Saudi Journal of Medicine (SJM)
Scholars Middle East Publishers
Dubai, United Arab Emirates
Website: www.saudijournals.com

ISSN 2518-3389 (Print)
ISSN 2518-3397 (Online)

An Observational Study: Etiological Basis of Dizziness in Patients Attending ENT Clinics (VERTIGO Study)

Sameer Qureshi[1], Atif Hafeez[2], Altaf Hussain[3], Fasihullah Mir[4], Khalid Cheema[5], Ayub Musani[6], Zakir Ullah[7], Muhammad Mujeeb[8], Sobia Ali[9*]

[1]Department of E.N.T, Jinnah Sindh Medical University/JPMC, Karachi, Pakistan
[2]Department of E.N.T, Civil Hospital, Karachi, Pakistan
[3]Department of E.N.T, Pakistan Institute of Medical Sciences, Islamabad, Pakistan
[4]Department of E.N.T, Dr. Fasih's ENT Hospital, Karachi, Pakistan
[5]Department of E.N.T, Mayo Hospital, Lahore, Pakistan
[6]Department of E.N.T, Abbasi Shaheed Hospital, Karachi, Pakistan
[7]Khyber Teaching Hospital, Pakistan
[8]Department of E.N.T Services Hospital, Lahore, Pakistan
[9]Department of Medical Affairs, Abbott Laboratories, Karachi, Pakistan

***Corresponding author**
Sobia Ali

Article History
Received: 08.06.2018
Accepted: 20.06.2018
Published: 30.06.2018

DOI:
10.36348/sjm.2018.v03i06.008

Abstract: The study was conducted to determine the Etiological basis of dizziness in patients attending ENT clinics in Pakistan. It was a prospective, multicenter, observational, non-interventional, cross - sectional study conducted in five cities across Pakistan, between August, 2014 and March, 2015. The study population included male and female patients attending the outpatient clinics of ENT departments. The patient population was of 18 years of age or older presenting with dizziness. Based on the initial screening patients were diagnosed as vertiginous or non-vertiginous. Patients' written authorization to use or disclose the patient's personal or health data was obtained. Benign Paroxysmal Positional Vertigo was the commonest diagnosis (67%) followed by Meniere's disease (16%) in patients who presented with vertigo attending outpatient departments in ENT Clinics. At baseline visit, 38.3% of the patients were categorized as moderately handicapped. Medication was offered to three quarter of the patient population (69%), while rest of the patients were offered maneuver and medication both (20.8%) and only maneuver (3.5%). DHI was used at the baseline visit and post treatment as well. It was observed in the study that the DHI score was significantly improved in all diagnosis groups after the treatment. At the end of four weeks majority of the patients were categorized mildly handicapped (91.3%). Majority of the patients diagnosed as BPPV were prescribed anti-vertiginous medicines (70%) followed by anti-emetics and pain killers. Amongst the patient reporting with dizziness the commonest diagnosis was Benign Positional Paroxysmal Vertigo followed by Meniere's disease. Based on pre and post-treatment DHI scores, medication and medication with maneuver helped the patients presenting with dizziness in improvement of Quality of Life.

Keywords: Vertigo, Benign Paroxysmal Positional Vertigo (BPPV), Meniere's disease, Dizziness Handicap Inventory (DHI).

INTRODUCTION

Vertigo is defined as an illusion or hallucination of movement, usually rotational, either of oneself or the environment. According to an update published in India in 2012, statistics show that 5% of all patients going to the general physician and about 10% of patients going to neurologists and ENT specialists present with vertigo. It is the second most common symptom among old aged patients and more than 50% of all patients about the age of 60 years who have a history of falls have some disorder in the balance system [1].

Vertigo is a condition which is commonly reported to physicians all over the world. It is caused by problems involving the balance mechanisms in the inner ear. There can be other causes as well like problems in certain parts of the brain but most of the time the problem is related to the inner ear balance mechanisms. The most common causes of vertigo are Benign paroxysmal positional vertigo (BPPV), where certain head movements trigger vertigo. Ménière's disease (MD), a less common condition that affects the inner ear, migraines and vestibular neuronitis, inflammation of the vestibular nerve which runs into the inner ear and sends messages to the brain that help control balance. The patient may experience additional symptoms but

that depends upon the underlying condition causing vertigo. These symptoms might include high temperature, tinnitus (ringing in the ears) and hearing loss.

