ORIGINAL RESEARCH

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THE EFFECTIVENESS OF SEMONT LIBERATORY MANEUVER IN ACUTE BENINGN PAROXYSMAL POSITIONAL VERTIGO PATIENTS

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ABSTRACT

Background: People with vestibular dysfunction complain of problems with balance and dizziness which creates a negative impact on the people and affects their quality of life. Medications help in the control of symptoms. There has been an increase in the implementation of many protocols for the rehabilitation of vestibular patients with follow up exercises for the treatment of BPPV.

Methods: Thirty BPPV patients were identified by doing Dix- Hall pike positioning and their DHI scores were recorded. All patients were exclusively treated with Semont Liberatory maneuver. The effectiveness of the treatment was documented at 1 week and 1 month. Repeated procedures were performed if necessary.

Results: After the treatment session of Semont Liberatory maneuver, the symptoms disappeared in 20 patients and have negative DHI test by 1st week, and of patients have negative DHI test by 1 month. The first success rate was 78% and the total success rate was 89%. Semont Liberatory maneuver also showed decrease in score of DHI [post-test] in 1 month duration. The patient who visited within one week after the onset of symptoms had good prognosis with Semont Liberatory maneuver. This protocol was ineffective in 4 patients.

Conclusion: The Semont Liberatory maneuver is a safe and effective technique for treating BPPV patients.

Key words: Vertigo, Semonts Maneurvr, Dizziness, BPPV.

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INTRODUCTION

Vertigo is a sensation of spinning or whirling; patient experiences or perceives motion due to dysfunction of vestibular system. It is associated with nausea and vomiting and difficulty in standing and walking.

Vertigo is due to peripheral and central vestibular deficits. BPPV is the most common peripheral vestibular disorder. Symptoms include intense spinning of head. There is a relief of symptoms for few minutes and some of it subsides by itself. The definite treatment is needed for the crystals that cause inflammation in the semicircular canals be moved out from semicircular canals to otolith organ.

Medications can be used for symptomatic relief and habituation exercises relieve symptoms for short periods but they are not long lasting. Other treatment maneuvers are based on path physiology, canalith repositioning and Brand Daroff exercises.

The canalith repositioning treatment is based on canalithiasis theory of free floating debris in the semicircular canals[1]. Liberatory maneuver is based on the cupulolithiasis theory[2]. It involves rapidly moving the patient through oppositions designed to dislodge the debris from cupula. The patient must avoid the provoking position and keep the head in an upright position for 1 to 2 nights after treatment. Brand-Daroff's exercises were originally designed to habituate the CNS to the provoking position, but they may act by dislodging debris from the cupula or by causing debris to move out of the canal[3].

Dizziness Handicap Inventory could assist in screening of benign paroxysmal positional vertigo, and found that the items on the DHI appear to be helpful in determining the likelihood of an individual having the diagnosis of BPPV[4].

MATERIALS AND METHODOLOGY

30 subjects were selected for the study. Subjects were chosen from Department of Neurology and Department of Physiotherapy, Narayana Medical College and Hospitals, Nellore, using Non-Randomized sampling method.

The duration of treatment was given for 15 minutes per session, with a review after 1 week and 1 month. Following scales and tests were used for measuring the outcomes: Dix-Hallpike test, Dizziness Handicap Inventory.

Inclusion Criteria

This study was included the age of 45 and 65 years, clinically evident benign paroxysmal positional vertigo patients and acute cases of BPPV i.e. within 3 months of onset.

Exclusion Criteria

Chronic cases of BPPV, non-cooperative patients and mentally unstable patients, patients with cognitive and perceptual problems were excluded from the study.

Ethical Clearance: Subjects are informed about the study and their consent is taken for the participation in the study. Ethical clearance was given by Narayana Medical College and Hospitals, Nellore, India

PROCEDURE

The treatment in this study lasted 30 minutes i.e. 15 minutes to assess the patient and 15 minutes for performing the maneuver. Dix-Hallpike test was done to know the provoking side of vertigo. The patient is seated by the side of the couch; his head is turned 45 degrees to the unaffected side and then asked to lie down on his affected side. Maintain this position for 5 minutes and then without change in his head position, the patient is asked to sit back and then lie down on his unaffected side quickly. Maintain this position for 5-10 minutes and then patient is brought back to sitting. Home advice is given to patient to keep his head in vertical position for 48 hours (including while sleeping) and to avoid the provoking position for 1 week following the treatment. All the subjects were assessed before [pre test] and after [post test] completion of 1 week and then after 30 days of treatment. Each test session includes Dix-Hallpike test, Dizziness Handicap Inventory. For each patient, data obtained prior to the treatment served as control values, and data obtained after 1 week and 30 days served as experimental values.

Data analysis:

Statistical techniques play an extremely important role in planning of good study. In this study the analysis of efficacy of Semont maneuver in the treatment of acute BPPV is made through the scoring procedure of Dizziness Handicap Inventory scale and the success rate of the maneuver was done using Kruskal-Wallis test. For this study 30 subjects of clinically diagnosed Benign Paroxysmal Positional Vertigo are assessed before [pre-test] and after completion of 1 week [post-test] and 30 days [post-test] with Dizziness Handicap Inventory and Dix-Hall pike test. The score of DHI was taken for further analysis.

Mean, standard deviation of all the values were calculated.

