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Vertigo and Presbystasis in Elderly

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ABSTRACT
As we age, the parts of the inner ear that controls our hearing and balance become less sensitive. The prevalence of dizziness in people aged more than 60 years reaches 25%, and due to aging. These inner ear changes can cause balance problems and raise your risk of falling. The amount of loss of balance varies widely from person to person, and so does the amount of improvement a person might have from balance therapy. Balance disorders in the elderly constitute a major public health problem and require an adequate diagnosis and management by trained physicians. In the elderly, common causes of vertigo may manifest differently, as patients tend to report less rotatory vertigo and more non-specific dizziness and instability than younger patients, making diagnosis more complex. In this mini review, age-related degenerative processes that affect balance are presented. Diagnostic and therapeutic approaches oriented to the specific impaired system, including visual, proprioceptive, and vestibular pathways, are proposed. In addition, presbystasis-the loss of vestibular and balance functions associated with aging-benign paroxysmal positional vertigo, and stroke (in acute syndromes) should always be considered.

INTRODUCTION

The terms dizziness and vertigo cover a variety of symptoms regarding disorders of spatial orientation and motion perception, such as the illusion of rotatory motion or the feeling of unsteadiness, which can affect objectively the ability to achieve a stable gaze, posture, and gait. Altogether they represent a common and serious issue in the elderly, where its prevalence reaches 25% beyond 60 yrs of age while rising to 50% beyond 85 yrs.

The sole presence of dizziness in the elderly is a strong predictor of falls. Dizziness is one of the strongest contributors to the disability burden after age 65. Although the majority of these patients present benign balance disorders in the elderly, common causes of vertigo may manifest differently, with a more confusing constellation of symptoms, as patients tend to report less rotatory vertigo and more non-specific dizziness and instability than younger patients presenting with the same condition. Underlying this phenomenon is the progressive multi-modal impairment of balance, including the loss of vestibular and proprioceptive functions and the impairment of central integration of these and other sensory inputs associated with aging, which may also be called as presbystasis, presbyequilibrium, multisensory dizziness.

On the other hand, a small number of patients harbour a serious and potentially life-threatening cause, mainly associated with stroke and this risk of more serious diagnoses increases with age. Altogether, vertigo, dizziness and balance disorders in the elderly constitute a major public health issue, which needs adequate management by trained physicians. This mini review presents recent advances in the diagnosis and management of dizziness in elderly patients.

Diagnosis of dizziness in the elderly: Reaching a complete, meaningful and treatment-oriented diagnosis in elderly dizzy patients remains an important challenge for even the most experienced clinician. Obtaining a good clinical history can be a tough task. It has been reported that more than half of elderly patients with balance disorders are vague, inconsistent, or contradictory in describing their symptoms. Besides, there is not a single symptom that can predict with specificity the underlying causes of dizziness, and most of the times, elderly patients have more than one cause of dizziness.

Moreover, caloric test responses depend on several factors that could be affected by age, such as ear canal volume, temporal bone thickness and blood supply to the temporal bone. Several studies have found that caloric responses tend to increase in middle age with a peak between 50 and 70 yrs and then decline modestly thereafter. A systematic assessment of balance should be achieved in this type of patient, for which recent technological developments are of great assistance. The impairment of each of the three semicircular canals can be examined by means of vHIT procuring a reliable, objective and quantitative value for VOR. Besides HIT, the SVV bucket test and modified Romberg and Fukuda tests represent low complexity alternatives for the same assessment and may be used to develop simple, low cost and quick screening procedures. SVV by means of bucket test may even provide sensible assessment of utricular components beyond VEMP contributions. Head-shaking nystagmus and dynamic visual acuity testing among others constitute bedside, fast, inexpensive and easy to interpret vestibular tests for VOR. Testing for postural hypotension, joint position sense and gait disorders can also contribute to assess non-vestibular components in a bedside low-cost manner, contributing to designing an integral but component-specific treatment.

A particular scenario exists in acute onset of severe dizziness or vertigo; an acute vestibular syndrome, where ruling out stroke is critical, particularly in the elderly. This three-step bedside oculomotor examination has shown better sensitivity than early magnetic resonance imaging (MRI). MRI can give a false negative result in vertebrobasilar stroke and is not always readily available. A full description of the management of acute vertigo in the elderly is beyond the scope of this mini review, further readings can be obtained else-where.

Test should be done to rule out BPPV. This clinical entity accounts for one in every three causes of dizziness in the elderly. Testing should be performed routinely. Consequently, to seek a precise diagnosis, it seems to be mandatory to obtain a good clinical history and perform thorough neuro-otologic bedside examination, including postural testing, while the majority of patients may benefit from vestibular tests and stroke assessment protocols for an acute balance disorder.

RESULTS AND DISCUSSIONS

As with younger patients, disease-specific therapies should be provided, such as repositioning maneuvers for BPPV and rehabilitation exercises for vestibular hypo function. Nevertheless, special consideration is needed for elderly. A high level of suspicion for BPPV should be maintained. In dubious cases, treatment attempts should be preferred, given diminished symptomatology and the safety and simplicity of reposition maneuvers.

Table 1: Dizziness history.

Dizziness history	N	%
Nature of dizziness		
Episodic	154	79
Continous	40	21
Duration of dizziness		
Upto 2 months	126	65
2-12 months	27	14
>12 month's	41	24

Table 2: Key diagnostic features.

Examination	N	%
Gait	10	5
Rhomberg Test	22	11
Nystagmus	24	12
Head Shaking Test	10	5
Dix Halpike Test	116	60
Other neurological abnormalities	12	6

Table 3: Causes of dizziness.

Most common	N	%
BPPV	116	60
Cerebrovascular Disease	39	20
Meniere Disease	19	10
Vestibular Neuronitis	9	5
Cervical Vertigo	5	3
Psychogenic	4	2

In acute syndromes, stroke should always be ruled out. Vestibular suppressants should be tapered quickly due to their inhibitory effect on central compensation. Although steroids have been proven to diminish functional loss over time, they may not contribute to acute symptomatic relief. Steroids side effects should be carefully considered before administration, particularly on this age group.

Chronic dizziness derived from previously acquired vestibular loss (vestibular neuritis, bilateral vestibulopathy among others) has good results with VR, particularly in terms of independence and quality of life, although it may need longer and more intensive therapy. Moreover, VR is indicated in presbystasis, whereas the objective is to reduce symptoms or decrease the risk of falling. In addition, if there are deficits in lower extremity muscle strength, specific therapies directed to locomotor dysfunctions should be indicated. Proper balance characterizations may help in designing more specific and efficient interventions.

We studied 200 patients with age >65 years with complaints of imbalance by a battery of tests including history, general examination, cranial nerve examination, basic ENT examination, specific examination related to vertigo. Of them the specific examination related to vertigo Dix Hallpike Test was done and out of 194 patients 116 patients suffered from BPPV and 78 patients suffered from CNS cause of dizziness.

CONCLUSION

Dizziness in the elderly remains a difficult subject, given the underlying factor of vestibular impairment due to aging in the form of presbystasis. Females are more affected than males. Episodic dizziness is more common. The diagnostic and therapeutic approach must be multi-systemic and oriented to the visual, proprioceptive and vestibular systems. Dix Halpike test gives positive test result in 60% individuals. BPPV is common and over all incidence is around 60%.

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