While managing patients of vertigo careful history like onset of symptoms, the causative factors and associated signs and symptoms along with physical examination can be very meaningful. The examination of head and neck and neurologic systems is very important. A few tests such as the Dix-Hallpike maneuver provide important clues to the diagnosis of Vertigo.

Vertigo is often considered as a mild physical disorder with low morbidity. However, the psychological impact of vertigo can lead to a substantial impact of the individual's lifestyle and behavior [2]. Research suggests that patients have had to quit, change or modify their jobs due to their symptoms[2] and have a considerable impact on quality of life [3,4].

The treatment of dizziness and vertigo may include medication, physical therapy, and psychotherapy; a few limited cases may require surgical treatment.

Considerable research has been conducted globally to assess the burden of vertigo and related disorders particularly in the west. Though it has been postulated that there exists a considerable disease burden of vertigo in Pakistan, not much has been published.

While dizziness and vertigo are often reported as common frustrating complaints in general practice and can account for a significant number of consultations, there is a lack of agreement on the treatment and management of vertigo

MATERIALS AND METHODS

This was a prospective, multicenter, observational, non-interventional, cross- sectional study conducted from August 2014 to March 2015 and it aimed to recruit 400 patients from eleven centers in OPD of ENT departments/clinics across Pakistan. The study population included both male and female patients between 18 to 83 years of age. Based on the initial screening the patients were diagnosed as vertiginous or non-vertiginous (either as first diagnosis for the enrolling physician or as a new consultation). Patients' written authorization to use and/or disclose the patient's personal and/or health data was obtained.

The criterial for evaluation was Dizziness Handicap Inventory (DHI). DHI score was used to determine the QoL of patients suffering from Vertigo using pre and post treatment. A difference in the total DHI score of 18 points was considered indicative of a clinically meaningful effect.

This study was conducted in respect to the principles of Good Clinical Practice Guidelines, and all relevant national guidelines. Institutional Review Board approval was obtained by Dr. Ziauddin Hospital located in Karachi, Pakistan for the protocol and relevant study documents.

Information for demographic and clinical features, diagnosis and the therapeutic management given to the patient was obtained for patient who met the inclusion/exclusion criteria and was included in the study recruited in the study. Patient profiling with regards to dizziness was done based on history and examination and temporal clues.

The impact of vertigo on QoL of patients was assessed using the DHI questionnaire by the investigator. The patients were required to visit for a follow up visit as close as four weeks of their initial visit to the physician. However, if any patient failed to come for the follow up visit, his QoL assessment was performed telephonically.

A study screening log was maintained in which consecutive patients were screened and subsequently enrolled. Data pertaining to each patient were collected in a standardized case report form (CRF) within 24 hours of completion of consultation. The CRF was to be completed by the investigator. Information recorded for each patient included age, gender, medical/vertigo history, vital signs, and findings on general physical examination, quality of life assessment and use of diagnostic/therapeutic maneuvers.

There are a few pilot studies conducted in Pakistan with variable sample sizes. However, studies conducted to estimate the burden of vertigo are very limited. Keeping in view the limited data available the sample size of 400 patients across Pakistan was likely to provide a decent estimate of qualitative characteristics of the different types of vertigo in patients attending an ENT Clinic.

The results are reported in percentages and proportion for categorical variables. For all the independent categorical variables cross tabulation was performed in order to look for the sparse data. The categories showing sparse data problem were merged together on the basis of previous literature available. Chi square, t tests and Fisher exact were used where appropriate according to the nature of the variable.

Difference in quality of life before and after 4 weeks using DHI is done by using paired t test. Significance of changes in values from baseline values were tested by paired t tests. Statistical significance is defined as $p < .05$.

RESULTS

This study was conducted in eleven study centers from five cities across Pakistan. All the study investigators were E.N.T specialists from private/public sector hospitals. Each investigator had three months to collect information on approximately 36 patients.

