ORIGINAL ARTICLE

COMPARISON OF EPLEY’S MANOEUVRE WITH AND WITHOUT BETA HISTIDINE THERAPY IN RELIEVING VERTIGO IN BENIGN PAROXYSMAL POSITIONAL VERTIGO (P-BPPV) PATIENTS
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ABSTRACT: INTRODUCTION: Benign paroxysmal positioning vertigo (BPPV) is a disorder characterized by brief attacks of vertigo, with associated nystagmus, precipitated by certain changes in head position with respect to gravity.¹ It is the most common cause of the syndrome of provoked vertigo. Our study is to determine the role of the manoeuvres in BPPV and to study the efficacy of the manoeuvres in BPPV. AIM AND OBJECTIVE: The role and efficacy of Epley’s canalith repositioning manoeuvre in the treatment of posterior canal BPPV. METHODOLOGY: this interventional study of 60 patients between age 30-70 years were selected randomly based on symptoms of positional vertigo and positive Dix-Hallpike’s positional test. Patients were divided into two study groups’ first group comprising 30 patients who underwent epley’s manoeuvre alone whereas second group comprising of 30 patients underwent epley’s manoeuvre with betahistidine therapy. The outcome of study was assessed at the end of 4 weeks and 3 months respectively subjectively with Visual Analog Scale (VAS) and Dizziness Handicap Inventory Survey (DHI) and objectively by Dix-Hallpike’s positional test. RESULTS: There is no significant difference between the two scores of the subjects with Beta histidine and without Beta histidine because p-value is 0.794. This shows that Epley’s manoeuvre the best treatment modality for the subjects in relieving vertigo in benign paroxysmal positional vertigo which is noninvasive and inexpensive. CONCLUSION: there was no difference in subjective and objective parameters between the two study groups. KEYWORDS: Epley’s manoeuvre, Patients, Benign paroxysmal positioning vertigo.

INTRODUCTION: Benign Paroxysmal Positioning Vertigo (BPPV) is a disorder characterized by brief attacks of vertigo, with associated nystagmus, precipitated by certain changes in head position with respect to gravity.¹ It is the most common cause of the syndrome of provoked vertigo. Barany first described this condition in 1921. Dix and Hallpike, further defined the syndrome and coined the term ‘Benign paroxysmal positioning vertigo’. They also identified correctly the under most ear as the ear causing rotatory nystagmus, which is characteristic of BPPV.

BPPV occurs due to the inappropriate stimulation of Semi Circular Canal(SCC) hair cells, in response to changes in head position with respect to gravity, by sequestered otoconia.² Otoconia are crystals of calcium carbonate that are normally found embedded in the gelatinous otolithic membranes of the utricle and saccule.³ If free floating otoconia find their way into the duct of an SCC (canalolithiasis) or attach themselves to the cupula of an SCC(cupulolithiasis), changes in
head position in the plane of that SCC will result in displacement of the cupula, either directly in the case of cupulolithiasis or indirectly by altering endolymphatic fluid pressure in the case of canalolithiasis. The cupular displacement results in vertigo and nystagmus in the plane of stimulated SCC. In cases where the otoconia are in the posterior or anterior SCC, the nystagmus will be vertical – torsional. In contrast the nystagmus will be horizontal in case of lateral SCC. The majority of cases have posterior SCC BPPV, while about 15% have the lateral SCC variant. The anterior (superior) SCC variant is rare.

BPPV can be treated effectively by relocating otoconia from the SCC duct into the vestibule by using different repositioning manoeuvres. However there are different manoeuvres in use for repositioning and only few studies have been done so far to compare the efficacy of each. Our study is to determine the role of the manoeuvres in BPPV and to study the efficacy of the manoeuvres in BPPV.

**MATERIALS AND METHODS:** This study was done on patients presenting to ENT department of A. J. Institute of Medical Sciences Mangalore between June 2013-July 2014. Study group consists of 2 groups of adults (Age group 30-70years) with 30 individuals in each study group.

Adults between age groups of 30-70 years presenting to ENT outpatient department with history of brief recurrent history of vertigo that occur following certain changes in head position with respect to gravity. The vertigo worsens while getting in or out of bed, pitching the head forwards while bending over or pitching head backwards while looking up. Each episode of vertigo lasted for 10-20seconds. The vertigo lasting for intense and accompanied by nausea and occasional vomiting. Patients who are constantly dizzy. Patients with posterior canal BPPV, who are positive Dix–Hallpike manouvre with nystagmus lasting less than 60seconds, fatigability of the nystagmus on repeated Dix-Hallpike’s positional test and normal study in Pure Tone Audiometry (PTA) will be randomly recruited into 2 study groups (30 each). Positive Dix-Hallpike manouvre for posterior canal disease is defined by the presence of up beating and torsional nystagmus with the top pole of rotation beating toward the affected (downside) ear. After explaining the procedure and obtaining informed consent each participant will be recruited into study group.

