THINK INDIA JOURNAL

ISSN:0971-1260
Vol-22-Issue-37-December -2019

Management of a patient with posterior canal Benign Paroxysmal Position Vertigo using Semont method and Brandt Daroff Exercise: A case report

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Abstract

Background: Dizziness is the primary complaint of patients which reports vertigo, heaviness and altered balance. Benign paroxysmal positional vertigo (BPPV) is the most central cause of dizziness. BPPV is characterized by brief vertiginous or spinning sensations elicited by head movements, typically in the vertical or horizontal planes. BPPV is usually treated conservatively using various physiotherapeutic techniques. Patient education, Semont manoeuvre (SM) and Brandt Daroff exercise have not been used in combination in patients with posterior canal BPPV (PBPPV)

Case Presentation: The case was of 46 years female presented with complaints of spinning sensation that last for less than 30-40 sec. She describes it as a sudden and severe spinning sensation which last for 30-40 seconds. Symptoms are precipitated by rolling over in bed on to her right sided. Dix Hallpike was positive in the patient.

Conclusion: Semont manoeuvre and Brandt and Daroff exercises were effective in subjective feeling of vertigo and there no recurrence in the next 30 days.

Key Words: Semont manoeuvre, Brandt and Daroff exercises, Benign paroxysmal positional vertigo, Dizziness, Vertigo

List of Abbreviations:

BPPV- Benign paroxysmal positional vertigo

SM- Semont manoeuvre

PBBPV- Posterior canal paroxysmal positional vertigo

SSCs- Semi circular canals

ISSN:0971-1260
Vol-22-Issue-37-December -2019

Background

Dizziness is the primary complaint of patients which reports vertigo, heaviness and altered balance[1]. Dizziness is a prevalent problem which often goes undiagnosed (2). Traditionally dizziness is divided into four categories: vertigo, presyncope, disequilibrium, and light headedness (1). In large population-based studies, Dizziness (including vertigo) affects about 15% to over 20% of adults per year (3). In 17-42% of patients presenting with vertigo as a primarycomplaint ultimately gests diagnosed as BPPV[2]. BPPV is characterized by brief vertiginous or spinning sensations elicited following head movements, typically in the vertical or horizontal planes[3]. Most commonly clinically encountered variant of BPPV is posterior canal BPPVor BPPV of the lateral semicircular canal (also known as horizontal canal BPPV). 35 percent of cases of posterior PBPPV are idiopathic in nature[4].

Among thegeneral public, the lifetime prevalence of BPPV is 2.4%, andone-year incidence is0.6%. It is the most frequently occurring vestibular disorders, accounting for one third of vestibular diagnosis[5]. Among age group 50 and above, BPPV is idiopathic but is associated with natural age-linkeddeterioration of the otolithic membrane.There are two that explains the theories occurrence of BPPV, namelycupulolithiasisand canalolithiasis[6]–[8]Most of the physiotherapy techniques are developed based on these two theories. In the present care report SM and Brandt Daroff exercise along with patient education were used to manage a case PBBPV.

Case Presentation

A forty-six-year-old housewife presents with complaints of spinning sensation that last for less than 30-40 sec. She describes it as a sudden and severe spinning sensation which last for 30-40 seconds. Symptoms are precipitated by rolling over in bed on to her right side. They occurred during the day when she tilts her head back to look upwards and occasionally during the night when she changes side during sleep. There is no associated hearing loss and tinnitus. There is no history of nausea, loss of consciousness and visual complaints. Her vision is normal. And she had no other cardiac or respiratory problems. She is hypertensive (usual BP- 130/80, Highest BP- 160/90), currently on MetroCard XR 25mg twice a day. She had Asthma attack 8 years ago, no maintenance medications are taken. Turning over in bed, and head movements provokes her dizziness. On examining for musculoskeletal impairments

ISSN:0971-1260
Vol-22-Issue-37-December -2019

of the cervical spine and shoulder, we did not find any impairments and the ranges and strength of both the regions were within normal limits. We did test cranial nerves to rule out any neurological involvement and all the tests were normal. As per her history Dix Hallpike maneuver was used to diagnose positional vertigo[2]. Dix Hallpike maneuver provoked nystagmus in the patient. The Dix Hallpike maneuver were performed as per standard procedure. The patient was diagnosed as posterior canal positional vertigo also termed as Benign positional paroxysmal vertigo. The management of the patient was based on the clinical practice guidelines published by Bhattacharyya[9].