A total of 400 patients were enrolled and data for 400 patients was analyzed. The reported patient population belonged to middle age (mean age 45.5 years ± 14.4). The majority of enrolled patients in different cities were female (59.5%) – Table 1 & 2.

Table-1: Mean Age of the Enrolled Patients with vertigo attending the Out Patient Clinics of ENT

	Mean	std	Median	minimum	maximum	Q1	Q3	N
All	45.5	14.4	45	18	83	35	56	400

Table-2: Gender Distribution of the Enrolled Patients with vertigo attending the Out Patient Clinics of ENT

	Male		Female		Total
	n	%	N	%	N
All	162	40.5	238	59.5	400

The study shows that majority of the study participants were diagnosed as Benign Paroxysmal Positional Vertigo (BPPV) 67.0% followed by Meniere's disease 16.0% and Labyrinthitis 12.3% (Figure 1).

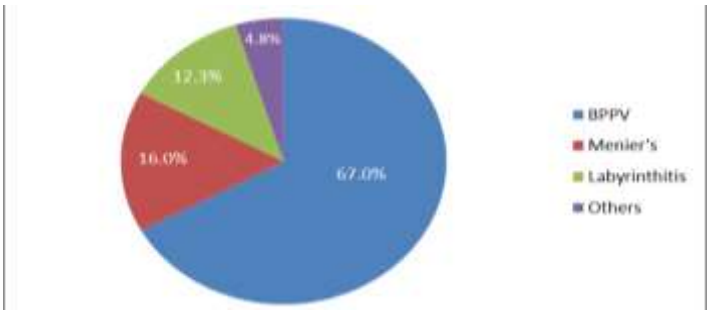

Fig-1: Diagnosis of the patients with Vertigo attending the Out Patient Clinics of ENT

The mean DHI score at baseline was 38.3 ± 18.7 which falls in moderate handicapped category. It was observed in the study that the DHI score was significantly improved in all diagnosis groups after the treatment. The DHI score in different diagnosis group pre and post-treatment is shown in Table 3.

Table-3: Comparison of Dizziness Handicap Inventory score before and After the Treatment in Different Diagnosis Groups

Diagnosis	Baseline DHI	After 4 week DHI	Mean change	*p* value
BPPV n=268	37.12 ± 18.8	13.66 ± 13.4	- 23.45	<0.001
Meniere's disease n=64	42.63 ± 19.8	15.44 ± 13.7	- 27.18	<0.001
Labyrinthitis, n=49	37.71 ± 16.4	17.51 ± 9.7	- 20.20	<0.001
Others, n=21	41.76 ± 19.08	19.71 ± 13.1	- 22.04	<0.001

In our study medication was offered to 69.0% patients, a combination of medication and maneuver was offered to 20.8% patients, Only Maneuver was offered to 3.5% patients and no treatment was offered to 6.7% of patients (Table 4). Majority of the patients were offered medication only amongst all diagnosis groups (Table 5).

Table-4: Treatment pattern of the Physicians attending the patients with Vertigo in Out Patient Clinics

	None		Medication		Medication+ Maneuver		Maneuver		Total
	n	%	n	%	n	%	n	%	
Percentage (%)	27	6.7	276	69	83	20.8	14	3.5	400

Table-5: Comparison of Different Treatment among the Diagnosis Groups

	BPPV n=268	Meniere's Disease n=64	Labyrinthitis, n=49	Others, n=21	*p* value
Treatment					
None	21(7.8)	4(6.3)	2(4.1)	0	<0.001
Medication	151(56.3)	60(93.8)	46(93.9)	21(100)	
Medication + Maneuver	82(30.6)	0	1(2.0)	0	
Maneuver	14(5.2)	0	0	0	

Amongst the medicines prescribed three fourth of the patients diagnosed with BPPV were offered Anti-vertiginous medicines followed by anti-emetic (22.3%) and pain killers (6%). Data for rest of the diagnosis groups is given in Figure 2. The most common anti-vertigionous medicine offered was betahistine (64%).

