



Editorial

Dizziness and (Fear of) Falling in The Elderly: A Few Facts

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Information from the vestibular system and their central pathways is integrated with visual and proprioceptive afferent nerve potentials to obtain gaze stabilization and postural stability via the vestibulo-ocular and vestibulospinal reflexes, respectively.

Dizziness is a symptom of vestibular disorders that affects up to 36% of the general population, whereas vertigo (another symptom encountered in vestibular patients) is experienced by 7% of people within their lifetime ^[1]. Vestibular problems are three times more common in elderly people and are a growing public health concern among older individuals ^[2]. The underlying causes of dizziness in the elderly vary widely and can be of sensory, visual, vestibular, neurologic, cardiovascular, and muscular origin ^[3]. Therefore, these patients should be approached and treated on a multidisciplinary level.

According to a study by Agrawal et al. (2009), the odds of a balance dysfunction increases with age: 85% of individuals aged 80 years and above had evidence of a balance dysfunction ^[4].

As expected, disorders of the vestibular system and the so-called presbystasis (aging vestibular system) have been associated with gait abnormalities and an increased fall risk ^[5,6]. This leads to a higher rate of accidental falls, consequent injuries, hospital admission, and accidental death ^[7]. Moreover, vertigo and unsteadiness lead to a fear of falling, which is considered to be a strong predictor for suffering one or more subsequent falls in community-dwelling older adults ^[8].

Thirty-three per cent of people above 65 years of age fall at least once per year, and 25% of falls in this age group results in hip fracture (the yearly cost of hip fractures in Spain is 250 million Euro per year). Furthermore, falling is also the main cause of accidental death in people above 65 years ^[9]. The cost of falls in the United States is estimated to exceed 20 milliard USD annually ^[10].

Actual falling may be prevented by counseling patients at risk and by adapting their daily living situation (prevention of falling by removing carpets, stairs, etc.) and using auxiliary equipment (walking cane). More advanced tools for patients with decreased vestibular function, such as the use of a vibrotactile neurofeedback balance belt, have been designed to provide tactile cues when the patient deviates from an upright posture ^[11,12]. During the last decade, a vestibular prosthesis has been used in human clinical trials in patients with bilateral vestibular loss. This vestibular implant comprises an external part with motion sensors and a processor that transforms the information from these sensors into electrical signals that are delivered to the internal electrodes placed in the vicinity of the nerve fibers coming from the semicircular canals ^[13]. The first results of these laboratory trials are promising. However, the biggest challenge is to render it possible to wear and activate these vestibular implants continuously.

As can be concluded from the abovementioned statistics and facts, there are important challenges awaiting those who are confronted with treating and testing dizzy elderly individuals.

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