The observed differences were tested with the Kruskal-Wallis test at 95% level of significance ($p < 0.05$).

DISCUSSION

The results of this study indicate that patients with acute benign paroxysmal positional vertigo benefited from Semont Liberatory Maneuver.

Table-1

DHI SCORES

	Pre-test	7th day	30th day
Minimum score	54	20	8
Maximum score	90	78	70
Mean	71.733	39.4667	17.9
Standard deviation	10.7	15.77	11.12

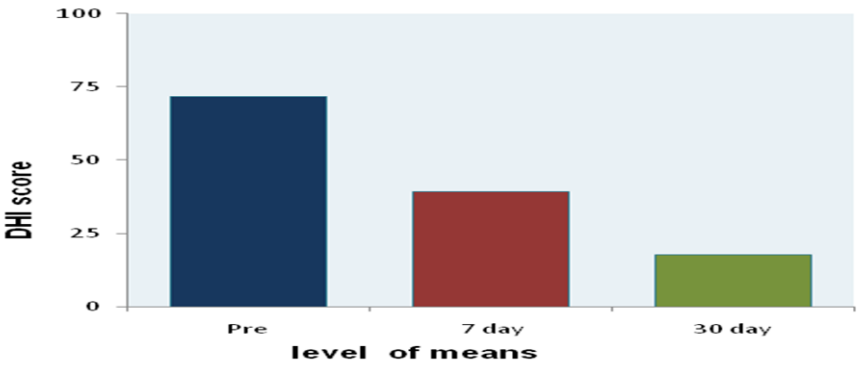
Table-2

DUNN'S MULTIPLE COMPARISON TEST

Pre VS 7th day	P < 0.001
Pre VS 30th day	P < 0.001
7th VS 30th day	P < 0.001

Graph-1

Effectiveness of Semont Maneuver



RESULTS

In this study all the subjects had a mean age of 54.3 years and had benign paroxysmal positional vertigo from about 5.3 weeks. All the subjects when tested before the treatment [pre test] of the study had Dix-Hallpike test positive. After the single treatment session of Semont maneuver among 30 patients the symptoms disappeared in 20 patients and have negative DH test by 7th weak, and 26 patients have negative DH test by 1 month. The first success rate was 67% and the total success rate was 87%. The mean value of Dizziness Handicap Inventory score for all the subjects in the pre test was 71.73, which was decreased to 39.46 on the 7th day after the treatment, and 17.9 on the 30th day in the post test. Kruskal-Wallis test is applied for these values and the p value is about 0.0001 thus the results showing the pre test and post test values are statistically significant.

About 20 Patients showed immediate result by 1 week after the treatment and the remaining 6 patients showed negative Dix-Hallpike test by 1 month and 4 patients did not showed much improvement. The dizziness handicap also decreased significantly after 1 month of the treatment session[5].

Different maneuvers have proven effective in relieving the symptoms BPPV, however studies compared effectiveness of these maneuvers with the Semont maneuver have not shown significant differences in the rates of patient recovery.

Semont maneuver was actually based on cupulolithiasis theory and can be used for repositioning of free floating particles in posterior canal toward utricle.

Results show that most patients are cured after only 2 Semont maneuvers and that ensuing maneuvers only slightly improve (6.8%) the global recovery rate. Nevertheless, this supplementary

recovery rate, apparently weak, represents 41.3% (19/46) of patients not cured after the first 2 maneuvers. It is, therefore, well worth the effort to repeat the maneuver several times.

Conceptually, the probability of recovery could be the same for each Semont maneuver repeated on any given patient. However, it is noted that generally the more one repeats the maneuver the poorer the probability that the maneuver leads to recovery.

Results obtained in this study support the hypothesis that, within any given category of patients, this decrease appears constant (represented by α in the model). However, some categories have and that is not significantly different from 1, ie, no decrease in efficacy.

Results show that most patients are cured after only 2 Semont maneuvers and that ensuing maneuvers only slightly improve (6.8%) the global recovery rate. Nevertheless, this supplementary recovery rate, apparently weak, represents 41.3% (19/46) of patients not cured after the first 2 maneuvers. It is, therefore, well worth the effort to repeat the maneuver several times. Conceptually, the probability of recovery could be the same for each Semont maneuver repeated on any given patient. However, it is noted that generally the more one repeats the maneuver the poorer the probability that the man.

On the other hand, the large group of patients who consulted within 1 week after the beginning of symptoms had a very good prognosis of healing (97.4%), because the probability of success remains the same at each maneuver[6]. For those patients in whom the prognosis is not excellent with the Semont maneuver, it may be indicated to replace this Liberatory maneuver with an alternate treatment, as suggested by some authors.

The greater prevalence of women (2:1) among patients with BPPV, as well as the higher prevalence of women among patients with idiopathic BPPV (2.3:1), has been previously reported in the literature[7]. The hypothesis of a hormonal effect on the formation of endolymphatic deposits, especially postmenopausal, has been proposed but, again, has never been demons

CONCLUSION

Semont Liberatory Maneuver is an effective treatment for BPPV curing 26 patients i.e. about 87% in 1 month duration and 20 patients i.e. about 67% within 1 week only. Dizziness handicap inventory is an important scale used to know the handicap caused by dizziness[8]. Semont maneuver also showed decrease in score of DHI post-test in 1 month duration. The patients visited within 1 week after the onset of symptoms have good prognosis with Semont maneuver.

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