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Original Research Article

Treatment response of Epley's manoeuvre in the management of posterior semicircular canal benign paroxysmal positional vertigo

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ABSTRACT

Background: Benign paroxysmal positional vertigo (BPPV) is the most common reason for vertigo. Most common site of BPPV is posterior semicircular canal. The commonest symptom is episodic vertigo. This study aimed at the treatment response of Epley's manoeuvre for posterior semicircular canal BPPV.
Methods: 87 patients out of 114 were enrolled for the study from 2020 to 2021. After proper history and examination, Dix-Hallpike test (DHT) was done for diagnosis. Epley's manoeuvre was done at first visit and was repeated at subsequent visits.
Results: The mean age of the patients was 54 years. In this study, out of total 87 patients, there were 59 females (67.82%) and 28 males (32.18%). The male to female ratio was 1:2.11. Out of 87 patients, 53 patients (60.92%) recovered in the first visit, 18 patients (20.69%) recovered in second visit, 11 patients (12.64%) recovered in the third visit and remaining 5 patients (5.75%) recovered in fourth visit. In 3 out of 87 cases, that is, in 3.45%, recurrence was seen with return of the BPPV symptoms.
Conclusions: Treatment response of Epley's manoeuvre in posterior semicircular canal BPPV is good. Maximum number of patients' recovered in the first visit.

Keywords: BPPV, Posterior semicircular canal, Epley's manoeuvre

INTRODUCTION

The most common reason for vertigo is BPPV with an estimated lifetime prevalence of 2.4%.[1,2] It has a typical history and can be simply diagnosed on examination.[3] Barany in 1921 first described positional vertigo.[3] In 1952, Dix and Hallpike gave this term BPPV due to its non-cancerous (benign) origin and momentary (paroxysmal) bursts of intense vertigo upon head movements (positional).[4] It is now generally accepted that BPPV is a peripheral vestibular disorder.[5] The commonest symptom is episodic vertigo which is self-limiting and its duration is less than 30 seconds.5-7 There is a brief time period of latency between head positioning and nystagmus.[8]

There are two theories regarding the pathophysiology of BPPV. One is the theory is of cupulolithiasis suggested by Schuknecht which proposed that degenerative otoconia stick to the cupula and make it gravity sensitive.[3,9] The other theory is of canalolithiasis which identifies free-floating particles within the lumen of the semicircular canal as the root cause.[3,10] The abnormal signal arises when gravity draws the particles through the endolymph canal generating a hydrodynamic plunger-like effect which leads to ipsidirectional cupular displacement.[3,10]

Most common site of BPPV is posterior semicircular canal, then horizontal semicircular canal (less often) and anterior semicircular canal (rarely).[3,11] Prevalence found in posterior, horizontal and anterior is 93%, 5% and 2%

respectively.[1,12] In this study, the treatment response of Epley's manoeuvre was observed in posterior semicircular canal BPPV patients and relevant inferences were drawn.

METHODS

The study was carried out in the department of ENT, GMC Jammu from August 2020 to September 2021. The nature of the study was prospective. 87 patients out of 114, who visited the department, were included in this study after applying inclusion and exclusion criteria. A sample size of 87 was obtained by using statistical software at 95% confidence interval and 5% permissible error. Inclusion criteria were patient with a history of momentary positional vertigo and classic response to Dix-Hallpike manoeuvre. Exclusion criteria were patient with hearing or vestibular disturbances, neurological abnormality, cervical spondylosis, metabolic diseases. Proper informed consent was taken before hand.

Thorough physical, neurological and otological examination of every patient was done. If required, pure tone audiometry, computed tomography, brainstem evoked response audiometry, magnetic response audiometry was done to rule out other diseases. In all the cases, there were history and features typical of BPPV.

For diagnosis, DHT, a gold standard test was done at the first visit to diagnose BPPV and at subsequent visits to ensure recovery. The patient was asked to lay down in supine posture upon a couch with head just over its end. The head was then lowered 30 degrees below the level of the couch and turned 30º to 45º to one side. Patient was asked to keep his eyes on the examiner's forehead. After a marked latent period, rotatory nystagmus was observed with its direction towards the under most ear.[4,13,14] Supine roll test was done, if required to rule out horizontal canal BPPV.

