

## ORIGINAL RESEARCH

### Occurrence, etiology and audiological correlation in peripheral vertigo in a tertiary care centre

<sup>1</sup>Pinpo Teron, <sup>2</sup>Debajit Sarma, <sup>3</sup>Nilakshi Choudhury, <sup>4</sup>Ashok Kumar Biswas, <sup>5</sup>Pradip Kumar Tiwari

<sup>1</sup>Associate Professor, Department of ENT, Diphu Medical College & Hospital, Karbi Anglong, Assam, India

<sup>2</sup>Assistant Professor, Department of ENT, Assam Medical College & Hospital, Dibrugarh, Assam, India

<sup>3</sup>Registrar, Department of ENT, Gauhati Medical College & Hospital, Guwahati- 32, Assam, India

<sup>4</sup>PhD Lecturer Selection Grade Audiology, Department of ENT, Gauhati Medical College & Hospital, Guwahati- 32, Assam, India

<sup>5</sup>Consultant, Department of ENT, Central Hospital, Dhanbad – 5, Jharkhand, India

#### Correspondence:

Pradip Kumar Tiwari

Consultant, Department of ENT, Central Hospital, Dhanbad – 5, Jharkhand, India

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#### Abstract

##### Aim:

1. To study and diagnose different causes of peripheral vertigo.
2. To see the audiological co-relation in cases of peripheral vertigo and their management.

**Material and methods:** Patients were subjected to the following audiological evaluations over and above the history taking and clinical examinations and evaluations PTA BERA (whenever indicated).

**Results:** A total of 136 hospital records from Jan 2019 to February 2020 were accessed which had dizziness or vertigo as the chief complaint or any one of the associated complaints of them 44 patients (32%) had presented initially to the Department of ENT of the institute while 93 patients (68%) had received some form of treatment before being referred to the department of ENT. Almost 60% (82 patients) referred had already received some form of vestibular suppressant medications irrespective of the cause of dizziness. 52.2% (71 patients) were males and 47.7% (65 patients) were females.

**Conclusion:** Audiological evaluation aids a lot in diagnosing and treating a case of peripheral vertigo and it is to be included in all cases of vertigo as a part of preliminary investigations.

#### Introduction

Vertigo is a common symptom in an ENT clinic, the causes of which are varied. Most cases are benign but distressing while some may be potentially life threatening.

Evaluating a dizzy patient is a challenge for every clinician as very often the patient is too distressed and symptomatic to cooperate with the evaluation process. Rapid alleviation of symptoms is of prime importance for the patient and in the process diagnosis often takes a

backstage. The use of vestibular suppressants provide the symptomatic improvement but delay the diagnosis as these drugs mask the peripheral vestibular signs. Lack of dedicated vestibular lab in many health care set up is also a limiting factor in proper diagnosis.

Vertigo can be

1. Peripheral (85%) which involves vestibular end organs and their 1<sup>st</sup> order neurons. Cause lies in the internal ear or 8<sup>th</sup> nerve.
2. Central ,which involves central nervous system after the entrance of vestibular nerve in the brainstem, and involves the vestibule ocular , vestibulospinal and other CNS system pathways .

Audiological evaluation along with detailed history and clinical examination plays an important role in evaluating and managing a case of peripheral vertigo.

### Aims and objectives

1. To study and diagnose different causes of peripheral vertigo.
2. To see the audiological co-relation in cases of peripheral vertigo and their management.

### Materials and Methods

#### Type of study

Retrospective

#### Duration of study

All cases of peripheral vertigo attending ENT OPD, GMCH from Jan 2019 to Feb 2020 included in the study.

#### Inclusion criteria

All cases of peripheral vertigo attending ENT OPD, GMCH.

#### Exclusion criteria

Children less than 10 years will be excluded as the spectrum of dizziness in this age group is different from the adult vertigo.

