

## VERTIGO PRESENTATION IN DEVELOPING COUNTRY, NIGERIA

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### ABSTRACT

**AIM:** This study aimed at determine clinical and epidemiological features of vertigo in Ado Ekiti, south western part of Nigeria.

**MATERIAL AND METHOD:** It is a hospital based prospective study. All patients with complaint of vertigo that presented in our department from January to December, 2012.A total of 178 out 4385 that presented to the department were recruited for this study.

**RESULTS:** Prevalence of vertigo in this study was 4.1%. There was bimodal age distribution of 41-50 and 71-80 years. Vertigo patient presented every month of the year with peak of 20.8% in February. Most patients, 93.3% presented in our clinic with least presentation in emergency ward. Most of the referral were from general medical practitioner. High percentage, 70.8% recurrent cases was recorded. Vertigo attack duration of minutes or more were commoner and responsible for 60.1% of the studied cases. Associated symptoms were 21.3% nausea, 5.1% vomiting, and 12.8% fall.

**CONCLUSION:** Vertigo is a common presenting complaint with high prevalence in our centre. It is usually associated with disabilities and high recurrent cases. Vertigo is usually associated with other clinical features and it is caused by various vestibular and non vestibular pathology.

**Keywords:** vertigo, Benign paroxysmal positional vertigo, meniere's disease, vestibular neuronitis, cervical vertigo, migraine vertigo.

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## INTRODUCTION

Vertigo is the sensation of motion when no motion is occurring relative to earth's gravity.<sup>1</sup> It is an illusion of self-motion or object motion of otorhinolaryngological and neurological significance. Vertigo is one of ten most common clinical presenting compliant responsible for patient referral to the specialist.<sup>2</sup> It is usually an emergency condition presenting in acute or in chronic form of great concerns to attending physician. It is usually presented as a single or in association with other localising or general symptoms. It arises from pathologies of various vestibular system disorder (peripheral or central disorder).<sup>3,4</sup> Peripheral vestibular diseases include benign paroxysmal positional vertigo, meniere's disease, vestibular neuronitis, labyrinthitis while central vestibular disease includes multiple sclerosis, migraine vertigo,

cervical vertigo, and so on.<sup>5-13</sup> Vertigo is not a diagnosis but a symptom of vestibular system disorders. Detail clinical history will differentiate vertigo from other form of dizziness. This will also throw more light on further characteristics of vertigo and associated complications. Diagnosis of causes of vertigo is mostly made clinically. Vestibular investigations and further test may also be required. Vertigo is not synonymous with the word dizziness. Dizziness is non specific symptom that implies sensation of altered orientation in space and comprises of giddiness, light headedness, unsteadiness, faintness, vertigo, imbalance and so on.<sup>14</sup> All these component of dizziness has different meaning as well as different aetiological and pathophysiological pattern.

There is scarce epidemiological data on vertigo in developed countries this is even worst in developing countries such as Nigeria. There is therefore no data or extrapolation of data on distribution and clinical features of vertigo in our studied area. Our epidemiological study aimed at determine the true size, clinical distribution, determinant and impact of vertigo as a symptoms burden of diseases in our clinical practice. Clinical characteristics as well as prevalence of vertigo shall also be determined. This will become a reference for population study and clinical work on vertigo in Nigeria.

## **MATERIAL AND METHOD**

This is a prospective hospital based study of all patients that presented with vertigo to the ear, nose, and throat department of our tertiary centre, Ekiti state university teaching hospital, Ado Ekiti, Nigeria. This study was done in our ear, nose and throat department over a period of one year, from January to December 2012. Ethical clearance was obtained.

