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VERTIGO IN THE ELDERLY: A GROWING CAUSE OF CONCERN

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Objectives: To find out the etiology of vertigo amongst elderly (>65 years) patients at an audio-vestibular clinic in Eastern India.
Materials: 763 patients who came with complaints suggestive of vertigo were evaluated. The patients above 65 years of age were included and studied. Detailed history taking and clinical examination was followed by appropriate tests for diagnosing the cause of vertigo. The study was conducted at an audio-vestibular clinic in Uttarpara, Hooghly over a period of 12 months, February 2019 to January 2020.
Result: A third of all the patients who came with complains of vertigo were found to belong to the elderly age group (>65 years), with a mean age of 69.70 years. The leading cause of vertigo in both males and females was found to be benign paroxysmal positional vertigo (45.91%). This was followed by vestibular migraine (20.24%), Meniere's disease (11.28%), and vestibular neuritis (7.39%). No cause of elderly vertigo was found in 10.89% cases.
Conclusion: The most common cause of elderly vertigo in both the sexes as found in our study was BPPV. Vestibular migraine was the second most common cause of vertigo in the elderly, accounting for a fifth of the cases. No cause of vertigo could be found in around one-tenth cases.
Keywords: vertigo, elderly, BPPV, benign paroxysmal positional vertigo, vestibular migraine, Meniere's disease, vestibular neuritis, presbyastasis

Introduction

Dizziness or vertigo is a common symptom among elderly people [1]. A population-based study conducted in the United States reported 24% of the population with an age more than 72 years had dizziness [2]. Dizziness and imbalance in the elderly is cause for public health concern owing to the fact that it puts older people at a significantly higher risk of falling, leading to accidents which can cause serious morbidity and mortality [3,4]. Several studies have reported a higher risk of falls among the elderly with a history of dizziness and imbalance [4,5,6]. The underlying cause of dizziness in the elderly is complex and multi-factorial [7]. Postural stability is a function of visual, vestibular and somatosensory inputs to the central nervous system, and their subsequent integration, followed by outputs to the musculoskeletal system. The function of all the components involved in the maintenance of balance decreases with age [8]. Further, vertiginous disorders are often difficult to diagnose in elderly population since several comorbidities are often associated in them.

This article aims to study the etiology of vertigo among the elderly population presenting to an audio-vestibular clinic in Eastern India.

Aims & objectives:
To find out the etiology of vertigo amongst elderly (>65 years) patients presenting to an audio-vestibular clinic in Eastern India.

Materials & Methods:
Place of study: An audio-vestibular clinic at Uttarpara, Hooghly, West Bengal.
Duration of the study: 12 months, February 2019 to January 2020.

Inclusion Criteria:
1. Patients over the age of 65 years.
2. Patients suffering from chronic vertigo with symptoms of imbalance, dizziness and/or spinning of the head or surroundings for at least 3 months.
3. Patients willing to participate in the study.

Exclusion Criteria:
1. Patients presenting with acute attack of vertigo, with acute symptoms of imbalance, dizziness and/or spinning of the head or surroundings.
2. Patients under the age of 65 years.
3. Patients suffering from otitis externa, acute otitis media or chronic otitis media.
4. Patients with a past history of ear surgery.
5. Patients unwilling to participate in the study.

