHI scores in both the groups.

Table 2: Statistical analysis

Variable	Group	Total (N)	Mean (pre-treatment)	Mean (post-treatment)	Mean of difference	SD of difference	p- value for pre-treatment vs post-treatment (with Confidence Interval = 95%)
DHI scores	A	50	34.08	23.20	10.88	4.59	0.001
	B	50	34.08	23.00	10.16	2.32	0.001

**Discussion**

In our study, we had a strong female predominance, which was very much resembling to its natural incidence. It was similar to the findings of a study conducted by Gaur S et al in 2015 [12], which had 60% of its cases being females.

In our study we had a mean age incidence of  $51.51 \pm 9.33$  years and a median of 53 years, which was similar to the findings of other studies as well. [13,14]

We also observed an improvement in DHI scores of about 10.88 and 10.16 with Epley’s and Semont’s manoeuvre respectively, which was similar to the findings of studies conducted by Uzdan Uz et al in 2019. (15)

This study also showed significant relief in 70% of cases with Epley’s manoeuvre with single session, which reached to a maximum improvement of about 92%, with 2 sessions, which correlated well with other literatures reviewed. [15]

We found similar findings in group B patients as well, which was very much appreciable, i.e., 66%

of patients got completely relieved with single session of Semont’s manoeuvre, which increased to about 90% with 2 sessions.

We observed that maximum efficacy of these manoeuvres was seen within first 4 sessions, and the efficacy gradually reduced with every single repeat in repositioning manoeuvres. The duration of symptoms in these patients had a significant relation with the efficacy of both Epley’s and Semont’s manoeuvres, which was assessed using improvement in DHI scores.

Similarly, in a study conducted by E Levret et al, maximum improvement was observed with 4 sessions of Semont’s manoeuvre. They also observed a significant relation between duration of symptoms and the symptomatic relief in patients with BPPV, which matched our findings as well [16].

Similar observations were observed in a study conducted on efficacy of Epley’s manoeuvre, by W. Richard et al as well [17].

## Conclusion

From this study, we were able to see better results in patients who presented to us earlier than long standing cases. And even in patient who was Dix Hallpike positive despite 4 sessions of canalolith repositioning manoeuvres, they had shown significant improvements in their DHI scores, which was very much appreciable.

This study showed similar results with both Epley's and Semont's manoeuvres in Dix Hallpike positive BPPV, which favours us to advocate the application of Semont's manoeuvre, in the same authenticity as Epley's as we found it more patient compatible and easy to be performed due to simplicity. We also found it easy for the patients to understand for home exercise in case of acute attacks.

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