

Characteristics of Patient with Benign Paroxysmal Positional Vertigo in Dr. Hasan Sadikin General Hospital Bandung from 2009–2013

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Abstract

Background: Benign Paroxysmal Positional Vertigo (BPPV) is a vestibular disorder marked by episodes of vertigo and triggered by a change in the head position. It is characterized by short yet severe episodes of vertigo and possibly accompanied by nausea and vomiting. The BPPV is usually idiopathic and found among people aged 46–50 years old. There are pharmacological and non-pharmacological treatment used for BPPV. Non-pharmacological treatment includes Epley, Semont, Lempert, Forced Prolonged Position, and Brandt-Daroff maneuvers and pharmacological onebenzodiazepine and antihistamines. This study aimed to examine the characteristics of patient with BPPV based on their complaint and prescribed treatment.

Methods: This was a descriptive-retrospective study conducted on April–June 2014 using secondary data from medical records of patient with BPPV in Dr. Hasan Sadikin General Hospital Bandung from 2009–2013. The variables include gender, age, occupation, accompanying disease, complaints, supporting examinations, and treatment.

Results: There were 74 subjects; 66.22% were female and 33.78% were male. Most of patients with BPPV aged around 41–50 years old (39.19%). Furthermore, 93.24% had a major complaint of headache and spinning sensation, and >60% nausea and vomiting. The most prescribed therapy was Betahistine (86.49%). Meanwhile, a maneuver of non-pharmacological treatment was rarely done (8.11%).

Conclusions: The BPPV occurs more in older women. The major complaint is headache and spinning sensation affected by the head position and accompanied by nausea and vomiting. Lastly, non-pharmacological treatment is rarely performed in handling patient with BPPV. [AMJ.2016;3(2):275–9]

Keywords: BPPV, clinical characteristic, treatment, vertigo

Introduction

Vertigo is a sensation of rhythmical, unidirectional movement of the surrounding environment or the spinning sensation in the head and body of a person.¹ Vertigo is classified into two types: central and peripheral. Central vestibular vertigo occurs due to lesions in the central nervous system.^{1,2} In peripheral vestibular vertigo, there are problems in the semicircular canals in the ear. One of the most prevalent peripheral vertigo types is Benign Paroxysmal Positional Vertigo (BPPV).^{3–6}

The BPPV is a vestibular disorder characterized by episodes of vertigo and triggered by the changes in the head position. It occurs in certain head positions, for example when one is sleeping upside down, changes

in sleeping position or a quick wake-up movement. Such an events usually occur in midnight or morning.¹ The BPPV is marked by short yet severe episodes of vertigo and possibly accompanied by nausea or vomitin. These episodes typically last less than 30–40 seconds, but mostly about 15 seconds. The BPPV is usually idiopathic and found among people aged 46–50 year old.⁷ The method to diagnose BPPV is Dix-Halpike maneuver. It is used to induce nystagmus which is one of the characteristics of BPPV.⁸

Treatment of BPPV is divided into pharmacological and non-pharmacological therapies. The most frequently used in pharmacological treatments are benzodiazepine and antihistamines. Non-pharmacological treatment is in the forms of

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maneuvers, e.g. Brandt-Daroff, Semont, and Epley which is the most frequently performed maneuver.⁹⁻¹¹

The incidence of vertigo amounted to 54.48% of the central type and 45.52% of the peripheral type.¹⁰ This study aimed to examine the characteristics of patient with BPPV based on their complaint and prescribed treatment.

Methods

This was a descriptive-retrospective study conducted on April–June 2014 using secondary data collected from the medical records of the patients with BPPV in Dr. Hasan Sadikin General Hospital Bandung from 2009–2013.

It was found 74 out of 107 patients who fulfilled the inclusion criteria. The studied variables include gender, age, occupation, accompanying disease, complaints, supporting examinations, and treatment. Thirty three patients were excluded due to missing or incomplete variable data in their medical records.

