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Original Research Article

Common causes of vertigo and dizziness in Gujarat

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ABSTRACT

Background: Dizziness is one of the most common complaints in medicine just second to headache. It frightens not only the patient but also frustrates the physicians. There is a long list of causes of dizziness but the common causes vary from place to place. The aim of this study was to know the common causes of dizziness and vertigo in Gujarat to generate the awareness among the doctors who get the patients with this common ailment so that they can better manage dizzy patients.
Methods: This prospective study included thirty-five patients with dizziness and vertigo that came to the Department of ENT for their management.
Results: Patients were divided into three categories. The first group of patients was having associated cochlear symptoms. Second group patients had isolated vertigo. Third group patients had associated CNS or medical conditions. The largest was the second group (37.5%) of isolated vertigo patients. The commonest diagnosis (18.75%) in this group was benign paroxysmal positional vertigo, followed by acute vestibular neuritis. Meniere's disease and migraine and its variant were the most common causes in first and third group respectively.
Conclusions: The overall scenario of causes of dizziness and vertigo in our study follow the international trend. Benign paroxysmal positional vertigo, acute vestibular neuronitis, Menieres disease and migraine were found the most common causes of vertigo.

Keywords: Dizziness, Vertigo, CADINO

INTRODUCTION

Dizziness is the ninth most common clinical symptom, rising to third among aged 65 to 75 years and becoming first among those aged more than 75 years.[1] Patients may use different terms to describe their sensations of dizziness such as disequilibrium, unsteadiness, vertigo and lightheadedness.[2] A seemingly endless number of disorders can result in symptoms of dizziness and disequilibrium.[3] The most important step towards reaching a diagnosis is full clinical history.[4,5] The symptoms of dizziness can be difficult for the physicians to categorize.[2,6] The interest in this study began with a desire to know the common causes of dizziness and vertigo in our region of Gujarat.

American National Institute of Health Statistics has reported that 42% of the nation's population goes to the physician with dizziness sometime in their lives.[7] The balance related falls have been reported to account for 50% of accidental deaths in the population above 65 years.[8] Exact figure of prevalence of dizziness in India is not available.[9]

The choice of specialty is not always clear as multiple pathologies are estimated to occur in high percentage of patients. Majority of the patients with dizziness are referred to otolaryngologists because most commonly the cause lies in the inner ear.[10] Dizziness has a prevalence of 23% in the UK population.[11] Between 0.8% and 1% of the population, consult the general practitioners for the

symptoms of dizziness. Most of the patients are managed at the level of general practitioner but 9% -13% of these patients are referred to the specialists such as neurologists, cardiologists and otolaryngologists.[12]

The vertigo is among the most common heart sink symptoms in medicine.[4] Computer-aided expert systems play an important role in diagnosing these dizzy patients.[13] Vertigo instantly changes a healthy person into an invalid and a physician can respond like an idiot if she/he is not aware about the common causes of dizziness which may vary from place to place. The aim of this prospective study was to know the common causes of dizziness and vertigo in Gujarat to generate the awareness among the doctors who get the patients with this common ailment so that they can better manage their dizzy patients.

METHODS

This study was part of the PhD thesis the proposal of which was approved by the B J Medical College and Gujarat University, Ahmedabad. This prospective study of dizziness and vertigo included thirty-five patients who came to the department of ENT for their treatment. The history (duration of episode of vertigo, provoking factors, associated features etc.) and physical examination (ENT, head, neck, neurologic systems, special tests such as the Dix-Hallpike maneuver) are presented in Table 1 as recorded.

Table 1: Clinical assessment of dizzy patient.

S.No.	Assessment parameters
1.	History in detail
2.	E.N.T. Head and Neck examination
3.	Cranial nerve examination
4.	Eyes movements: Spontaneous nystagmus, saccades and smooth pursuit.
5.	Positional and positioning tests
6.	Unterberger's and Romberg's testing
7.	Gait examination
8.	Audiometery
9.	Audio-vestibular, blood and radiological investigations: Only when clinically indicated-such as MRI when unilateral tinnitus and/or SNHL of greater than 15 decibels between each ear.

