## **Original Research Article**

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# **Evaluation of giddiness: a peripheral hospital experience**

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#### **ABSTRACT**

**Background:** Giddiness remains one of the most common reasons to consult an ENT specialist. There are multiple causes for giddiness, both peripheral and central. It takes a careful, dedicated and committed history taking as well as examination to establish the cause for giddiness. Vascular effects of metabolic diseases can prepone the onset of vestibular symptoms. This study was undertaken to see the proportions of different types of giddiness among patients who presented with dizziness.

**Methods:** A descriptive study was done in the ENT Outpatient settings for all the patients who presented with dizziness and/or vertigo. Careful history elicitation and examination was done to establish the cause.

**Results:** There was a female preponderance with female to male ratio 13:7. Giddiness due to non-peripheral causes were seen in 150 (69%) and peripheral and migrainous vertigo accounted for dizziness in 33 (15.2%) and 34 (15.7%) patients. Diabetes mellitus was seen in 143 (65.8%) patients.

Conclusions: Comprehensive examination and assessment of patients is required for reasonable evaluation of vertigo. Though vestibular causes are important, it is essential to have a broad understanding of the various causes of vertigo so that serious and life threatening non peripheral causes is not missed out. Growing geriatric population, increasing lifestyle diseases and iatrogenic causes should be kept in mind while evaluation protocols of vertigo are standardized through the country.

**Keywords:** Giddiness, Peripheral vertigo, BPPV

### **INTRODUCTION**

One of the common reasons for consultation in ENT OPD is giddiness. It is a distressing feeling ranging from light headedness to rotatory reeling sensation. On an average 2% of the consultation is due to giddiness and it increases to as much as 30%.<sup>1</sup>

True vertigo is a symptom complex with reeling sensation, nausea and vomiting. Vertigo is a medical condition where a person feels as if they or the objects around them are moving when they are not. This may be associated with nausea, vomiting, sweating, or difficulty in walking. Vertigo is the most common type

of dizziness. Prior studies have shown that lifetime prevalence was 7.5% and incidence was 1.5%. Nearly 80% of symptomatic people sought consultation. There was association of tinnitus, depression, cardiovascular problems, hypertension and dyslipidemia. Female sex had an independent effect on vertigo.<sup>2</sup>

One in 6 patients who had vertigo was not managed correctly, especially the elderly. This poses a serious problem with treatment outcome, thereby increasing mortality and morbidity of the patients.<sup>3</sup>

The differential diagnosis of vertigo includes peripheral, central and other causes. So it is important to know about

the symptomatology of each of these. This is important because, a patient who complains only of giddiness, due to cerebrovascular insufficiency could be saved if diagnosed early with a high index of suspicion, rather than wasting time on unnecessary treatments for vertigo.

Table 1: Differential diagnosis of vertigo.

Peripheral	Central	Others
Acute labrynthitis	Cerebellopontine angle tumor	Cervical vertigo
Acute vestibular neuronitis	Cerebrovascular disease	Drug induced vertigo
Benign positional paroxysmal vertigo	Migraine	Psychogenic
Cholesteatoma	Multiple sclerosis	
Ramsay hunt syndrome		
Meniere's disease		
Otosclerosis		
Perilymphatic fistula		

#### History

Three out of four patients can be diagnosed correctly with history alone<sup>4</sup>. When eliciting the history, it is important to have leading questions like "äre you feeling lightheadedness' or "is the world spinning around you". A confident answer in such question can give a diagnosis in most of the cases before examining the patient.

## Duration and severity of vertigo

The duration of vertigo can last from seconds to days or can even last for months. Based on the duration it is helpful to arrive at a reasonable conclusion. Usually peripheral type of vertigo is very severe and lasts for shorter duration.

## Is it peripheral or central or other types

Peripheral vertigo is caused by otological causes or neuro otological causes. Longer duration is suggestive of central causes and shorter bursts of vertigo are more likely due to peripheral causes. The provocation factors and duration will give clues to diagnosis. Rotary illusion is highly associated with peripheral type of vertigo. The presence of nystagmus especially rotary type and to sides can be more suggestive of peripheral as against up beating or a downbeating one.

