

# Study of positional vertigo in elderly patients of Ranchi population

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## Abstract

**Background:** Balance disorders, un-steadiness, dizziness and vertigo in elderly are the significant health problems. Vertigo remains quite challenging to treat and manage in the elderly. **Method:** 68 elderly patients aged between 60 to 75, were studied and diagnosed was confirmed by DIX Hall pike maneuver and head roll test. Along with age related disease were also noted with blood examination and X-ray USG study. **Results:** Associate diseases were 29(42.6%) had DM with HTN, 10(14.7%) had UTI, 13(19.1%) had respiratory diseases 11(16.1%) had arthritis, 5(7.3%) had fractures. The clinical manifestation were 5(7.3%) had nausea, 3(4.4%) had vomiting 21(30%) had rotational vertigo, 17(25%) had imbalance, 12(17.6%) had fear of falls 10(14.7%) had Nystagmus **Conclusion:** This empirical study of positional vertigo, clinical manifestations and associated age related complications quite helpful to ENT surgeon and physician to treat efficiently to avoid morbidity and fatal consequence.

**Key Words:** Dix Hall pike, Nystagmus, Un-stability, Balance –disorder

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canal can be also involved. In majority of cases Dix-hall pike and head roll test can effectively lead to diagnose. The natural history of positional vertigo is one of the self-limiting disease in which symptoms resolve as octoconia fragment dissolve into endolymph. The rate of dissolution of the fragments is dependent on calcium concentration within the endolymph such that low concentration lead to faster resolution. But concentration varies in elderly patients leads to severity in the vertigo and aggravate the clinical symptoms. Hence attempt was made to evaluate the positional vertigo in elderly patients

## INTRODUCTION

Prevalence of positional vertigo is believed to be a focal disorder of the inner ear with manifestation which effects the well being and functional capacity of the suffering<sup>1</sup>. It occurs more frequently in women than men (2:1)<sup>2</sup> and its prevalence increases with age<sup>3</sup>. Positional vertigo arises from displacement of otoconia fragments into the semicircular, however a critical mass is needed to evoke the clinical symptoms<sup>4</sup>. As mere presence of fragments within the semicircular canal is not always sufficient to induce a change in vestibular nerve activity. Because of the Anatomy of the inner ear, the posterior semicircular canal is more commonly affected, but lateral and superior

## MATERIAL AND METHODS

68 elderly Patients aged between 60 to 75 years having positional vertigo regularly visiting Gandhi Nagar Hospital CCL Ranchi- 0834048 were studied,

### Inclusive criteria

The elderly patients having complaints of non-specific dizziness and instability and a few had rotatory vertigo, balance disorder

### Method

Patients typically describe the rotation of environment during on abrupt change of position, as when rising from supine position, getting on object from above and other circumstances of hyper extension of neck. Diagnosis was

confirmed by Dix-Hall Dike maneuver <sup>5</sup>. ( The test was performed by bringing down the patients rapidly from a sitting position to a position with head hanging 20-40 below horizontal over the edge of the bed with the test ear under most ) Moreover oscillopsia, nausea, vomiting, imbalance, fear of falling, falls and syncope were also noted. Routine blood examination was related out to know the common associated problems like DM-II, UTI, serum calcium was rule out in suspected Osteoporotic patients. Otoscopy and otolarangeal examinations also

done to know any associated problems. The duration study was from March 2019 to August 2019

**Inclusive criteria**

Patients had Minier’s diseases, migrainous, vertigo, vestibular neuronitis, malignant and immune compromised were excluded from the study

**Statistically Analysis**

(a) The associated diseases of elderly patients were classified with percentage.(b) Clinical manifestations of position vertigo in elderly patients were also classified with percentage. The ratio of male and female were 1:2

**OBSERVATION AND RESULTS**

**Table-1** In associated disease of elderly patients with position vertigo- 29(42.6%) had, Diabetic mellitus with Hypertension. 10(14.7%) had urinary tract infections 13(19%) had respiratory diseases, 11(16.1%) had arthritis, 5(7.3%) had fractures. **Table-2** Clinical manifestation of positional vertigo in elderly patients 5(7.3%) had nausea, 3(4.4%) had vomiting, 21(30%) had rotation vertigo 17(25%) had imbalance 12(17.6%) had fear of falls.10 (14.7%) had Nystagmus.

**Table 1:** The Associate diseases of elderly patients with positional vertigo (Total No of patients -68)

Sl.No	Particulars	No of patients	Percentage
1	D M with HTN	29	42.6
2	UTI	10	14.7
3	Respiratory Disease	13	19.1
4	Arthritis	11	16.1
5	Fractures	05	7.3

**Table 2:** Clinical manifestations of positional vertigo in elderly patients (Total No of patents 68)

Sl . No	Particular	No of the patients	Percentage
1	Nausea	5	7.3
2	Vomiting	3	4.4
3	Rotational vertigo	21	30
4	Imbalance	17	25
5	Fear of falls	12	17.6
6	Nystagmus	10	14.7

**DISCUSSION**

In the present study vertigo in elderly patients of Ranchi Population-The associated and age related disease were-29(42.6%) had, Diabetic mellitus with Hypertension. 10(14.7%) had urinary tract inflictions 13(19%) had respiratory diseases, 11(16.1%) had arthritis, 5(7.3%) had fractures of bone (Table-1). The clinical manifestations were -3(4.4%) had vomiting 5(7.3%) had nausea, 3(4.4%) had vomiting, 21(30%) had rotation vertigo 17(25%) had imbalance 12(17.6%) had fear of falls.10 (14.7%) had Nystagmus (Table-2). These findings were more less in agreement with previous studies <sup>6,7,8</sup>. The patho-physiology positional vertigo in elderly has two proposed cardinal theories it could be due to to cupulolithiasis of the posterior semicircular canal<sup>9</sup>. The otocania from the utricle and saccule may have detached and adhere to the capula of the post semicircular canal (SSC) since otoconia has relative density about-3 times greater than that of endolymph, capula becomes sensitive to the

gravity causing Nystagmus and vertigo. Moreover depositions of basophilic on capula of posterior SCC causes capulolithiasis. Another proposed hypothetical theory was, positional vertigo caused by floating otoconia of the otolithic membrane moving freely within the posterior SCC and this was termed as canalolithiasis<sup>10,11</sup>. This theory is regarded as plausible pathogenetic mechanism of post SCC in patients with torsional/ vertical positional Nystaganus and vertigo<sup>12</sup>. Both theories applies to the elderly patients because volume of otoliths are progressively between otoliths may be weaken from age related reduction of calcium carbonate crystals in the process of demineralization . This results into separation of otoconia from otolithic membrane free movement within the endolymph Altered endolymph PH and calcium carbonate are age related process may contribute for positional vertigo in elderly patients. Caution must be taken while treating vestibulo-suppressant drugs like anti histamine, benzodiazepine or

cholinergic to treat symptoms of autonomic nervous system, such as nausea vomiting or pallor because these drugs can cause adverse reaction in elderly like falls, urinary retention and confusion.. Hence physical exercises like canalith repositioning procedure (CRP) or Sermonts laboratory maneuver were proved effective in treatment of positional vertigo.

### SUMMARY AND CONCLUSION

The present study of positional vertigo in elderly will be quite helpful to physician and ENT surgeon to manage to treat such patients but this study demands further radiological patho-physiological, genetic, nutritional study because exact cause of vertigo is still un-clear.

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