Epley's manoeuvre was done and patient's response was noticed. Epley's manoeuvre is a safe, simple and effective treatment for posterior semicircular canal BPPV, even more than vestibular rehabilitation.[15-18] Epley (1992) developed a canalith repositioning manoeuvre, which was a five-position cycle based on theory of canalolithiasis, is described as follows. The posterior semicircular canal that was affected was recognized by Dix-Hallpike manoeuvre. Patient was asked to sit on a couch with head turned 45º to the affected side. Patient was brought down rapidly with head still rotated 45º to the affected side and extended over the border of the table and neck was well supported. Head was rotated 90º to the opposite side, followed by body rotation 90º. Head was the further rotated 90º so that patient was gazing diagonally downwards. Legs were then positioned over the side of the table in anticipation of return to a seated position. Patient was then asked to sit with head rotated forward 20º.[3,19]

Manoeuvre was repeated at weekly visits and the numbers of visits required by each patient required were noted. The manoeuvre was repeated even if the symptoms persisted after the first visit because a previous study advocated an encouraging effect of various sessions for posterior semicircular canal BPPV patients who were not entirely clear of symptoms after the first sitting.[20] Patients were followed up to 3 months to look for the recurrence.

In the research paper, the data obtained was expressed in mean and percentages. Statistical analysis was performed by using statistical package IBM SPSS 21.

RESULTS

87 cases, diagnosed as posterior semicircular canal BPPV were enrolled for the present study after proper consent and explanation regarding the need for the study.

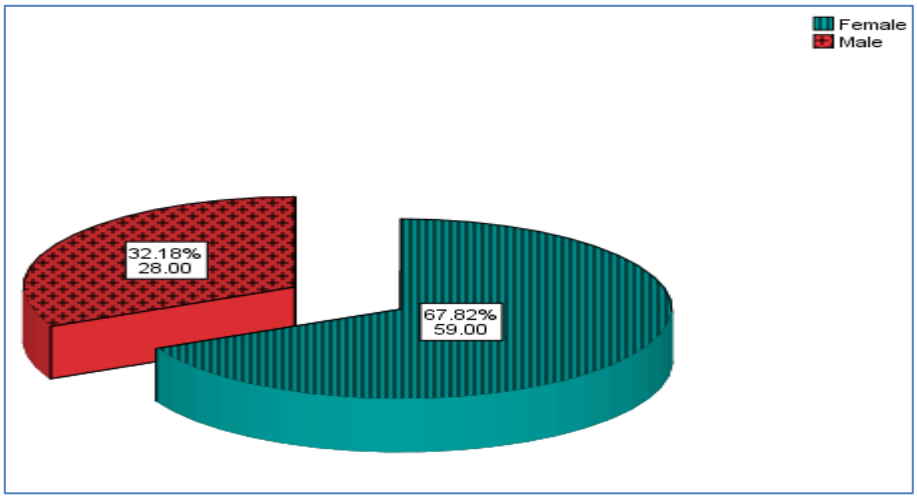

Figure 1: Number and percentage of males and females.

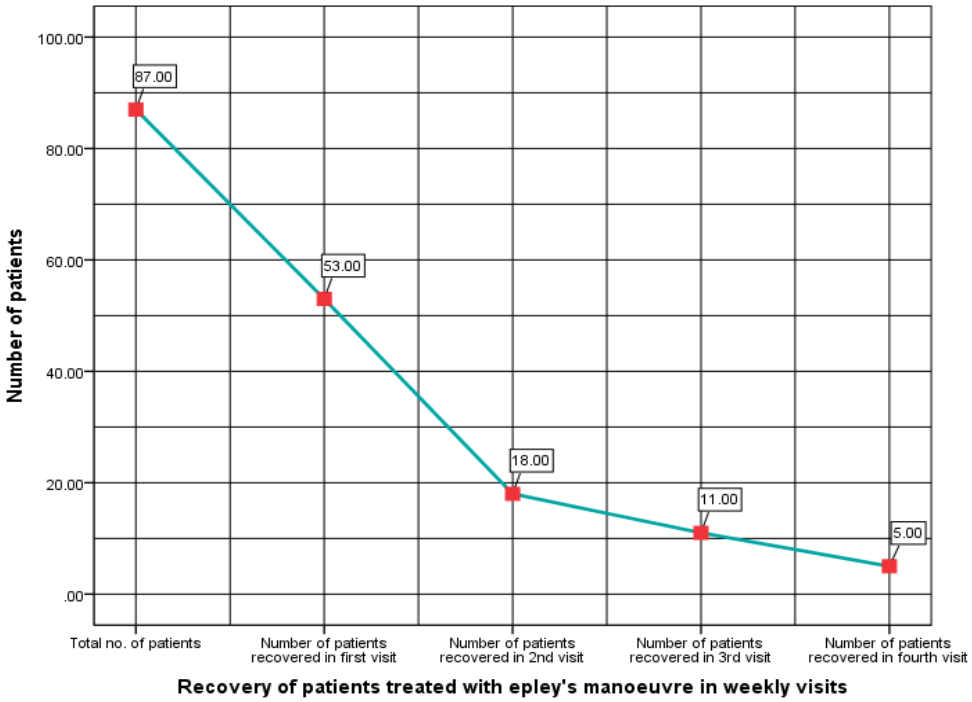

Figure 2: Recovery of patients treated with Epley's manoeuvre in the weekly visits.