Table 2: Comparison between peripheral and central vertigo.

Signs	Peripheral	Central
Nystagmus	Combined horizontal with torsional	Can be any direction
	Inhibited by optic fixation	Not inhibited by fixation
	Does not change direction	May change in direction
	Fatigable	Continuous
Imbalance	Mild, able to walk	Severe, cannot walk
Nausea vomiting	Severe	Mild / none
Hearing loss tinnitus	Common	Uncommon
Neurological symptoms	Rare	Common
Latency of nystagmus	Longer (upto 20 sec)	Shorter

## **Provoking factors**

The circumstances around which the vertigo arises helps to narrow down the cause for it. Various positional changes like, bending down and coming up, turning to sides on bed, hyperextending neck are suggestive of peripheral vertigo. At the same time rhinitis or a viral fever prior to the episode may point towards vestibular neuronitis or an infective labrynthitis. If the patient identifies trigger factors in an established migraine condition, this will point towards migrainous vertigo.

Vertigo due to straining, barotrauma like blowing of nose will point towards perilymphatic fistula. The

phenomenon of Tullio's should also be borne in mind while dealing with provoking factors.

A history of stress is important, as is a history of psychiatric illness. A panic attack can also mimic vertigo in some stressed patients.

### Associated symptoms

The presence of hearing loss, along with vertigo (except in cases with CVA (cerebrovascular accident) involving posterior cerebral circulation), is usually peripheral in origin. Nausea and vomiting is pronounced in peripheral vertigo when compared with central vertigo.

Neurological symptoms like loss of memory, ataxia, sensory involvement, disturbances in vision are more seen in central causes. It is interesting to note that about 35% of migraine patients suffer from vertigo.<sup>5</sup>

#### Medical history

Other clues for diagnosis can be from presence of associated illnesses like diabetes, hypertension, dyslipidemia, family history of cerebrovascular accidents etc. It can also give information about presence of trauma, current medications and toxin exposures.<sup>6</sup>

### Physical examination

It should definitely cover recording of vital signs, general examination, head and neck, otological, neurological and cardiovascular system.

After a complete ENT examination, patient should undergo a baseline pure tone audiogram, impedance audiogram and eustachian tube function. A complete neurological examination is required not forgetting the assessment of cranial nerves and posture. Performing dix hallpike is very useful test in determining cause for giddiness with PPV of 83% and NPV of 53%.<sup>4,7</sup>

Hyperventilating the patient for 30 seconds can help ruling out hyperventilation syndrome.<sup>8</sup>

Orthostatic hypotension and autonomic dysfunction should be considered if there is drop in BP more than 20 mm Hg or rise in pulse more than 10 beats/minute, however a carotid massage may be avoided as it may have deleterious effects.<sup>4</sup>

Baseline blood investigations of hematocrit, counts, electrolytes, glucose profile, lipid profile, thyroid function tests etc. will help in aiding the diagnosis. Imaging studies should be reserved to clinically suspicious cases of intracranial pathologies. Magnetic resonance imaging is superior to computerised axial scans as the former gives a far better imagery than the later.

#### **METHODS**

Participants of this study included all patients who came by self or were referred to the ENT OPD from January 2014 to June 2016 with complaints of dizziness or vertigo. All of them were evaluated after a detailed history, and noted in a proforma. All of them underwent a complete **ENT** evaluation. Detailed otological examination was performed, including tuning fork test for rough quantitative assessment of hearing. All those patients who required audiograms were asked to undergo audiological evaluation too. A complete neurological evaluation focusing on posterior column and cerebellum were performed. A Dix Hallpike test was done on all patients excluding those with cervical problems.

Epuly's maneuver was done on the same day for patients who were found to have BPPV (benign paroxysmal positional vertigo). They were called for review after 2 weeks to confirm the effectiveness of the procedure.