A total of 763 patients who attended the place of study with complains suggestive of vertigo were evaluated. Those meeting the inclusion criteria were included in the study. All the patients underwent detailed history taking which included relevant history pertaining to the symptom suggestive of vertigo, its progression, aggravating and relieving factors, history of hypertension, cardiac disorders, diabetes mellitus, neurological disorders, disorders of the thyroid, history of trauma/injury, drug history and history of addictions. The patients then underwent clinical examination and balance tests. Detailed neuro-otological examination was done for each patient, which included examination of ear, cranial nerve examination, finger to nose test, dysdiadochokinesia, Romberg's test, Unterberger stepping test, head-impulse test, Dix–Hallpike test done for posterior and anterior canal benign paroxysmal positional vertigo (BPPV), and supine roll test for horizontal semicircular canal BPPV. The patients underwent vestibular function tests in a specialized audio-vestibular clinic. Videonystagmography (VNG) test was done in each patient after cessation of labyrinthine sedatives for 48 hours. Other tests included Craniocorpography (CCG), Vestibular Evoked Myogenic Potential (VEMP) testing, Subjective Visual Vertical (SVV) and Dynamic Visual Acuity (DVA) tests, done as required. Patients were also subjected to investigations to rule out central causes of vertigo, which included Doppler and contrast enhanced MRI.
Benign paroxysmal positional vertigo (BPPV) was defined as transient vertigo induced by Dix–Hallpike manoeuvre with video nystagmography (VNG), associated with characteristic paroxysmal positional nystagmus and response to canalith repositioning manoeuvres [9-11]. Vestibular neuritis was diagnosed based on the criteria suggested by Coats [12].
Vestibular migraine was diagnosed in accordance with the definition laid down by the International Headache Society and the Barany society [13]. Meniere's disease was diagnosed according to the 1995 guidelines of the American Academy of Otolaryngology-Head and Neck Surgery [14]. The patients in whom the etiology of vertigo remained undiagnosed, despite detailed clinical examination and balance tests, were termed as having 'Presbyastasis', or disequilibrium of aging.
All the test results were digitally documented. The results were computerized and analyzed by a single member.
Results:

A total of 763 patients visited the place of study with complaints suggestive of vertigo, over the duration of the study. Out of 763 patients, 257 were found to belong to the elderly group (>65 years), with a mean age of 69.70 years. This contributes almost a third of the total number of patients with vertigo. Of the 257 patients with elderly vertigo, 138 were Male and 119 were Female.