**Exclusion Criteria:** Adults suffering from cervical spondylosis, multiple canal disease, inner ear disease and vertigo caused by CNS lesions.

**PRE-TREATMENT ASSESSMENT:** All cases underwent a detailed clinical history with special reference to cochlea-vestibular symptoms and other systemic illness (Like diabetes, hypertension). A complete physical examination (Sitting, standing and lying down blood pressure was also recorded) was done along with ear, nose and throat examination (Ophthalmological and neurological consultation was done whenever indicated). Complete hemogram, Renal function test, RBS (FBS and PPBS was done if indicated), serum electrolyte and urine analysis was done. X-ray cervical spine-anteroposterior and lateral views was done in all cases to rule out cervical spondylosis. X-ray mastoid was taken wherever indicated. Bithermal caloric test was done in all cases.
TREATMENT: The objective of the Epley’s manoeuvre, which is noninvasive, inexpensive and easily administered is to move the circulating otoconia (canaliths) from the p-SCC to the utricle.

EPLEY’S CANALOLITH REPOSITIONING MANOUEVR: Particle repositioning manoeuvre (Right ear). Scheme of patient and concurrent movement of posterior/superior semicircular canals and utricle. (A) Patient seated on table as viewed from the right side. The remaining parts show the sequential head and body positions of a patient lying down as viewed from the top. Before moving the patient into position B, turn the head 45 to the side being treated (in this case it would be the right side). (B) Patient in normal Hallpike head – hanging position. Particles gravitate in ampullofugal direction and induce utriculofugalcupular displacement and subsequent counterclockwise rotatorynystagmus. Position is maintained for 1-2 minutes. Head is then rotated toward the opposite side with the neck in full extension through position (C) and into position (D) in a steady motion by rolling the patient onto the opposite lateral side. The change from position B to D should take no longer than 3-4 seconds. Particles continue gravitating in ampullofugal direction through common crus into utricle. Eyes are immediately observed for nystagmus. Position (D) is maintained for another 1-2 minutes, and the patient sits back up to position (A). Legend-(D), direction of view of labyrinth; dark circle, position of particle conglomerate; open circle, previous position.

RESULTS AND DISCUSSION:

| Parameter                          | Number | Mean  | Std. Deviation | Std. Error mean |
|------------------------------------|--------|-------|----------------|-----------------|
| Vas score with Beta histidine      | 30     | 8.15  | 0.74           | 0.1666          |
| Vas score without Beta histidine   | 30     | 8.1   | 0.85           | 0.1906          |
| DHI score with Beta histidine      | 30     | 88.30 | 4.95           | 1.10            |
| DHI score without Beta histidine   | 30     | 87.9  | 4.96           | 1.10            |

Table 1: Descriptive values of the study subjects

The above tables show the mean SD and SEM value of Vas score with Beta histidine and Vas score without Beta histidine. The above tables also show the mean SD and SEM value of DHI score with Beta histidine and DHI score without Beta histidine.

| Parameter                          | Mean | Std. Deviation | Std. Error mean | t-test | P-value |
|------------------------------------|------|----------------|-----------------|--------|---------|
| Vas score with Beta histidine vs Vas score without Beta histidine | 0.0500 | 0.7592         | 0.1698         | 0.295  | 0.772   |

Table 2: The following table shows the T-test of the Vas score with and without Beta histidine
Table 3: The following table shows the T-test of the DHI score with and without Beta histidine.

| Parameter                                        | Mean | Std. Deviation | Std. Error mean | t-test | P-value |
|--------------------------------------------------|------|----------------|-----------------|--------|---------|
| DHI score with Beta histidine vs DHI score without Beta histidine | 0.400 | 6.76           | 1.51            | 0.265  | 0.794   |

There is no significant difference between the two scores of the subjects with Beta histidine and without Beta histidine because p-value is 0.794 & 0.772. This shows that Epley’s manoeuvre best treatment modality for the subjects in relieving vertigo in benign paroxysmal positional vertigo which is noninvasive and inexpensive.

**CONCLUSION:** There was no difference in subjective and objective parameters between the two study groups. Epley’s manoeuvre is the best treatment of choice for the subjects in relieving vertigo in benign paroxysmal positional vertigo which is noninvasive and inexpensive. The role of Beta histidine was minimal in the treatment BPPV.

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