The studied population include all the patients referred from within and without our centre to our department for review and management. Patients were reviewed in our department clinic, emergency and admission wards. Informed consent was obtained from patient or their guardian before they were enrolled into the study. Interviewer assisted questionnaire was administered. Biodata of the patient was obtained including the age, sex, occupation and so on. Detailed clinical history of vertigo and concomitant symptoms were obtained. Further history on characteristics of vertigo such as mode of onset, intensity, frequency, duration, precipitating factor, recurrence, and possible causes were obtained. Full examination including general and oto-neurological examination were performed on all patients. General evaluation included vascular examination to rule out posterior circulation compression, gait and so on. Oto-neurological examination included otoscopy for ear pathology. Cranial nerves evaluation done for nerve deficit. Cerebellar evaluation was performed by disdiadokinesis. Vestibulospinal reflexes examination by romberg test, unterberger test, past pointing, and deep tendon reflexes were done. Visual assessment done by visual acuity, saccades, and smooth pursuit. Vestibulocular reflex evaluation were done to differentiate peripheral from central causes of vertigo. Nystagmus observation was made by Frenzel glasses. Dix-Hallpike maneuver and caloric test were done to further differentiate central from peripheral vertigo. Detailed hearing investigation such as audiological evaluation including pure tone audiometry and tympanometry were done for hearing disorder. Vestibular function test includes caloric test and electronystagmography were done on the patients for detail vestibular assessment. Computerised tomography or magnetic resonance imaging scan was done where necessary to rule out ear or brain tumor. Electrocardiogram and blood sugar level checked to confirm cardiovascular disorders and diabetic mellitus respectively. Based on our findings diagnosis were made.

Data obtained were collated and documented. The document was stored in a database and SPSS version 11 package was used for our analysis.

Exclusion criteria: patients or their guardian who refused to consent for the research. Recurrent cases after initial enrollment to avoid duplication.

Inclusion criteria: patients with vertigo who presented in our centre are eligible to enroll in this study.

## RESULTS

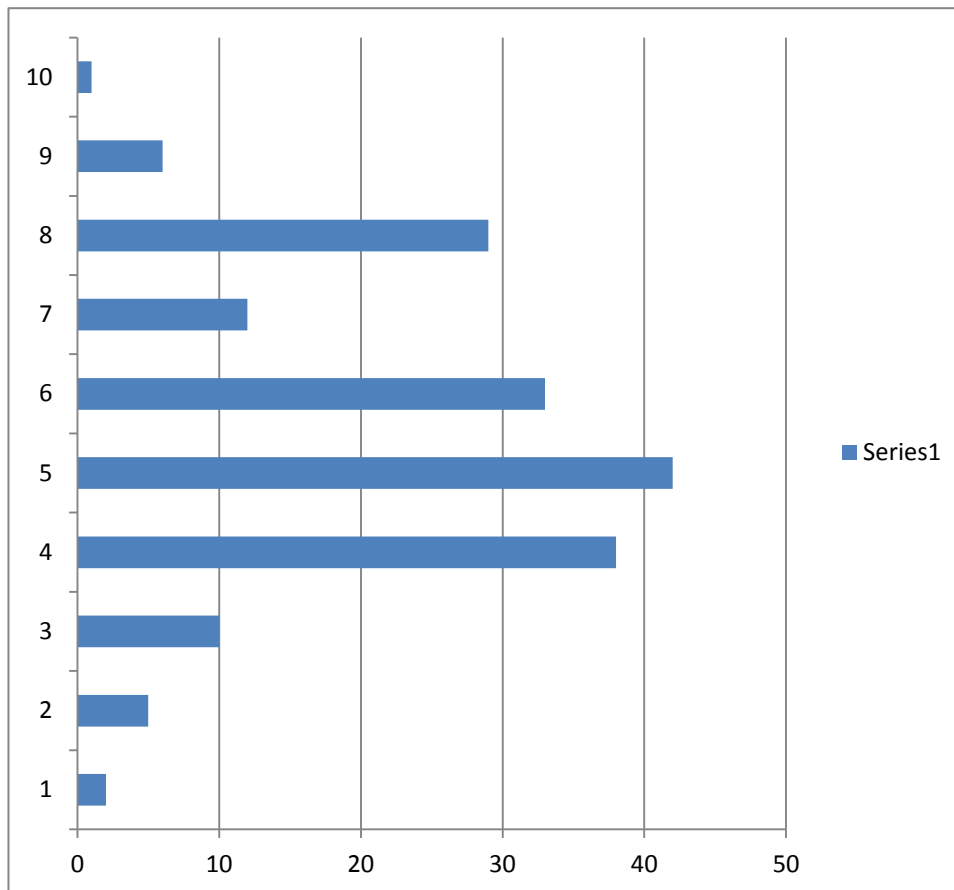
A total of 4385 patients were seen in our clinic over the study period. Symptom of vertigo was noted in 178 subject. The prevalence of vertigo was 4.1%.

Male subject accounted for 77 patients with M:F ratio of 3:4. The age range was between 8-93 years. The age distribution of the subjects were noted as in fig 1. There was bimodal age distribution of 41-50 and 71-80 years.