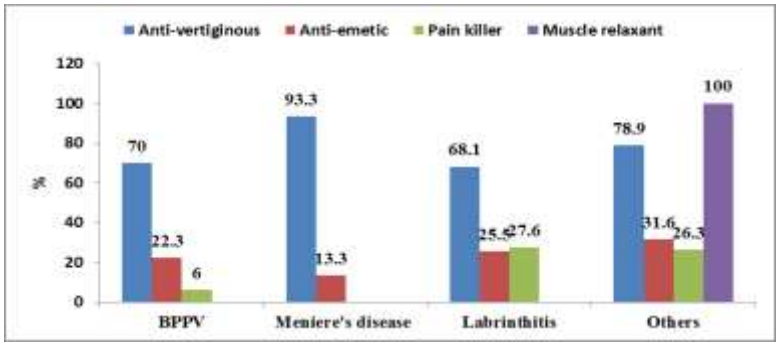

Fig-2: Distribution of Medication Prescribed to Different Diagnosis Groups

The study shows that clinically significant DHI score was achieved with patient group offered a combination of medication and maneuver (87.8%) - (Table 6).

Table-6: Comparison of Clinically Significant DHI Score amongst Different Treatment Options

Treatment	Clinically meaningful DHI Score		*p*-Value
	Yes	No	
None	18(69.2)	8(30.8)	<0.001
Medication	125(46)	147(54)	
Medication + Maneuver	72(87.8)	10(12.2)	
Maneuver	12(85.7)	2(14.3)	

DISCUSSION

Vertigo or dizziness is a common, chronic condition associated with a significant degree of handicap and occupational disability. Although it is a commonly reported condition, still the definitions vary and so are the management guidelines are different in different parts of the world.

A survey in Germany, reported that dizziness/vertigo had a prevalence of 22.9% in the last 12 months and an incidence of 3.1% [4]. Several recent study on the epidemiology of vertigo in have found that vertigo is a major health burden among the general adult population and tends to recur, particularly among older women [5-7].

Vertigo and dizziness are most often caused by different vestibular disorders, such as benign paroxysmal positional vertigo (BPPV), Meniere's disease (MD), and other vertigo of peripheral vestibular origin. The prevalence of BPPV in this study was of 67%. BPPV is one of the most common causes of dizziness and its main symptom is the feeling of spinning dizziness caused by the change in the position of the head. BPPV can occur throughout the lifespan; from childhood into old age. Population studies consistently show that benign paroxysmal positional vertigo (BPPV) is the most common cause of dizziness.

In the United States, between 17 and 42% of the patients with vertigo are diagnosed with BPPV [8]. In a large registry, REVERT, that included data collected from 4,294 patients with vertigo in 13 countries generated over a 28-month period nearly 1/3 were diagnosed to have BPPV [9].

Dizziness has considerable impact on health-related quality of life of dizzy patients. Few studies on the QoL of patients with vestibular disease have been published. Assessing the QoL has become part of the work to establish the overall impact of diseases and treatments from the patient's perspective. Generic or specific questionnaires on the QoL of patients are applied to measure such subjectivity. The Dizziness Handicap Inventory (DHI) is a specific questionnaire focusing on the impact of dizziness on the QoL, which

was used in our study. The patients at the baseline visit were reported to be moderately handicapped on DHI score (38.3 ± 18.7). A study conducted in Denmark reported 43% patients as moderately handicapped who reported with dizziness. It was observed in the study that the DHI score was significantly improved in all diagnosis groups after the treatment. At the end of four weeks DHI score in 91.3% of the patients was categorize as having Mild DHI across all diagnosis groups. A study conducted in Romania (OSVaLD study) reported substantial improvements post-treatment on DHI score, with a 41-point reduction in the mean total score and reductions of respectively, in the physical, emotional, and functional domains of the scale [10]. The improvement in total DHI score greatly exceeded the threshold for a minimally important change.

A wide variety of medications are used to treat vertigo and the frequently concurrent nausea and emesis. The American Gastroenterological Association recommends anticholinergics and antihistamines for the treatment of nausea associated with vertigo or motion sickness [11]. Besides medicines, Epley maneuver is a curative bedside maneuver and it can be used to reposition the debris which can be a causative factor for BPPV [12].