Patients were subjected to the following audiological evaluations over and above the history taking and clinical examinations and evaluations

PTA BERA (whenever indicated).

### Results

Results were analysed and compared with other literature in the following probable criterias

#### 1. Age

Age	Male	Female
10-20 Years	2	4
21-40 Years	41	39
41-60 Years	18	13
61-80years	8	5
>80 Years	3	4
Total	71	65

#### 2. Duration of dizziness

Duration	Number	Percentage
Seconds to few minutes	38	27.9
More than 20 min but less than 24 h	13	9.5
More than 24 h but less than 1 week	38	27.9

1–2 weeks	14	10.29
More than 2 weeks	23	16.9
Not specified	10	7.3

### 3. Other symptoms accompanying vertigo

Associated symptoms	Percentage
Tinnitus	6
Aural fullness with hearing loss	25
Nausea/vomiting	38
Blackout	10
Neurologic deficit	2
Headache	8
Cervical pain	2
Visual disturbance	4
Photophobia	2
Generalised weakness	10

### 4. Audiological findings

Audiological findings	Number	Percentage
Unilateral SNHL	12	8.8
Bilateral SNHL	Mild 22	16.17
	Moderate 14	10.2
	Severe 46	33.8
	Profound 31	22.7

A total of 136 hospital records from Jan 2019 to February 2020 were accessed which had dizziness or vertigo as the chief complaint or any one of the associated complaints of them 44 patients (32%) had presented initially to the Department of ENT of the institute while 93 patients (68%) had received some form of treatment before being referred to the department of ENT. Almost 60% (82 patients) referred had already received some form of vestibular suppressant medications irrespective of the cause of dizziness. 52.2% (71 patients) were males and 47.7% (65 patients) were females. The age wise distribution of the patients are depicted in Table 1. The description of dizziness varied from patient to patient and most patients (68%, 93 patients) described their dizzy episode as a 'spinning motion' while 70 patients (51%) described their dizzy episode as a 'sense of imbalance during movement' the duration of dizzy period is depicted in Table 3 and the accompanying symptoms associated with dizziness are shown in Fig. 1. The clinical diagnosis of the cause of dizziness was varied and the most common diagnosis was Benign paroxysmal positional vertigo 23% (31 cases). All the cases were managed conservatively with medications or vestibular exercises.

### Discussion

Vertigo is a common symptom and though most of the causes are benign yet some may be potentially life threatening. Diagnosis can be a challenge sometimes due to lack of dedicated vestibular lab and injudicious use of vestibular suppressant medications.

Evaluation of a dizzy patient is a challenge due to the wide spectrum of the condition and lack of sophisticated equipments in a peripheral set up. Though the symptom may be poorly described by the patient yet it is of utmost importance to carry out methodical clinical examination. Prompt referral to the specialist should be done instead of resorting to

injudicious use of vestibular suppressants. It is also imperative to impart necessary training and education to the primary care physicians so that they can adopt a practical approach in evaluation and management of Vertigo.

Dizziness is common in our practice and an estimated 25% present to the emergency department with acute vestibular syndrome [1]. Approximately 2.2% patients initially consult their physician per year for dizziness [2]. Unlike other studies a slight preponderance of male population was seen in this study (52.2%). Though various studies show an increase in incidence with age, we found 58.8% patients falling in the age group of 21–40 years [4, 5]. The symptom dizziness is often vaguely defined and narrated by patients which may be “confusing” and “discouraging” for the physician [6]. In this study most patients described their dizziness as a spinning motion while others described it as a sense of imbalance. Lightheadedness described by patients is often confused with dizziness though the term has no clear definition or associated diagnosis [6]. Hallucination of rotatory motion (or true vertigo) associated with nausea and vomiting points towards an acute peripheral vestibular disorder. Disequilibrium on the other hand points towards a poorly compensated vestibular disorder, ocular disorder or peripheral neuropathy. Dizziness with blackout is mostly associated with cardiovascular cause and is an important cause in the elderly [6]. Dizziness occurring as a result of an acute vestibular event is usually compensated within few weeks provided there are no factors to impede the process. True vertigo lasting few seconds and aggravated with change of head position are mostly benign paroxysmal positional vertigo (BPPV) which was the most commonly diagnosed condition in the present study. Most of the time the cause of acute vertigo is benign and may include Meniere’s disease, vestibular neuronitis, labyrinthitis or labyrinthine fistula etc. However at times it may be due to underlying serious condition. It has been seen that cerebellar infarction or brainstem infarction often mimick acute peripheral vertigo and comprises of 2.8% cases presenting with vertigo [7].