Cases of vertigo were seen every months of the year with peak in the month of February as shown in Table 1. Most of our patient presented in the clinic, 93.3% while those presented in admission and emergency ward 5.1% and 1.7% respectively. Referral of the studied population were from 66.9% general medical practitioner; 26.4% physician; and 6.7% from other sources. Recurrent cases of vertigo were commoner and accounted for 70.8% while first episode occurred in 29.2% of our cases. Subject with shorter duration of attack were noted to be less than those with longer duration of attack. Attack that last seconds compared to those last minutes or more were 39.9% and 60.1% respectively. There were associated 21.3% nausea, 5.1% vomiting and 12.4% fall among our studied vertiginous population. In this work tinnitus and hearing loss were

noted in 49 (27.5%) and 53 (29.8%) respectively. Disabilities to life were associated with vertigo in our studied group. Noted disabilities were mostly in 51.1% frequent medical consultation and it is least with 14.6% indoor as shown in fig 2.

**Fig 1: Age distribution of patients with vertigo**



In this study, 87.7% vestibular vertigo were responsible for the causes of vertigo. Other causes were 10.1% non vestibular vertigo while 2.2% unknown causes were also noted. Peripheral vestibular vertigo were commoner than central vestibular vertigo with the following value 65.2% and 22.5% respectively. Common causes of peripheral vestibular vertigo were 45.5% benign

paroxysmal positional vertigo, 26.4% meniere's disease and 5.1% vestibular neuronitis. Central vestibular vertigo were noted to be commoner in 14.0% cervical vertigo and 6.7% migraine vertigo. Diabetes mellitus and hypertension were 3.4% and 1.1% respectively common causes of non vestibular vertigo in this study as shown in Table 2.

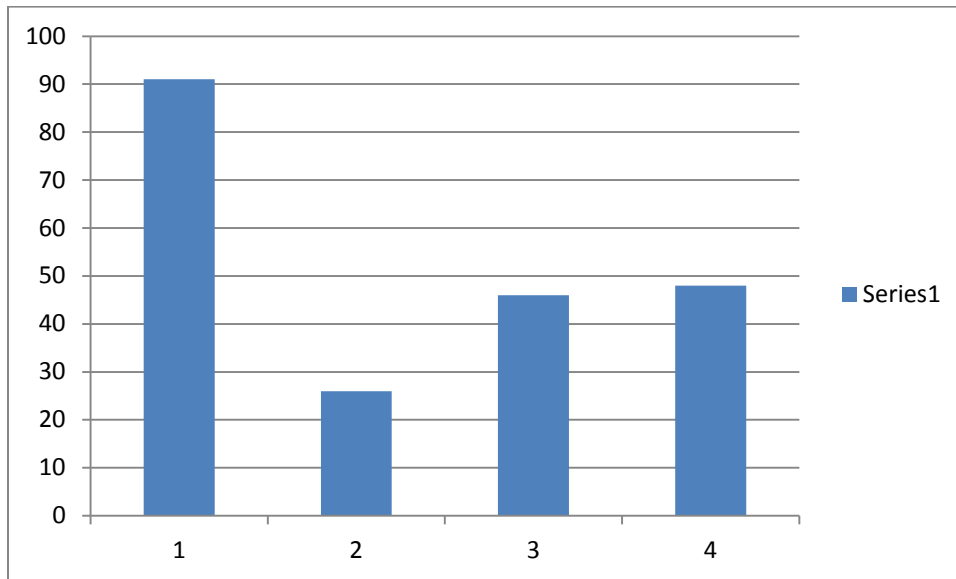
**Table 1: Monthly distribution of vertigo patient's presentation**

Month	Frequency	Percentage (%)
January	14	7.9
February	37	20.8
March	29	16.3
April	13	7.3
May	8	4.5
June	22	12.4
July	6	3.4
August	15	8.4
September	5	2.8
October	17	9.5
November	4	2.2
December	8	4.5
Total	178	100