In our study medication was offered to almost $3/4^{th}$ of the patient population a combination of medication and maneuver was offered to less than $1/4^{th}$ of the patients. The two most common medicine groups offered to the patient were anti-vertiginous; prescribed to three fourth of the patients followed by anti-emetic. More than half of the patients in the study were offered betahistine (64%). Betahistine plays a significant role in the therapeutic approach to the vertiginous patient on account of its mode of action on the histaminergic system.

CONCLUSION

Benign Positional Paroxysmal vertigo (BPPV) was the most common diagnosis in patients reporting with dizziness. The patients were offered medication and medication with maneuver as treatment after diagnosis. There was a significant improvement in quality of life of patients after treatment.

ACKNOWLEDGEMENTS

We acknowledge contribution of the Dimension Research (CRO) for the support in study conduct.

REFERENCES

1. Biswas, A. (2012). Vertigo and what is new in it from the General Physician's perspective. Medicine update 2012. Downloaded from http://apiindia.org/pdf/medicine_update_2012/neurology_08.pdf on 2nd January, 2014
2. Yardley, L., & Putman, J. (1992). Quantitative analysis of factors contributing to handicap and distress in vertiginous patients: a questionnaire study. *Clinical Otolaryngology. 17*(3), 231-236.
3. Gopinath, B., McMahon, C. M., Rochtchina, E., & Mitchell, P. (2009). Dizziness and vertigo in an older population: the Blue Mountains prospective cross-sectional study. *Clinical Otolaryngology. 34*(6), 552-556.
4. Neuhauser, H. K., Radtke, A., von Brevern, M., Lezius, F., Feldmann, M., & Lempert, T. (2008). Burden of dizziness and vertigo in the community. *Archives of internal medicine. 168*(19), 2118-2124.
5. Dros, J., Maarsingh, O. R., Beem, L., van der Horst, H. E., Ter Riet, G., Schellevis, F. G., & van Weert, H. C. (2011). Impact of dizziness on everyday life in older primary care patients: a cross-sectional study. *Health and quality of life outcomes, 9*(1), 44.
6. Moreira, M. D., Costa, V. D., Melo, J. J., & Marchiori, L. L. (2014). Prevalence and association of benign paroxysmal positional vertigo in the elderly. *Revista CEFAC, 16*(5), 1533-40.
7. Takano, N. A., Cavalli, S. S., Ganança, M. M., Caovilla, H. H., Santos, M. A., Peluso, É. D., & Ganança, F. F. (2010). Quality of life in elderly with dizziness. *Brazilian journal of otorhinolaryngology, 76*(6), 769-75.
8. Cohen, H., Von Brevern, M., Radtke, A., Lezius, F., Feldmann, M., Ziese, T., ... & Neuhauser, H. (2007). Epidemiology of benign paroxysmal positional vertigo: a population based study. Editorial Commentary. *Journal of neurology, neurosurgery and psychiatry*. *78*(7).
9. Benecke H, Agus S, Goodall G, Kuessner D, Strupp M. The burden and impact of vertigo: findings from the REVERT patient registry. Frontiers in neurology. 2013 Oct 2;4:136.
10. Băjenaru, O., Roceanu, A. M., Albu, S., Zainea, V., Pascu, A., Georgescu, M. G., ... & Mureşanu, D. F. (2014). Effects and tolerability of betahistine in patients with vestibular vertigo: results from the romanian contingent of the OSVaLD study. *International journal of general medicine, 7*, 531.
11. Flake, Z. A., Scalley, R. D., & Bailey, A. G. (2004). Practical selection of antiemetics. *American family physician*. *69*(5).
12. Hilton, M. P., & Pinder, D. K. (2014). The Epley (canalith repositioning) manoeuvre for benign paroxysmal positional vertigo. *The Cochrane Library*.
13. Della Pepa, C., Guidetti, G., & Eandi, M. (2006). Betahistine in the treatment of vertiginous syndromes: a meta-analysis. *Acta otorhinolaryngologica italica*, *26*(4), 208.