The attending faculty member or resident house staff directly asked for consultation of the computer expert system CADINO (Computer-Aided Diagnosis In Neurotology) which was developed during the original research of PhD thesis by the first author.[14] The consultations were carried out by residents and faculty members those were conversant with the use of CADINO. The system used to prompt users for additional information. The faculties reviewed the patients' record and selected the patient's findings from the CADINO program. The system then generated a list of diagnoses along with the suggestions for additional history, physical or laboratory items.

Any additional information obtained through pertinent history, directed physical examination and investigations helped in arriving the final diagnosis. CADINO's suggestions were noted regarding any potentially discriminating items of information not yet obtained. Residents were free to act on the CADINO's suggestions as per the directions of their faculties. Before the consultation, the concerned resident was requested to fill out a brief pre-consultation form summarizing the available findings and recording their differential diagnoses. Faculties were also requested to note their diagnoses before CADINO consultation.

All patients who underwent CADINO consultation were included in the study. The protocol followed for the patients of CADINO consultation was a detail history and thorough examination. Provocation tests such as Hallpike and hyperventilation tests were done if indicated. Laboratory investigations, audiological testing, and imaging were done if only strongly indicated. The patients in whom no cause of dizziness could be ascertained (such as vestibulopathies of unknown etiologies and presumed malingerer) and who have multiple causes of dizziness (such as elderly patients) were not included in the study. The patients were followed until a diagnosis was definitively established through history and examination. Educational consultations with CADINO, which were done for seeing pertinent disease profile, causes of key findings, or relationships between findings, were not included in the analysis.

RESULTS

A total of thirty-five patients of dizziness for diagnostic consultation were studied. A full diagnostic follow up could not be done on 3 patients because they were lost in follow up and were not included in the evaluation. Patients were divided into three categories, as described by Agostino and colleagues.[15] The first group of patients was having associated cochlear symptoms. Second group patients had isolated vertigo. Third group patients had associated CNS or medical conditions. Table 2 shows the diagnoses and their percentages of thirty-two patients.

The largest was the second group (37.5%) of isolated vertigo patients. The commonest diagnosis (18.75%) in this group was benign paroxysmal positional vertigo (BPPV), followed by acute vestibular neuritis (AVN) (12.5%). Meniere's disease (MD) (9.37%) and migraine and its variant (9.37%) were the most common causes in first and third group respectively.

Otitis media (OM) was seen in three cases (9.37%): 1 each case of acute otitis media (AOM), otitis media with effusion (OME) and cholesteatoma. The case of

ototoxicity had a preceding history of streptomycin prior to the development of vertigo. Spontaneous perilymphatic fistula was diagnosed in 1 case (3.12%).

Table 2: Diagnoses of patients with dizziness and vertigo.

S.No	Diagnoses	Number and percentage of patients
	First Group	**10 (31.25%)**
1	Meniere's disease (MD)	3 (9.37%)
2	Labyrinthitis: Acute otitis media (AOM)	1 (3.12%)
3	Labyrinthitis: Otitis media with effusion (OME)	1 (3.12%)
4	Ototoxicity	1 (3.12%)
5	Labyrinthine fistula – cholesteatoma	1 (3.12%)
6	Spontaneous Perilymph fistula	1 (3.12%)
7	Atmospheric Inner Ear Barotrauma (AIEB)	1 (3.12%)
8	Head Injury (Post concussion syndrome)	1 (3.12%)
	Second Group	**12 (37.5%)**
9	Hyperventilation Syndrome	1 (3.12%)
10	Acute vestibular neuritis (AVN)	4 (12.5%)
11	Benign Paroxysmal Positional Vertigo (BPPV)	6 (18.75%)
12	Recurrent Vestibulopathy	1 (3.12%)
	Third Group	**10 (31.25%)**
13	Benign Recurrent Vertigo (BRV)	1 (3.12%)
14	Vestibular Migraine	1 (3.12%)
15	Familial Vestibulopathy	1(3.12%)
16	Benign Paroxysmal Vertigo of Childhood	1 (3.12%)
17	Cerebellar Abscess	1 (3.12%)
18	Acoustic neuroma (AN)	1 (3.12%)
19	Drug induced	2 (6.25%)
20	Paraneoplastic Syndrome	1 (3.12%)
21	Vitamin B12 Deficiency	1 (3.12%)