**Table 2: Causes of vertigo**

Causes	Frequency	Percentage (%)
Peripheral vestibular vertigo	116	65.2
Benign paroxysmal positional vertigo	81	45.5
Meniere's disease	47	26.4
Vestibular neuronitis	9	5.1
Labyrinthitis	8	4.5
Trauma	5	2.6
Drug	2	1.1
Acoustic neuroma	1	0.6
Central vestibular vertigo	40	22.5
Cervical vertigo	25	14.0
Migraine vertigo	12	6.7
Vertebrovascular insufficiency	3	1.7
Non vestibular vertigo	18	10.1
Diabetes mellitus	6	3.4
Hypertension	2	1.1
Refractive error	9	5.1
Arthritis	1	0.6
Unknown	4	2.2



**Fig 2: Disabilities associated with vertigo**

1.Frequent Consultation 2.Indoor 3.Incapacitating 4. Absenteeism

## DISCUSSION

Vertigo as a symptom is one of the common patients presenting complaint in Ear, Nose and Throat practice. It may be the first or part of patient symptom presentation. The prevalence of vertigo in our study was 4.1%. Prevalence of vertigo varied in different studies and its associated factors are age, sex, region and so on. In Taiwan, vertigo health insurance study revealed a prevalence of 3.13%.<sup>15</sup> Niemensivu study also revealed prevalence of 8% among Finland children who had vertigo.<sup>16</sup> Prevalence of vertigo was found to be 21.5% among the elderly over the age of 65 years in a study done in UK.<sup>17</sup>

Vertigo in our study presented every months of the year with peak of 20.8% in February at the tail end of cold (harmattan) and beginning of hot season. Highest number of vertigo patients were admitted in autumn (September-November) at Kyoto university hospital.<sup>18</sup>

Vertigo as a main or part of presenting complaint occurred in both young and old age group as observed in our study. This is in line with separate children and elderly studies.<sup>16,17</sup> Vertigo in this study had a bimodal age distributions. These were 40s and 70s years age group in this work. Other studies revealed unimodal age distribution.<sup>13,14,18-20</sup> The finding in this study may be an incidental findings. The peak age distribution are determined by sex, causative factor, environment and so on. Bimodal peak distribution of vertigo occurred in 40s and 70s in our study compare to unimodal peak of 70s in Yan and Xu study. Peak age for peripheral and central vertigo were found to be 50-60 and 60-70 years respectively in a clinical epidemiological study.<sup>13</sup>

In this study, most of our study population (70%) presented to general medical practitioner for treatment or first aid who subsequently gives them labyrinthine sedative to stabilise them. Once they are stable patients are either discharged home or referred to Ear, Nose, and Throat clinic for definitive diagnosis and treatment. This could account for higher percentage (93.3%) of vertigo first presentation at our clinic and a lower percentage (1.7%) presentation at emergency ward. This may also account for high incidence (70.8%) of recurrent attack of vertigo in this research work. The findings may also be due to indiscriminate labyrinthine sedative therapy to all vertiginous or dizzy patients.

As in other studies common associated symptoms with vertigo were nausea, vomiting and fall these were also noticed in this study.<sup>21</sup> Vertigo attack could be very terrible and may lead to incapacitating, frequent medical consultation, indoor, and absenteeism in the patient. These were found in our study. Previous studies revealed similar findings.<sup>8,22</sup>

There were so many causes attributed to vertigo in previous studies.<sup>3,4,10,13-16,18-20,23</sup> The findings in these studies were in line with our research work. Vestibular vertigo was the commonest cause

of vertigo in this study. Similar to other study, peripheral vestibular vertigo was commoner than central vestibular vertigo.<sup>3,13,18-20,23</sup> This study revealed the commonest causes of peripheral vestibular vertigo to be 45.5% benign paroxysmal positional vertigo, 26.4% meniere's disease. This findings is similar to other research work.<sup>19,20,23</sup> Contrary findings were observed in other study.<sup>3,18</sup> Common causes of central vestibular vertigo in this study were cervical vertigo followed by migraine vertigo. Refractive error, diabetes mellitus and hypertension were the commonest causes of non vestibular vertigo in this research work. These were also notable aetiological causes of vertigo<sup>24</sup>.

## CONCLUSION

Vertigo is one the common presenting complaints in ear, nose, and throat head and neck surgical practice in our centre. It has high prevalence and recurrence. Majority of our studied patient first presented to general medical practitioner. There is need to increase the level of awareness on vertigo in developing countries.