Diagnosis is done if:

1. History of vertigo, it should be associated with change in head positions
2. Dix-Hallpike maneuver provokes characteristic nystagmus.

The Dix Hallpike maneuver[2] was done by the assessor as follows: therapist stood on the right side;patient's head was rotated right45°to orient the right posterior SSCs in the sagittal plane of the body. With eyes open, the patient is turned from the seated position to the supine (right ear down) and then neck is extended neck 20° till the chin pointing slightly upward. The latency, duration, and direction of nystagmus are noted down and patient is returned to the upright position once the vertigo and nystagmus was gone.

Treatment

Management was selected based on the clinical practice guidelines that comprised of patient education, Semont manoeuvre and Brandt and Daroff exercises[9]. Patient education was given on the initial visit. Semont manoeuvre was given for four sessions along with Brandt DaroffExercises performed by the patient as home program.Semont manoeuvre [10] was performed with the patient sittingand looking straight ahead. The therapistholds patient's head steady while guiding down tolie on right side. The patient's head was then rotated 45° upwards. This sudden position change elicited the vertigo with torsional nystagmus and this position was maintained for 2 minutes or until nystagmus is gone. The patient wasthen quickly shifted to other side and the head is rotated downward into a 45° angle. The patient was maintained for 2 minutes after that thepatient was slowly raised to the seated position with head straight. This manoeuvre was performed once only for a single session. Patient was strictly instructed to avoid any brisk movements of the head following the manoeuvre and not to do actions which could provoke rapid acceleration or deceleration in head manoeuvres, but

ISSN:0971-1260
Vol-22-Issue-37-December -2019

to remain mobile. The Brandt and Daroff exercise were taught to the patient at the initial visit. The protocol was used as published by Brandt [11]

Outcome and Follow up

Follow up of the patient was after 30 days, where the patient did not report any recurrence of the symptoms. The patient was considered cured when the symptoms had completely disappeared. Therefore, afterfour sessions of treatment patient reported no sensation of dizziness and hence the treatment was stopped.

Discussion

The resolution of vertigo in the patient suggests that Semont method combined with Brandt Daroff exercises is effective in management of PBPPV. The patient education was effective in preventing recurrence though the follow up of the case was only 30 days. A longer follow up period will justify the use of patient education in combination with physiotherapeutic manoeuvres. In the clinical practice guidelines various management strategies are mentioned [9]. There have been various studies where they have compared Epley manoeuvre with Semont manoeuvre, but which manoeuvre will be effective in which group of patients needs to be further analysed. Kinne[12] in their systematic review had compared the Semont manoeuvre with the Epley manoeuvre, they found both were equally effective. Emmanuel [13] demonstrated 90 percent cure rate in their study using Semont manoeuvre. The case report showed significant improvements in resolution of symptoms of patient. The patient was on hypertensive medication so the Semont manoeuvre may have been safer for our patient as compared to other manoeuvres. The report suggests that future studies should identify a subgroup of patients suitable for techniques and adverse events should also be reported in the prospectively designed studies. This will enhance better selection of manoeuvres for treatment of PBPPV.

Conclusion

The patient had complete resolution of symptoms as she reported relief in subjective feeling of vertigo. Semont manoeuvre helped in reduction of vertigo significantly. The combination of Brandt Daroff exercise and home exercise program resulted in further improvement and give patient a tool to modulate and manage her symptoms by herself.

ISSN:0971-1260
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