Diagnosis of cerebellar infarct presenting as an acute vestibular crisis is often missed or delayed. Pitfall leading to misdiagnosis is often due to failure to realize that young patients without traditional vascular risk factors can have vertebro-basilar insufficiency and stroke [11]. A normal CT scan of the brain may fail to identify the initial infarct in almost half the cases and as such an MRI with diffusion weighted image is indicated to rule out early infarct [10, 11]. Dizziness is a frequent complaint among the elderly patients. In patients older than 70 years approximately 36% females and 29% males have balance disorder. It is important to note that BPPV is often underdiagnosed in this age group and should be ruled out [14]. Vestibular migraine or migraine related vestibulopathy or migranous vertigo is still an underdiagnosed entity because of lack laboratory markers and specific imaging criteria [15]. The diagnosis may be confused at times because about 30% of adult vestibular migraine do not have associated headache. Dizziness is a commonly associated symptom in patients of generalized anxiety disorder and major depression [17, 18]. Lehmann et al. [19] in their study found almost 19% of their patients with non organic dizziness and about 42% of patients with vestibular paroxysmia or vestibular migraine had “current psychiatric comorbidiy”. The diagnosis of underlying psychiatric disorder has to be considered when there is a mismatch between the objective evidence of vestibular and neurological dysfunction and the degree of handicap experienced by the patient. The causal diagnosis of dizziness remain elusive in 22% of the cases presenting in an emergency department [1].

The diagnosis of dizziness require detailed vestibular evaluation which may include video nystagmography, cervical and ocular vestibular evoked myogenic potential (VEMP) and rotatory testing to arrive at a causal diagnosis. Unfortunately such sophisticated equipments are not available in many health care setup and the clinician has to rely on the clinical judgment and radiological evaluation to clinch the diagnosis. It is seen that many primary

health care providers primarily seek to ameliorate symptom of dizziness. In the present study almost 30% of the patients referred from peripheral health care set up were empirically treated with vestibular suppressants regardless of the cause of dizziness. Often BPPV and acute vestibulopathy are managed in the emergency on similar lines even though the pathology of the entities are different [5]. It has been observed that vestibular suppressant is given to BPPV patients (approx 58% cases) and to those with acute vestibulopathy (approximately 78%). The same drug is also used in patients with symptomatic dizziness without establishing the cause of the dizziness [5]. Such practice has to be discouraged as prolonged use of CNS or vestibular sedatives delay vestibular compensation which is detrimental for the rehabilitation of the patient [28–30].

### Conclusion

Audiological evaluation aids a lot in diagnosing and treating a case of peripheral vertigo and it is to be included in all cases of vertigo as a part of preliminary investigations.

Dizziness is a common complaint the causes of which are varied. Most of the causes of dizziness are benign and self limiting. Conditions like cerebellar and brainstem infarction may mimic peripheral vertigo and are sometimes missed if one is not aware of them. A patient with acute vestibular event should be observed for delayed onset of any neurological symptoms. Diagnosis and evaluation of a dizzy patient may require sophisticated audiovestibular setup which is not available in all settings. Injudicious use of vestibular suppressants should be discouraged as they delay the diagnosis and prevent vestibular rehabilitation by compensatory mechanism.

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