CANAL REPOSITIONING MANEUVER AS A SOLE TREATMENT FOR BENIGN PAROXYSMAL POSITIONAL VERTIGO

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ABSTRACT

Objective: To determine the effects of Epley's maneuver as a single line treatment of Benign paroxysmal positional vertigo (BPPV).

Material and Methods: This study was conducted in New Medical Center hospital Dubai from 1st June 2010 to 30th May 2011. A total no of 32 patients were included in this study, with age ranged from 28 to 63 years.

Results: In our study out of 32 patients 19 (59.3%) were female and 13 (40.7%) were male. 20 patients were presented with in first 48 hours of symptoms while remaining 12 presented in 1st week. All patients were subjected to Dix-Hallpike positional testing, and positive cases were treated by canal repositioning maneuver (Epley's maneuver). 21 (65.62%) patients symptomatically improved in first 24hrs, while 11 (34%) patients were subjected to 2nd maneuver after 48 hours. 3 (9.37%) patients were advised rehabilitation exercises on 3rd follow up later after 2 separate sessions of canal repositioning maneuver. All patients were on strict advise for post maneuver restrictions.

Conclusion: Repositioning treatments appear to be efficacious, regardless of minor differences among maneuvers. Thus minor variations in techniques may not substantially influence the outcome of treatment, and the clinician can be confident in using repositioning treatments with a wide variety of patients.

Keywords: Vertigo, Benign paroxysmal positional. Epley's maneuver

INTRODUCTION:

Benign paroxysmal positional vertigo (BPPV) initially described by Adler is the most common human labyrinthopathy and comprises approximately 17% of patients with complaint of dizziness^{1,2}. Benign positional vertigo is one of the most common peripheral vestibular disorders. Typical BPPV is characterized by rotational vertigo of less than one minute duration brought on by changes in head position.

Dix and Hallpike³ labeled this symptom complex, Benign paroxysmal positional vertigo and described the provocative diagnostic maneuver. Usually patients present with episodes of vertigo and nystagmus that are enhanced by changes in head position⁴. Usually spell remains for 10-30

seconds associated with nausea, light headedness and balance difficulties. Although the condition is referred as benign, the impact on the patient can be debilitating. In old age ramifications of BPPV are most severe and results in serious injury due to fall.

In 1988 Sement et al reported a series of novel head movements intended, to free cupular debris, thereby alleviating vertiginous symptoms. This maneuver based on the theory of cupulolithiasis was found to be 84 -94% effective following one and two maneuver.

Epley, in 1992 described another maneuver based on canalolithiasis along with head movements. Canal repositioning was initially described in conjunction with mastoid vibration, postural restriction, and limitation of head movements.

Epley's reposition maneuver Epley's developed the canalith repositioning procedure (CRP) based on the theory of canalithiasis. The affected posterior semicircular canal is identified by the Hallpike maneuver and the latency and duration of the nystagmus is noted in order to determine the timing of the procedure. The patient is set on the table and brought down with the head turned by 45° the affected side and extended over the edge of the table. The head is then turned 90° to the opposite side. This is followed by rotating the head and the body, 90° facing downward (135° from the supine position), and patient is next brought to the sitting position with the head turned 45° to the unaffected side. The CRP finishes with the patient in the sitting position and the head turned forward 20°. Epley's advocated the manure until there is no nystagmus or no progress made in the last two cycles⁵.

MATERIAL AND METHODS

This study was conducted in NMC hospital Dubai from 1st June 2010 to 30th May 2011. A total no of 32 patients were included in this study, with age ranges from 28 to 63 years. All diagnoses were based on detailed history, clinical examination and objective diagnostic testing. Every subject had a unilaterally positive Dix-Hallpike test with nystagmus. Subjects with lateral canal involved had unilateral, positive response to positional tests lying on the involved side. Patients with cervical neck problem, unstable heart or on vestibular sedative medication were excluded from this study.