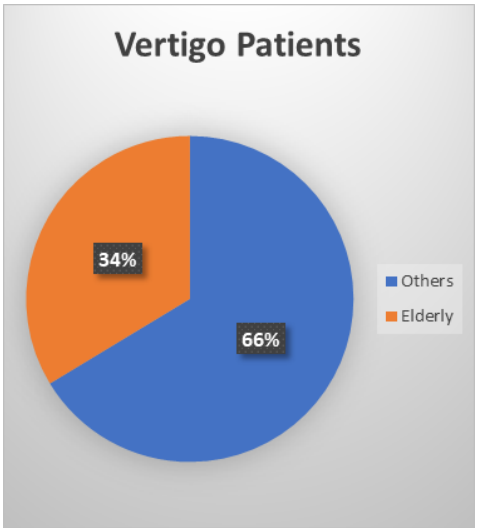


Fig 1: Percentage of elderly vertigo patients

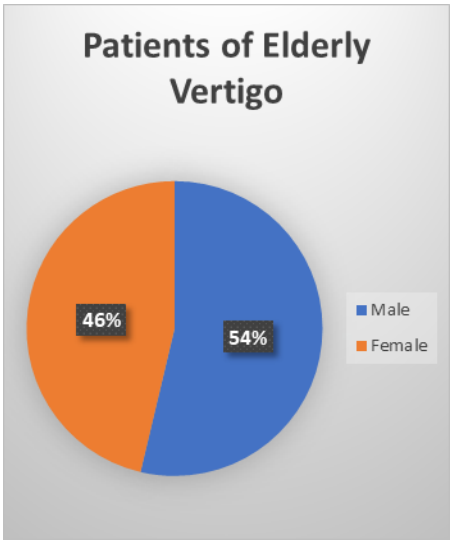
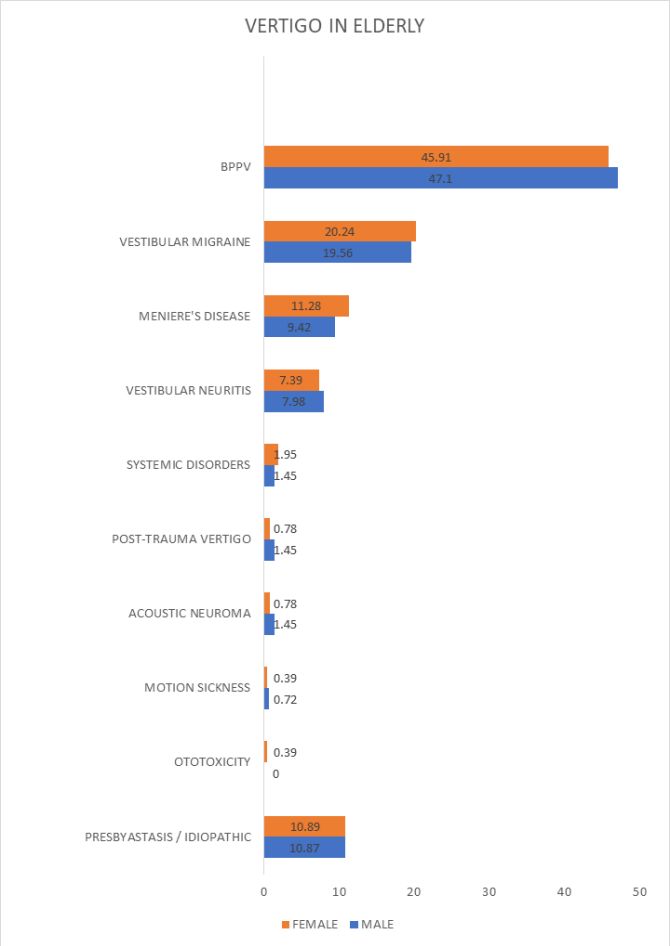


Fig 2: Males and females among patients of elderly vertigo

Table 1 The etiology of vertigo in the elderly age group as found in our study:

ETIOLOGY	MALE (n=138)		FEMALE (n=119)		TOTAL (n=257)	
	n	%	n	%	n	%
BPPV	65	47.10	53	44.54	118	45.91
VESTIBULAR MIGRAINE	27	19.56	25	21.00	52	20.24
MENIERE'S DISEASE	13	9.42	16	13.45	29	11.28
VESTIBULAR NEURITIS	11	7.98	8	6.72	19	7.39
SYSTEMIC DISORDERS	2	1.45	3	2.52	5	1.95
POST-TRAUMA VERTIGO	2	1.45	0	0.00	2	0.78
ACOUSTIC NEUROMA	2	1.45	0	0.00	2	0.78
MOTION SICKNESS	1	0.72	0	0.00	1	0.39
OTOTOXICITY	0	0.00	1	0.84	1	0.39
PRESBYASTASIS	15	10.87	13	10.93	28	10.89

Fig 3: Various causes of vertigo in the elderly age group (>65 years) have been detailed in the form of a bar chart. The etiology of vertigo in male and female patients has been documented separately. The causes are listed on the Y axis, while the percentage of patients has been listed on the X axis.



The most common cause of elderly vertigo in both males and females in our study, was found to be benign paroxysmal positional vertigo (BPPV), accounting for 47.1% and 44.54% cases respectively. BPPV accounted for an overall 45.91% cases amongst elderly patients of vertigo. Vestibular migraine was found to be the second most common etiology of elderly vertigo, accounting for 20.24% of the cases. In 10.89% of the patients, the etiology of vertigo remained undiagnosed despite detailed clinical examination and balance tests. These patients were labelled as having 'Presbyastasis'. Other etiologies of elderly vertigo as found in our study were Meniere's disease (11.28%), vestibular neuritis (7.39%), systemic disorders like vertebrobasilar insufficiency and hypothyroidism (1.95%), post-trauma vertigo, following blunt injury to the temporal region after a road traffic accident (0.78%) and acoustic neuroma (0.78%). Motion sickness and ototoxicity were found to be the cause of elderly vertigo in one patient each.