Results

There were 49 (66.22%) female patients with BPPV and 25 (33.78%) were male. Most of

patients with BPPV aged around 41–50 year old with 29 (39.19%) people, followed by patients aged 51–60 year old with 18 (24.32%) people. Two patients with BPPV aged under 20 year old was also found. The most primary occupation was housewives with 13 (17.57%) people, followed by civil servant and others with 6 (8.11%) people (Table 1).

Hypertension was the most frequent accompanying disease in patients with BPPV with 38 (51.35%) people. The second most frequent accompanying disease was Hypercholesterolemia with 25 (33.78%) people (Table 2).

The most frequently complained by the patients is headache and spinning sensation with 69 (93.24%) cases. The rest include weakness of the limbs, and vomiting with 5 (6.76%) cases (Table 3).

The most major accompanying symptoms in patients with BPPV are nausea with 50 (67.57%) cases and vomiting with 49 (66.22%) cases (Table 3).

Table 4 shows the rarely-performed supporting examinations on BPPV. The Romberg test was only performed on 22 (29.73%) patients, resulting 4 (5.41%) positive responses and 18 (18.32%) negative responses. There were 52 (70.27%) patients in which the Romberg test was not performed.

Table 1 Characteristic of Patients with BPPV

Characteristic	N	%
Sex		
Female	49	66.22
Male	25	33.78
Age (years old)		
<20	2	2.7
21–30	0	0
31–40	8	10.81
41–50	29	39.19
51–60	18	24.32
61–70	12	16.22
>70	5	6.76
Type of Job		
Housewives	13	17.57
Civil Servant	7	9.46
Others*	6	8.11
Not Listed	48	64.86

Note: *Others: Retired, private workers

Table 2 Other Accompanying Diseases of Patients with BPPV

Accompanying Disease	N	%
Hypertension	38	51.35
Hypercholesteronemia	25	33.78
Trauma	7	9.46
DM	12	16.22
TIA/Stroke	12	16.22
Kidney Disease	3	4.05
Heart Disease	4	5.41
Gastric Disease	12	16.22
Other Disease	32	43.24

Note: *other diseases are osteoarthritis, lung tuberculosis, gout arthritis, and neoplasia

The Gait test was only performed on 10 (13.52%) patients, resulting 5 (6.76%) positive responses and 5 (6.76%) negative responses. The remaining 64 (86.49%) patients did not receive the gait examination (Table 4).

The most frequently prescribed pharmacologic treatment was from the Betahistine group in 64 (86.49%) cases. The examples of drugs from the betahistine group were Merislon, Betaserc, Vastigo, Mertigo, and Metoclopramide, which were given in 28 (37.84%) cases. Antihistamines such as Dramamine and stugeron were also used in 27 (36.49%) cases. Ranitidine was prescribed in 27 cases (36.49%) and vitamin B supplements such as neurodex were prescribed in 24 (32.43%) cases (Table 5).

A total of 68 patients (91.89%) did not

perform in the form of treatment maneuvers. Only 5 patients (6.76%) were given the treatment of Epley maneuver and 1 patient (1.35%) was given the Brandt-Daroff treatment maneuvers.

Discussion

Gender was considered to be the risk factor of BPPV; there were more female patients than male. This conformed to a study by Von Brevern et al.¹² which states that females are more vulnerable to BPPV even though the exact mechanism is still unknown. Von Brevern et al.¹² also discovers that the group of patients aged 46-50 years old had the highest frequency of BPPV case. The large number of older patients

Table 3 Major Complaints of BPPV Patients

	N	%
Major Complaints		
Headache and spinning sensation	69	93.24
Others*	5	6.76
Accompanying Complaints		
Nausea	50	67.57
Vomiting	49	66.22
Ringing ears	20	27.03
Double vision	4	5.41
Anesthesia	2	2.70
Cold Sweat	5	6.76
Others**	18	24.32

