ORIGINAL ARTICLE

DELAY IN DIAGNOSIS AND TREATMENT OF BENIGN PAROXYSMAL POSITIONAL VERTIGO IN CURRENT PRACTICE

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Background: More than 50% of the patients with peripheral vestibular disorders are suffering from Benign Paroxysmal Positional Vertigo (BPPV). Diagnosis is established by positive Dix-Halpike test and/or roll test. Objective of this study was to analyse the delay in diagnosis and treatment of BPPV in current practice and to suggest measures to avoid this delay. **Methods:** One hundred and fifty two consecutive patients who were diagnosed and treated for BPPV in ENT department CMH Rawalpindi from Jan 2009 to Sep 2011 were selected for this study. All these patients were interviewed in detail regarding duration of vertigo, associated symptoms, visits to hospitals, investigations, treatment taken, cost of treatment and last or referral diagnosis before coming to our department. **Results:** Out of 458 patients who presented with vertigo, 152 (33.2%) fulfilled the diagnostic criteria of BPPV. Male to female ratio was 1:1.17. Age range was 13–80 years and mean age 58.2±12.6. Posterior canal was affected in 96.7% and lateral canal in only 3.3%. Average duration between onset of first symptoms and diagnostic positional test was 19 months. One hundred and thirty eight patients have been visiting to general practitioners, various specialists, Homeopaths and Hakeems. Only 21% patients had visited to ENT specialists. 15.2% patients were already labelled correct diagnosis mostly by ENT specialists but Halpike test was done only in 8 patients and Epley's manoeuvre was tried in only four patients. 16.4% patients had undergone costly investigations like CT scan and MRI. Average cost on treatment before final diagnosis was Rs. 13,500 per patient. Particle repositioning procedure was successful in 84% patients in first attempt and 96% in two attempts. **Conclusion:** Though BPPV is a common and easily treatable condition, its diagnosis and treatment is delayed because of lack of awareness of this condition among doctors and patients. Clear understanding of the patho-physiology, diagnostic positional tests and canalith repositioning manoeuvre should be achieved through lectures and demonstrations.

Keywords: Positional vertigo, Benign paroxysmal positional vertigo, Positional test, Repositioning manoeuvre, Semicircular canal

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INTRODUCTION

Benign Paroxysmal Positional Vertigo (BPPV) is the most common peripheral vestibular disorder.[1,2] More than 50% of the patients with peripheral vestibular disorders are suffering from BPPV.[3] Lifetime prevalence of BPPV is found 2.4% in a population based survey study.[4] The condition is characterized by transient rotational vertigo induced by changes in head position. There is history of episodes of vertigo on turning or extending the neck. Getting up, lying down and turning over in the bed precipitate the vertigo. BPPV is not associated with hearing loss, tinnitus or neurologic symptoms. It involves the posterior semicircular canal predominantly but lateral and superior canals can also be involved. Vertigo and nystagmus of short duration is provoked by movements of head in relation to gravity, i.e., lying or getting up from bed. Nystagmus can be elicited by specific positional maneuvers.[5,6] Diagnosis is established by positive Dix-Halpike test[6] and/or roll test.

Free floating particulate matter in posterior semicircular canal has been observed in many patients with this condition.[7,8] On basis of this finding several manoeuvres have been developed in which this particulate matter is moved from posterior semicircular canal to utricle within vestibular labyrinth.[9,10] Usually these manoeuvres provide immediate and long lasting relief from vertigo.[11–13] Epley's canalith repositioning manoeuvre is very effective in treatment of posterior canal BPPV.[11]

Though patho-physiology and treatment of BPPV is very simple even then this condition is usually diagnosed very late. Several variants of BPPV, atypical presentations and lack of awareness of this condition among medical staff are the main factors which lead to delayed diagnosis. BPPV remains still under-diagnosed condition among general practitioners and even among neurologists and ENT specialists.[14–18]

MATERIAL AND METHODS

One hundred and fifty-two consecutive patients diagnosed as BPPV in ENT Outpatient Department from Jan 2009 to Sep 2011 on the basis of history, clinical examination, and characteristic positional nystagmus on Dix Halpike test and/or roll test were included in this study. Patients having other neurological findings which could blur the diagnosis

were excluded from study. Patients over 80 years of age, and those having physical disabilities in which it was not possible to perform diagnostic and treatment manoeuvres were also excluded from the study.

Detailed history was taken asking details of first attack of vertigo, duration of symptoms, periods of remission, number of visits to doctors since first attack, investigations done, approximate expenses on treatment, last or referral diagnosis and results of Dix- Halpike test. Findings were recorded on a Performa.

All the patients were treated by canalith repositioning manoeuvres. Epely's manoeuvre was performed in patients with posterior canal BPPV, While Barbique manoeuvre was used for lateral canal. Procedures were performed by skilled ENT consultants. Patients were re-examined on seventh day. Dix-Halpike test was done. In case of incomplete remission same manoeuvre were performed again. Criteria of successful treatment included relief of vertigo and negative Dix-Halpike test.

RESULTS

Out of 458 patients who presented in outpatient department and emergency room with vertigo or vertigo as one of the major complaints during this period, 152 (33.2%) fulfilled the diagnostic criteria of BPPV. Eighty-two were female and 70 were male. Age range was 13–80 years with mean age 58.2±12.6 years. Out of 152 patients 147 (96.7%) had posterior canal BPPV and only 4 (3.3%) had lateral canal BPPV.

Average time between onset of symptoms and diagnosis was 19 months (Table-1). Out of 152 patients 138 had been visiting general practitioners, specialists, homeopaths and *hakeems* (Figure-1). Only 15.2% patients were already labelled correct diagnosis (Figure-2) but Halpike test was done only in 8 patients and Epley's manoeuvre was tried in only four patients.