Discussion:

With advancements in healthcare and increase in life expectancy, the population of elderly people has been on a steady rise. With increasing age, the function of all components involved in maintenance of balance begins to diminish. Both these factors explain why vertigo in the elderly is a growing cause for concern. Several studies have testified to problems with balance in the elderly being caused due to vertiginous disorders [15,16]. To diagnose the cause of vertigo can be a challenging task, especially in the elderly. An American study concluded that more than half of the elderly patients with balance disorders are unclear, inconsistent and unreliable in describing their symptoms [17]. However, unless explained the cause behind the discomfort caused owing to their debilitating vertiginous disorder, the patients seeking professional help are unlikely to be satisfied. Hence, there is a need for more comprehensive studies on the etiology of vertigo.

The mean age of our study population was 69.70 years. The most common cause of vertigo in elderly patients in our study was found to be BPPV. It was found to be the cause of elderly vertigo in 45.91% of the patients. It is well known that BPPV can occur together along with other peripheral vestibular disorders. In our study, these cases have been classified as BPPV. BPPV was found to afflict males and females almost equally (1.06:1). The presence of BPPV has been frequently documented to increase with age [9-11]. Oghalai et al [9] reported a prevalence of dizziness as high as 61 per cent amongst the elderly population. Although having a high prevalence, BPPV remains one of the most treatable causes of vertigo [18].

A high number of patients were diagnosed with vestibular migraine (20.24%). It was the second most common cause of elderly vertigo in both male and female patients. Vestibular migraine is a subtype of migraine with the vestibular symptoms predominating. Management options include lifestyle modifications, medication including triptans, and physiotherapy, depending on symptom frequency and severity.

Meniere's disease was the next most common cause of elderly vertigo, affecting 11.28% patients. Meniere's disease is considered rare among the elderly, but exact data for this age group is lacking [19,20]. However, Ballester et al [20] in their retrospective analysis of neuro-otological clinic visits, reported that 5.1% patients had Meniere's disease, and that 15.3% of these patients were over 65 years old. They concluded that Meniere's disease is not as rare an entity among the elderly, as earlier thought. In a retrospective study about the origin of vertigo and dizziness in 677 patients older than 65, Uneri and Polat found a similar percentage of 12.5% of patients suffering from Meniere's disease [21]. Compared with Meniere's disease among other age groups, the elderly patients as a specific population exhibit a higher incidence of drop attacks [22].

Vestibular neuritis was diagnosed as the cause of elderly vertigo in 7.39% of our study population. The epidemiological data on vestibular neuritis is lacking. An epidemiological survey in Japan reported the prevalence of vestibular neuritis to be 3.5/100,000 and the peak age distribution to be between 40 to 50 years. In our study, vertigo could be attributed to systemic disorders in five patients (1.95%). Of them, three were found to be having untreated hypothyroidism and the remaining two were documented cases of vertebrobasilar insufficiency. Bhatia et al [23], in their study involving a battery of audiological and vestibular function tests performed on 72 cases of confirmed hypothyroidism, found that the symptom of vertigo is seen in 67% of patients with hypothyroidism and that attacks are usually mild and brief, and not associated with hearing loss.

Ototoxic drugs are a known cause of vertigo. With increased chances of polypharmacy among the elderly, the chances of ototoxicity are likely to compound. In our study, one elderly female was found to have vertigo owing to ototoxicity caused due to aminoglycoside usage.

No cause of vertigo was established in 28 patients. These patients were diagnosed as 'presbyastasis'. The use of this term was first suggested by Belal et al to denote disequilibrium of aging [25].

Conclusion:

The most common cause of elderly vertigo in both the sexes as found in our study was BPPV. Vestibular migraine was the second most common cause of vertigo in the elderly, accounting for a fifth of the cases. No cause of vertigo could be found in around one-tenth cases. Vertigo in the elderly is a growing cause of concern and more studies about the common etiologies of elderly vertigo are warranted.

The authors have declared there's no cnflict of interest between the athors.

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Data collection was done by Dr Rahuldeb Chatterjee and the writing and analysis part was done by Dr Shriyash Sinha.

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