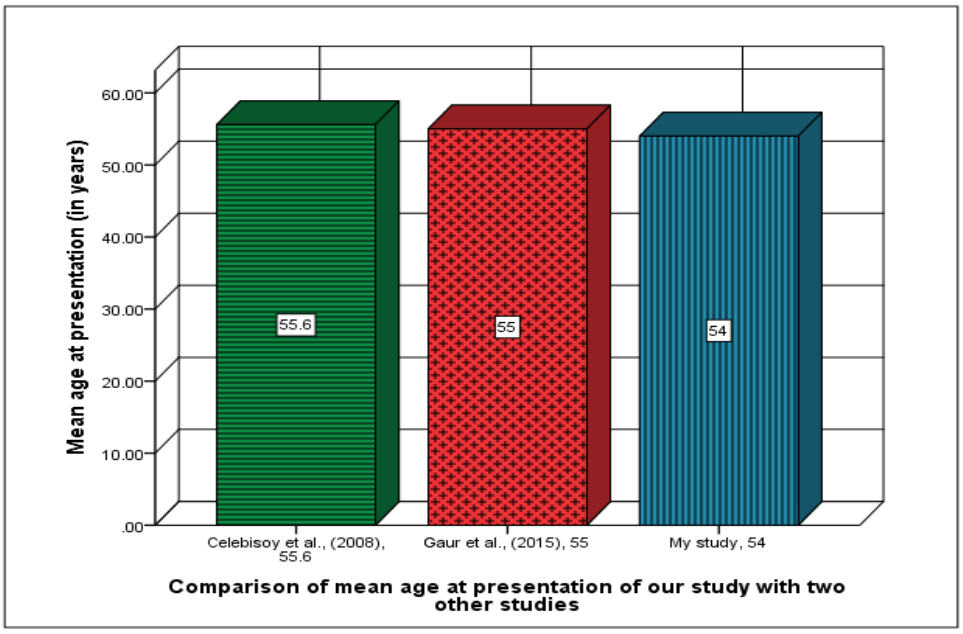

Figure 3: Mean age of presentation of this paper and two other similar studies.

The mean age of the patients was 54 years. In this study, out of 87, there were 59 females (67.82%) and 28 males (32.18%). The male to female ratio was 1:2.11 (Figure 1).

Out of 87 patients, 53 patients (60.92%) recovered in the first visit, 18 patients (20.69%) recovered in second visit, 11 patients (12.64%) recovered in the third visit and remaining 5 patients (5.75%) recovered in fourth visit. All the patients recovered eventually (Figure 2).

In 3 out of 87 cases, that is, in 3.45%, recurrence was seen with return of the BPPV symptoms.

DISCUSSION

In this study, the mean age of patients affected with posterior canal BPPV was 54 years. In previous studies, mean age was found to be 55.6 years and 55 years

(Figure 3).[21,22] There was no statistical significant difference between ages (p=0.001).

In this study, a predilection of the disease towards women was seen as there were 67.82% females and 32.12% males with a male to female ratio of 1:2.11. In previous studies, 60% of the participants were females and female to male ratio was 2:1.[22,23]

In this study, 53 patients (60.92%) recovered in the first visit, 18 patients (20.69%) got well in second visit, 11 patients (12.64%) got better in the third visit and remaining 5 patients (5.75%) recovered in fourth visit. While a previous study showed that 72% recovered from vertigo at once following the Epley's manoeuvre, 92% patients improved at first week of follow up and remaining 2 case patients recovered from vertigo during the second and third follow up respectively in case group with 25 patients, whereas, among 25 control patients, 12% recovered from vertigo at first follow up and 76% participants recovered from the vertigo at third follow up.[22]

In this study, recurrence was seen in 3 out of 87 cases (3.45%). 12% of the cases were found to be recurrent in a previous study.[24] The difference in the rates can be attributed to the duration of follow up which was only 3 months in our study while there was a minimum follow up of 6 months in the later. One study showed that after treatment, there was a 15% recurrence of BPPV symptoms per year and by 40 months up to 50% of patients had recurrence of positional provoked vertigo which led to the inference that with the length of follow up, the rate of recurrence increases.[25]

Limitation

Recurrence rate was less in our study due to smaller follow up period since it was being shown in previous studies that the rate of recurrence raises with the extent of follow up.

CONCLUSION

We concluded that the maximum number of patients recovered within the first visit. Patients presenting with recurrence were less probably due to the shorter period of follow up..

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