BPPV was diagnosed in 6 cases (18.75%) and vestibular neuritis in 4 cases (12.5%). These were the patients with isolated vertigo. A case of hyperventilation syndrome was diagnosed by reproduction of vertigo on hyperventilating (40-60 breaths per minute) for 30 seconds without any nystagmus and with normal otoneurological examination.

Migraine related vertigo was diagnosed in 3 (9.37%) of 10 cases (31.25%) of third group and was the largest number in this group. Migraine headache with or without aura was present in all the 3 cases. Drop attacks were not seen in any case. None of the patient had history of hearing loss. The CNS conditions associated with disequilibrium were diagnosed in 3 (9.37%) of 10 cases (31.25%) of third group with one patient (3.12%) each, with cerebellar abscess, acoustic neuroma, and paraneoplastic syndrome. Vitamin B_{12} deficiency associated with dizziness was seen in one case (3.12%) only. Two cases (6.25%) had drug-induced dizziness and were caused due to carbamezepine and methotrexate.

DISCUSSION

Though the type of catchments population coming to an institute determines the causes of any symptoms, the overall scenario of causes of dizziness and vertigo in our study seems to follow the general trend of other similar studies. BPPV, AVN and MD are reported the most common causes of vertigo; however, other common causes include cerebrovascular disease, migraine, psychological disease, perilymphatic fistulas, multiple sclerosis (MS), and intracranial neoplasms.[16-18] In our study also the most common causes of vertigo were BPPV, vestibular neuritis, Meniere's disease and migraine. Our two patients (6.25%) had neoplastic lesions and one patient was of perilymphatic fistula. We did not have patients with MS, cerebrovascular and psychological diseases as these patients usually consult or must have been referred directly to their respective specialists like neurologist and psychiatrists. Although otitis media is the most common cause of vertigo in children, it can be a manifestation of other otological and medical disorders.[19] In our series Otitis media was seen in three cases (9.37%): 1 case each of AOM, OME and cholesteatoma. Vertigo in the absence of ear symptoms, neurological deficit or medical disorders is a diagnostic dilemma for the clinicians. Similar to other studies the common causes of this group of patients with isolated vertigo in our study were BPPV and vestibular neuritis.[11,17]

Ninety-three percent of primary care patients with vertigo were reported to have BPPV, AVN and MD.[20] In our research study these three causes though the most common constituted only 40.62% of the patients. The reason is in vertigo clinics there come more variety of patients than primary care centers. Other common causes reported are drugs and acute labyrinthitis.[21] We also saw 3 patients of labyrinthitis due to otitis media and they constituted 9.37% of the vertigo patients. Labyrinthitis (inflammation of the labyrinth caused by infection) is distinct from acute vestibular neuronitis (inflammation of the vestibular nerve), and the two terms are not interchangeable.[20]

It is estimated that more than 25% of patients who present to their general practitioner with vertigo suffer from BPPV.[16] In our report BPPV constituted 18.75% of the patients. The labyrinthine causes of vertigo are

reported to constitute thirty to fifty-one percent of the patients. In our prospective series of patients they made 84.37% of the patients and may be because the vertigo clinic was in the department of otolaryngology.[16,17]

CONCLUSION

Though our study consisted of not a very large series of patients, the overall scenario of causes of dizziness and vertigo in our study seems to follow the international trend of other similar studies. BPPV, AVN, MD and migraine were found the most common causes of vertigo.

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