#### Statistical analysis

All details were entered into Microsoft excel sheet. The data was entered into Microsoft excel and summary statistics analyzed.

#### **RESULTS**

There were 217 patients who presented with complaints of vertigo or dizziness. There was a female preponderance with 65.43% (n=142) women, compared to 34.5% (n=75) men among them. Median age was 59 years. Average BMI (body mass index) was 26.13kg/ m<sup>2</sup>. The average age at presentation of vertigo was 55.9 yrs. The youngest was 2 years old and oldest 88 years. It was found that 43.7% (n=95) patients were hypertensive and 143 patients (65.8%) were undergoing treatment for diabetes mellitus with medications. There were 15.2% (n=33) who had BPPV (benign paroxysmal positional vertigo) and 15.6% (n=34) were found to have migraine related vertigo. Majority of patients 69% (n=150) had vertigo due to other causes. Among them, 7 (4%) had cerebrovascular accident, and 20 (13%) microvascular complications of diabetes mellitus.

Table 1: Socio-demographic and clinical findings of the study.

Total number of patients	N=217
No of BPPV	33
Right side	18
Left side	11
Bilateral	4
Migraine	34
Others	150
No of males	75
No of females	142
Lowest age	2
Highest age	88
Mean age	55.91
Average BMI	26.13
Lowest BMI	18.6
Highest BMI	44.1
Patients with diabetes	143
Patients with hypertension	95
Patients with CVA	7
Patients with microvascular complication	20
Patients with dyslipidemia	102

Among those who had BPPV, 18(54%) had it on right side (PSCC), 11(20%) on left side and four (12%) had it

on both sides. Recurrence was seen in three (9%) patients during the study period.

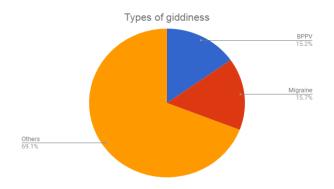


Figure 1: Types of giddiness.

#### **DISCUSSION**

Vestibular causes of vertigo is often reported as the most common cause of dizziness in literature, ranging from 40 to 55% In our study vestibular causes accounted for only 15.6% of cases. Remaining 84.4% was due to other causes. Dizziness being a nonspecific symptom, can present to several specialties. It is important to have a multidisciplinary approach to the patients' concern, rather than label all dizziness as due to vestibular problem. Ever growing list of medications and their interactions is an important and less addressed cause for giddiness. Among these, diuretics, anxiolytics and sedatives are important. Some of the antihypertensive drugs that cause postural hypotension and newer antidiabetic medications like the SGLT2 inhibitors which cause osmotic diuresis can cause dizziness. Microvascular complications of diabetes, particularly cardiac autonomic neuropathy, cerebrovascular insufficiency and arrhythmias are all important causes and cannot be ignored. In the era of increasing diabetes, microvascular changes play an important role even in the inner ear. So it is important to take into account of such changes that alter the rheology of microcirculation of labyrinth. 10 Artherosclerotic changes in the carotid artery has been shown to be associated with with higher incidence of BPPV.<sup>11</sup> Hence, vestibular causes of dizziness is expected to be more in patients with lifestyle diseases like diabetes and hypertension.

Whenever there is an overlap between different specialties, a comprehensive evaluation with multi-disciplinary approach is to be carried out satisfactorily to reach the diagnosis.

### **CONCLUSION**

Evaluation of dizziness needs to be looked into with the perspective that not all dizziness are due to peripheral causes. Associated conditions have a big role in bringing or hastening the precipitation of symptoms. Associated factors need to be evaluated further in order to establish

the diagnosis beyond 'casual association'. There is a need for systematic examination and a reasonable treatment plan for elderly as there is a high chance of fall and thereby increasing the morbidity, mortality and affecting the mobility of the patients. Emerging geriatric populations should be kept in mind while diagnosis and treatment protocols are standardized throughout the country.

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