

Original research article

## A Retrospective Study on Clinical Presentations and Risk Factors of Peripheral Vertigo

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### Abstract

**Background:** A retrospective study was conducted to find out the clinical presentations and risk factors of peripheral vertigo.

**Methods:** Sixty patients with peripheral vertigo (age 20-79 years) who had presented with signs of vertigo were included in the study. A thorough history was taken from the subjects. The prevalence, clinical presentations and risk factors were subjected to statistical analysis.

**Results:** Total 60 patients of age 20-79 years (15 males and 45 females) were included in the study. Based on the distribution of risk factors, age group 40-59 was highest followed by the age group of 60-79. The prevalence of incidence was significantly found in females ( $P < 0.01$ ). The clinical manifestations presented were spinning, about to faint, light-headiness, disequilibrium and both spinning and about to faint. Spinning plus about to faint was significantly ( $p < 0.01$ ) found as the major clinical manifestation with a female dominance (19/25). This was highly significant ( $p < 0.05$ ) in the age group of 40-59 years (8/19). Disequilibrium (10%) was the least clinical presentation. Among the risk factors, the patient with ear infection was significantly found (31.6%) with predominance for female (12/19).

**Conclusions:** The result concluded that prevalence of incidence was significantly found in females of age group 40- 59 with clinical presentation of both spinning and about to faint. Risk factor of ear infection was significantly found. These observations will help a surgeon to recognize which all patients need inpatient management or emergency intervention. Furthermore, the need for awareness about the prompt treatment of ear infection is emphasized.

**Keywords:** Vertigo, Vertebrobasilar insufficiency, Light-headiness, Spinning, Disequilibrium, Labyrinthitis

### Introduction

Vertigo or disequilibrium is an incapacitating entity, with an underlying pathology ranging from a benign to life threatening intracranial space occupying lesion. Family physicians, cardiologists, ophthalmologists, neurologists, neurosurgeons and otolaryngologists are likely to be consulted, either at primary or referral level.<sup>1</sup> Benign episodic spells of vertigo lasting for a few seconds on a particular position of the head causes anxiety, fear and loss of concentration and thereby effective working hours. This entity being the commonest, in the panicky

vertiginous patients presenting in our outpatient clinics needs adequate addressal for proper management and relief of symptoms. The most important step required while addressing this entity is clinical history.<sup>2,3</sup> Otoconial 'truancy' or 'release' consequent to viral infection or head injury and a 'ampullary bounce' on the neuro-epithelium 'of the posterior semi-circular canal is the microscopic level pathophysiology. A quick 45 degree head extension 'the Dix Hallpike 'positioning test, precipitates a symptomatic spin vertigo with signs of torsional nystagmus, on the involved side. Head-torso manoeuvre, Epley and Semont manoeuvres helps to reverse the trajectory of the otoconia and thereby propel, them from the effected ampulla through the semi-circular ducts into the vestibule via the non-ampullated end or the crus commune. The vertiginous patient walks out of the clinic, unsupported and relieved. However, a repeat procedure maybe needed as a few otoconia creep back. Therefore, with the evolution of highly effective positional manoeuvres, benign paroxysmal positional vertigo (BPPV) has become the most successfully treated cause of vertigo. Loophole lies in our daily practice, where prompt alleviation of symptoms becomes of prime importance and making the diagnosis takes a backstage. Frequent administration of vestibular suppressants further delay diagnosis as these medications mask the vestibular signs and produce sedation and only provide symptomatic relief for the duration of therapy. A retrospective analysis of data of vertiginous subjects from our neuro-otology lab was carried out to ascertain the frequency of this aetiology of BPPV and efficacy of the Epley's manoeuvre. About 46% patients presented with vertigo found to be due to an otological disorder.<sup>4</sup> The literature on etiology and prevalence generated from retrospective analysis of known cases of vertigo is scanty in Indian scenario especially in tertiary level Otolaryngology units.<sup>5</sup> Therefore, a retrospective study was conducted to find out the clinical presentations and risk factors of peripheral vertigo.

## Methods

All the patients, age 20-79 years, presented with peripheral vertigo. This study was carried out in Banas Medical College and Research Center, Palanpur from May 2021 to April 2022. A detailed clinical examination and history had been taken out. Patients below age 20 years and above 80 years, patients with central vertigo, vertebra basilar artery insufficiency, CNS tumours and with multiple sclerosis were excluded from the study. Consent was obtained from the patient or their relatives.

## Statistical analysis

Analysis was done using statistical software SPSS (Version 16). Chi square test was used to know the significant difference between the groups.  $P < 0.05$  was considered as significant.