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**REFERENCES**

1. Committee on Hearing and Equilibrium guidelines for the diagnosis and evaluation of therapy in Meniere's disease. *Otolaryngol Head Neck Surg* 1995;113:181-185.
2. Moulin T, Sablot D, Vidry E, et al. Impact of emergency room neurologist on patient management and outcome. *Eur Neurol*. 2003;50:202-214.
3. Bunasuwan P, et al. Etiology of vertigo in Thai patients at Thammasat Hospital. *J Med Assoc Thai*. 2011; Dec; 94 suppl7: S102-108.
4. Guilemany JM, Martinez P, Prades E, et al. Clinical and epidemiological study of vertigo at an outpatient clinic. *Acta Otolaryngol*. 2004;124(1):49-52.
5. Harris JP, Alexander TH. Current-day prevalence of Meniere's syndrome. *Audiol Neurootol*. 2010; 15(5):318-322.
6. Nwaorgu OGB, Onakoya PA, Usman MA. Cervical vertigo and cervical spondylosis-A need for Adequate Evaluation. *Nig Journal of Medicine*. 2003;12(3): 140-144.
7. Gopinath B, McMahon CM, et al. Dizziness and vertigo in an older population: the Blue Mountains prospective cross-sectional study. *Clin Otolaryngol*. 2009; 34(6): 552-556.
8. Neuhauser HK, Radtke A, et al. Burden of dizziness and vertigo in the community. *Arch Intern Med*. 2008; 168(19): 2118-2124.
9. von Brevern, Radtke A, et al. Epidemiology of benign paroxysmal positional vertigo: a population based study. *J Neurol Neurosurg Psychiatry*. 2007; 78(7): 710-715.
10. Neuhauser H. Epidemiology of vertigo. *Current opinion in Neurology*. 2007; 20(1),40-46.
11. Neuhauser HK, Radtke A, et al. Migrainous vertigo prevalence and impact on quality of life. *Neurology*. 2006; 67(6): 1028-1033.

12. Maarsingh OR, Dros J, et al. Causes of persistent dizziness in elderly patients in primary care. *Ann Fam Med*. 2010A; 8(3): 195-205.
13. Yin M, Ishikawa K, et al. A clinical epidemiological study in 2169 patients with vertigo. *Auris Nasus Larynx*. 2009; 36(1):30-35.
14. Perez HG, Andres C, Arbaizar A, et al. Epidemiological aspects of vertigo in the general population of the Autonomic Region of Valencia, Spain. *Acta Oto-laryngologica*. 2008; 128(1): 43-47.
15. Lai YT, Wang TC, et al. Epidemiology of vertigw: a National Survey. *Otolaryngol Head Neck Surg*. 2011; 145(1): 110-116.
16. Niemensiv R, Pyykko I, et al. Vertigo and balance problems in children- an epidemiologic study in Finland. *Int J pediatr Otorhinaryngol*. 2006; 70(2): 259-265.
17. Stevens KN, Lang IA, et al. Epidemiology of balance and dizziness in a national population. English Longitudinal study of Ageing. *Ageing*. 2008; 35(3): 300-305.
18. Hideaki O, Akiko T, Kazuo F, et al. Clinical and epidemiological study on inpatients with vertigo at the ENT Department of Kyoto University Hospital. *Acta Oto-laryngologica*. 2010;130:563:34-38.
19. Yan Z, .Xu C, Xiaoting W, et al. A clinical epidemiological study in 187 patients with vertigo. *Cell Biochemistry and Biophysics* +Business Media, LLC 2010 10.1001/s12013-010-9120-1.
20. Akiko T, Hideaki O, Kazuo F, et al. Clinical study of vertigo in the outpatient clinic of Kyoto university hospital. *Acta Oto-laryngologica*. 2010;130,563:29-33.

21. Agrawal Y, et al. Disorders of balance and vestibular function in US adults: data from the National Health and Nutrition Examination Survey, 2001-2004. *Arch Intern Med.* 2009 May 25; 169(10): 938-944.
22. Sumit KA, Lorne SP. Surgical treatment of benign paroxysmal positional vertigo. *Audiological Medicine.* 2005; 3(1): 63-68.
23. Isaradisaikul S, et al. Causes and time-course of vertigo in ear, nose, and throat clinic. *Eur Arch Otorhinolaryngol.* 2010 Dec; 267(2): 1837-1841.
24. Amusa YB et al. Aetiology of vertigo in a Nigerian tertiary health facility, a multidisciplinary approach. *Nigerian Journal of Otolaryngology.* 2005; 2(2): 54-59.