Twenty-three percent patients had audiometry done. Costly investigations like CT scan brain in 11.8% and MRI in 4.6% (Table-2). Various medicines which have no significant role in treatment of BPPV had been prescribed to the patients before specific treatment was done (Table-3). Average cost on treatment since start of symptoms was Rs. 13,500 per patient. Particle repositioning procedure was successful in 84% patients in first attempt and 96% in two attempts.

Table-1: Duration from onset of symptoms to specific diagnostic test and treatment

Duration in months	Number	Percentage
<1	14	9.2
1–6	13	8.6
6–12	23	15.1
12–24	32	21.0
24–48	37	24.3
48–96	22	14.5
>96	11	7.2

Table-2: Investigations done before final diagnosis

Investigation	Number	Percentage
Audiometry	35	23.0
Tympanometry	6	3.9
Thyroid function tests	22	14.5
Liver function tests	22	14.5
X-rays cervical spine	31	20.4
CT Scan Brain or cervical spine	18	11.8
MRI	7	4.6

Table-3: Medicines prescribed before final diagnosis

Category of drug	Number	Percentage
Labarynthine sedatives	110	72.3
Betahistine	88	57.9
Vasotherapeutic	47	30.9
Vitamins	33	21.7
Unknown	23	15.1
No previous treatment	14	9.2

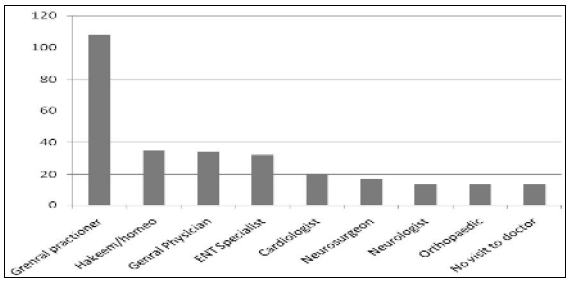

Figure-1: Number of patients visiting to various categories of doctors

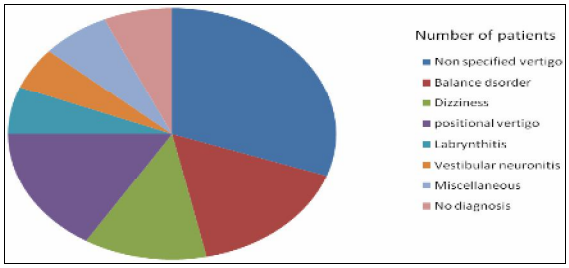

Figure-2: Last or referral diagnosis labelled before final diagnosis

DISCUSSION

In our study BPPV was diagnosed in almost one third (33.2%) of the patients presenting with vertigo. 43% of the patient population in an otology clinic has been reported comprising of BPPV.[5] In two other studies percentage of BPPV cases in patients who presented to specialty dizziness clinic is 17 percent in one study[19] and 18% in other[3]. Male to female ratio was 1:1.17 in our study. There is strong suggestion of female preponderance in literature.[20,21] Our study revealed mean age of the patients 58.2 years, with age range 13–80 years. In one cohort mean age at onset is 54 year with a range of 11–84 years.[22] Actual number of patients of BPPV may be slightly higher in old age group as compared to middle age because old patients usually ignore positional component of symptoms and mainly complaint about imbalance.[23]

Posterior canal BPPV was diagnosed in 96.7% patients and remaining 3.3% were of lateral canal. There was no case of superior canal in our study. In another study the distribution is posterior canal 90%, lateral canal 8% and superior canal 2%.[5] The average time span between onset of symptoms and final diagnostic manoeuvre was 19 months. In a similar study conducted by Wang H, Yu D, Song N, Su K, Yin S the average duration from onset of symptoms until final diagnostic manoeuvre was more than 70 months[24] as compared to 19 months in our study. This vast difference in results may be due to different awareness levels in different setups in which studies were conducted.

In 57.2% the patients last or referral diagnosis was non-specific vertigo, imbalance or dizziness. Only in 15.8% diagnosis of positional vertigo was labelled but even in most of these patient's diagnosis and treatment was not on scientific basis. We assume that the main reason for under diagnosis of this common condition among doctors is lack of awareness of the condition. Spontaneous remission, atypical presentations and benign course of the disease may be the other contributory factors. Management of BPPV mainly falls in domain of ENT specialist and Neurologist, but only 34% patients reported to ENT specialists and 14% to neurologists. Even in these specialties, in most of the patients diagnostic test was not done. This shows that the lack of awareness is both among the patients and doctors.

Before final diagnostic test was done 73.6% patients underwent different type of investigations like audiometery, tympanometery, thyroid function test and liver function test and x-ray cervical spine. These investigations do not help in establishing diagnosis of BPPV. Twenty-five percent patients had undergone costly investigations like CT scan and MRI. These could be avoided if diagnostic test for BPPV was done earlier. As the diagnoses were nonspecific and vague the patients have been prescribed medicines like labarynthine sedatives, bethistine, vasotherapeutic drugs etc. These drugs have no significant role in treatment of this condition. Average cost on visits to doctors, investigation and medicines was Rs. 13,500 per patient. Treatment by particle repositioning manoeuvre was successful in 84% patients in 1st attempt and 96% in two attempts.

CONCLUSION

There is lack of awareness about the condition in doctors and to some extent in patients also. More stress should be given on understanding of pathophysiology of BPPV in training programs of specialists, residents and medical students. Demonstrations should be arranged to demonstrate correct way of performing Dix-Halpike test and Epley's manoeuvre.

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