RESULTS

In our study out of 32 patients 19 (59.3%) were female and 13 (40%) were male. 20 patients were presented with in first 48 hours of symptoms while remaining 12 presented in 1st week. All patients were subjected to Dix-Hallpike positional testing, and positive cases were treated by canal positioning maneuver (Epley maneuver). 21 (65.62%) patients symptomatically improved in first 24hrs, while 11 (34%) patients were subjected to 2nd maneuver after 48 hours. 3 (9.37%) patients were advised rehabilitation exercises on 3rd

follow up later after 2 separate sessions of canal repositioning maneuver. All patients were on strict advised for post maneuver restrictions. Special instructions about sleep position and head movements were advised. Mastoid bone oscillation were performed on all patients.

None of the patient in this study group received medication. All patients gave informed consent for canal repositioning exercise.

DISCUSSION

Epley's maneuver is used to clear the affected semicircular canal from mobile particles by set of five successive head positions that are hand guided by a therapist.

In our study, 21 (65%) of patients were relieved by initial canal repositioning maneuver, and on first physical follow up there was no nystagmus on positional testing. Vannucchi et al explained canal repositioning maneuver as one of the primary treatment in his series.^{6,7} Yimtae K in his randomized trial subjected the patients to canal repositioning as single line treatment option and confirmed the efficacy as much as 80% success⁸.

11 patients remained with symptoms and positive nystagmus on positional testing, were subjected to second Epley maneuver. 3 cases remained with symptoms on 3rd follow up were advised rehabilitation exercises, same as in Cohen study⁹. First follow up was done on telephone in 24hrs, 2nd follow up was physical on 48hrs. 3rd follow up was also physical and on 7th day. On 2nd and 3rd follow up apart from patient well being explained by patient himself, we performed the Dix-Hallpike maneuver were performed twice in rapid succession before being rated as negative. Patients remained with symptoms were subjected to second canal repositioning maneuver. Froehling D A in his trial has 57% success on initial canal repositioning maneuver compared to our data in which 65% of the patient's benefited¹⁰.

Welling DB et al in their review of particle repositioning maneuver for BPPV suggested that repeating Epley's maneuver during one session

increases its effectiveness and recorded that 57% of patients required more than one Epley's maneuver to convert the Dix-Hallpike test to negative at the initial treatment¹¹.

Gordon C R described successful treatment as the absence of positional vertigo and nystagmus on positional testing¹². Early assessment of outcome immediately after treatment was not attempted, as the well known phenomenon of a fatiguing response after repeated positioning can mimic successful treatment.

In our study all cases with canal repositioning exercise, mastoid bone oscillation was done with tuning fork or simple fingers tapping method. In literature some physicians advocated the use of a mastoid bone oscillator during the repositioning manoeuvre to assist with freeing trapped otoconia and facilitate their movement through the semicircular canals. The use of mastoid vibration during repositioning increase the success rate from 60% (in the non vibration group) to 92% (in the vibration group). Hain Tc, et, all contrary to other physicians suggested that vibration and postural restrictions do not influence effectiveness¹³.

We found mixed results regarding the advantage of adding mastoid bone oscillation. Asawavichianginda S stated in his trial that ultimately, its a matter of physician preference to perform bone oscillation¹⁴. The success of canalith repositioning is measured by the patient's subjective report of resolution of symptoms and the physician's objective observation of the disappearance of nystagmus.

All our patients were advised strict post manoeuvre restrictions of head movement to effective side for 1 week. In the review of the literature studies conclude that postural restrictions do not increase the efficacy of the canal repositioning manoeuvre despite the fact that patients report a subjective improvement after post procedural instructions.¹⁵

CONCLUSION

Canal repositioning maneuvers is a simple office based procedure. There are minor differences among maneuvers. These minor variations in

techniques may not substantially influence the outcome of treatment. Efficacy of the canalith repositioning maneuvers is favored by most physicians for its early outcome and patient satisfaction.

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