Note: * Headache, weakness of the limbs, and vomiting, ** Fever, Epigastric pain, episodes of black out, and hearing problems

Table 4 Supporting Examination in BPPV Patient

Supporting test	(+)	%	(-)	%	Unrecorded	%
Romberg Test	4	5.41	18	24.32	52	70.27
Gait test	5	6.76	5	6.76	64	86.49

Table 5 Treatment in Patients with BPPV

Treatment	n	%
Pharmacological treatment		
Antihistaminic (Dramamine, Stugeron)	27	36.49
Betahistine (Merislon, Betaserc, Vastigo, Mertigo)	64	86.49
Metoclopramid (Primpenan)	28	37.84
Vitamin B (Neurodex)	24	32.43
Flunarizine (Unalium, Frego)	9	12.16
Antihipertensi (amlodopin , captopril)	17	22.97
Ranitidine	27	36.49
Proton Pump Inhibitor (Omeprazole)	15	20.27
Simvastatin	18	24.32
IVFD	19	25.68
Obat Lain	30	40.54
Non pharmacological treatment		
Epley Manuever	5	6.76
Brandt-Daroff Manuever	1	1.35
Not conducted Manuever	68	91.89

with BPPV supported the “aging hypothesis” that theorizes degenerative changes in the utricles, usually due to chronic ischemia which causes the detachment of otoconia from the macule.^{12,13} In a study by Parham¹⁴, it is discovered that the prevalence of BPPV is quite large among the young age in America, i.e. 9%. This can be caused by several factors such as trauma, surgery, or physical activities like sports.

Hypertension and hypercholesterolemia were the most frequent accompanying diseases in patients with BPPV. This result is similar with the study by Von Bavarn et al.¹², that study explains that hypertension and hypercholesterolemia can result in vascular damages in the inner ears due to the ischemia of labyrinth, leading to the attachment of otoconia towards the otolith membrane.

Headache and spinning sensation were the most frequently complained that encouraged patients with BPPV to ask for a treatment. In accordance to a study by Bhattacharyya et al.¹⁶,

most of patients complain of headache and spinning sensation accompanied by nausea and vomiting as the effects of vestibular imbalance on the afferent nerves of the extra medullary centers in the brain. Positional change also has an effect on the vertigo as it causes displacement of otolith and makes it attach to the utricles and semicircular canals.^{9,15,16}

Betahistine and metoclopramide is the pharmacologic treatment for patients with BPPV.¹⁷ The most frequently prescribed pharmacologic treatment was betahistine, which functions as an anti-vertigo and histamine precursor that repairs vestibular microcirculation.¹³ Metoclopramide was frequently given to treat symptoms such as nausea and vomiting, e.g. primpenan. Bhattacharyya et al.¹⁶ states that antihistamines such as Dramamine and sturgeon were also frequently used. Their anticholinergic properties can reduce vestibular stimulation, suppress the labyrinth's functions, and

suppress the conduction in vestibulo-cerebellar tract.

In this study, it was found that maneuver was rarely used as a treatment for patients though it is a more effective treatments for BPPV.¹⁶

The limitations of this study lies in the time insufficiency to access the central medical record facility in Dr. Hasan Sadikin General Hospital during the weekdays and the insufficiency of complete medical records kept in the facility. This study recommends the hospital to be more systematic in the fulfillment, safekeeping, and well-organized sorting of the medical records so as to expedite further researches. In addition, the provision of the maneuver as primary treatment of patients with BPPV is more advisable than pharmacological drug delivery as it is more effective.

From this study, it can be concluded that most BPPV patients are females in the group of 41-50 years old. Hypertension and hypercholesterolemia are the most frequent accompanying diseases in patients with BPPV. The major complaint of the patients is headache and spinning sensation accompanied by nausea and vomiting. Pharmacologic treatments including the use of Betahistine, Metoclopramide, and Antihistamines involving maneuver is rarely prescribed.

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