## Results

Total 60 patients of age 20-79 years were included in this study. There were total 15 males and 45 females in the 12 months study period. The prevalence of incidence was significantly found in females ( $p < 0.01$ ). The clinical manifestations presented were spinning, about to faint, light-headedness, disequilibrium and both spinning and about to faint (Table 1). Spinning plus about to faint was significantly ( $p < 0.01$ ) found as the major clinical manifestation in 25 patients (41.6%) with a female dominance (19/25). The female patients with spinning plus about to faint were highly significant ( $p < 0.05$ ) in the age group of 40-59 years (8/19) which is followed by 60-79 years (7/19). Spinning alone was found in 17 patients (28.7%) with significance ( $p < 0.01$ ) in the females (14/17). Disequilibrium (10%) was the least clinical presentation. The distribution of risk factors was ear infection, ototoxic drugs, history of surgery, trauma (Table 2). Among these, significant risk factor was found in the patient with ear infection (31.6%). The predominance was found for female with the incident rate of (12/19). A similar increase in the prevalence in female (9/11) was found in the trauma patients. Based on the distribution of risk

factors, age group 40-59 was highest followed by the age group of 60- 79. The only 1 male patient in the age group of 20-39 had ear infection as the risk factor and was presented with both spinning and about to faint

**Table 1: Distribution of clinical features of patients with peripheral vertigo.**

Age	Gender	Spinning	About to faint	Spinning + About to faint	light-headedness	Disequilibrium
20-39 (n= 7)	Male (1)	0	0	1	0	0
	Female (6)	1	0	4	1	0
40-59 (n= 26)	Male (6)	1	1	2	1	1
	Female (20)	6	2	8	2	2
60-79 (n= 27)	Male (8)	2	1	3	1	1
	Female (19)	7	2	7	2	1
Total (n=60)	Male (15)	3	2	6	2	2
	Female (45)	14	4	19	5	3

**Table 2: Distribution of risk factors.**

Age	Gender	Ear infection	Ototoxic drugs	History of Surgery	Trauma	Hypertension
20-39 (n= 7)	Male (1)	1	0	0	0	0
	Female (6)	2	1	0	3	0
40-59 (n= 26)	Male (6)	2	2	0	1	1
	Female (20)	8	3	2	3	4
60-79 (n= 27)	Male (8)	4	0	1	1	2
	Female (19)	7	3	2	3	4
Total (n=60)	Male (15)	3	2	6	2	2
	Female (45)	17	7	4	9	8

## Discussion

Results of the study revealed that the prevalence of incidence was significantly found in females. The major clinical presentation was spinning plus about to faint. The prevalence was found to be increased with age. In our study, we could find a maximum incidence in the 40-59 years age. It has been generally considered as the vertigo increased with age and reached its peak in the 60s, for both male and female. Gender ratio of 2:1 female: male was reported by Neuhauser et al.<sup>6</sup> Similarly, in community based studies found that the prevalence of dizziness ranges from 1.8% in young adults to more than 30% in the elderly.<sup>7,8</sup> Similarly, Katsarkas in a study on dizziness in the elderly reported that the prevalence of 63% in women when compared to 37% in men.<sup>5</sup> According to Hanley et al.<sup>9</sup> the presentations of symptoms of vertigo can be clinically diagnosed in most cases. The exact cause often remains elusive. Usually it begins in the fourth decade and attains its highest prevalence in the sixth decade.<sup>10</sup> The most common risk factor found in the study was ear infection. Patients with otitis media often complain of vertigo due to the proximity of the vestibular end organs to the middle ear and the infectious process may extend to these structures. Similarly, the other causes reported were labyrinthitis- a peripheral disorder characterized by inflammation of the canals of the inner ear- commonly occurs following otitis media or an upper respiratory infection, it is thought to be a consequence of viral or bacterial infection. The incidence of dizziness and disequilibrium following head or neck injury is between 40% and 60%, even following minor trauma. Blunt head injury can concuss the membranous labyrinth with preservation of the otic capsule. Patients may complain of mild vertigo, disequilibrium and nausea. Symptoms tend to resolve spontaneously over several days to weeks. Explosive blasts can also result in symptoms of vertigo. In our study, the incidence of trauma was only 18% with the female dominance and prevalence equal in all the age groups. The most common form of endolymphatic hydrops is Meniere's disease. Patients may present with the classic triad of tinnitus, fluctuant sensorineural hearing loss, and vertigo.

The vertigo attacks may last several minutes to an hour. It is not typical for these attacks to persist longer than several hours. As the disease progresses, attacks occur more frequently and are more severe. In our study only 9 patients were presented with history of using ototoxic drugs-induced vertigo. The other risk factors such as vestibular neuritis, Ramsay Hunt syndrome- a variant of vestibular neuritis, cholesteatoma (a benign skin growth that occurs in the middle ear behind the ear drum) or acoustic neuroma were not manifested in any of the described cases in this limited period of study. Moreover, the most common cause of peripheral vertigo is benign paroxysmal positional vertigo due to the turning their head was also not reported by any of the patients included in this study. A retrospective study by Uneri and Polat<sup>11</sup> showed that 93.5 per cent of the elderly patients studied had been diagnosed with peripheral vertigo which had been classified as benign paroxysmal positional vertigo, idiopathic vestibulopathy or migraine vestibulopathy. Short period of the study and small sample size are the major limitations of this study.

### Conclusion

The result concluded that prevalence of incidence was significantly found in females of age group 40- 59 with clinical presentation of both spinning and about to faint. Risk factor of ear infection was significantly found. Evaluation of a dizzy patient is a challenge due to the wide spectrum of the condition and lack of sophisticated equipment's 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 dizziness. The present study shows that vertigo patients form a sizable number of patients in an ENT OPD of a tertiary care Hospital, with BPPV being the commonest treatable cause of vertigo.

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