

Distinguishing Vertigo from Other Types of Dizziness

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Abstract

Dizziness is a common symptom that a physician encounters in day to day practice. A majority of the patients with dizziness or vertigo have multiple consultations in vain due to the lack of methodological approach. Dizziness, disequilibrium, lightheadedness and vertigo are common ambiguous symptoms that can be classified by taking a systematic history, applying targeted diagnostic procedures and systemic examination. Analysis of history of the patient with dizziness or vertigo regarding presenting features (spinning/rotating sensation, unsteadiness, black-outs or fainting attacks), time course or duration of attacks (lasts seconds, hours, or days), aggravating and provoking factors (provoked by specific head movements or postures, coughing or loud noises, recent viral upper respiratory infection), associated symptoms (tinnitus, deafness, diplopia, dysarthria, weakness, ataxia, headache, photophobia etc.), drug history will yield vital clues to the nature of the disorder and the etiology.

Keywords: Dizziness; Vertigo; Pathophysiology; Evaluation

Introduction

Dizziness is one of the most common complaints among patients of primary care visits and emergency department visits [1,2]. Dizziness covers many complaints, from a vague feeling of unsteadiness to severe, acute vertigo. The word 'dizzy' is often used by the patient to describe a number of symptoms like lightheadedness, disequilibrium, instability, swaying, faintness, presyncope or vertigo [2,3]. When a patient presents with dizziness, it is imperative to define what he exactly means, when he says dizzy. Vertigo-an illusion of movement is a more definite symptom. It is usually a sensation of rotation or spinning of oneself or of the environment. Vertigo is the predominant symptom of vestibular dysfunction [4].

Pathophysiology of dizziness or vertigo

Normal balance is maintained by the complex coordination of input from the visual, vestibular and proprioceptive systems, which are integrated and modulated in the brainstem under the influence of higher cortical centers [5]. The output of this system to the oculomotor and musculoskeletal systems effects the necessary changes in eye and body position. If there are problems with any part of this system, balance may be disturbed which lead to dizziness or vertigo.

Evaluation and categorization of patients with dizziness or vertigo

In evaluating patients with dizziness, questions to consider include the following:

- Is it dangerous (e.g. Arrhythmia, transient ischemic attack/stroke)?
- Is it vestibular?
- If vestibular, is it peripheral or central?

A careful history and examination often provide enough information to answer these questions and determine whether additional studies or referral to a specialist is necessary. The approach to a dizzy patient is a four-step process: History-hypothesis-examination-investigation. The history should focus closely on other features, including whether dizziness is paroxysmal or has occurred only once, the duration of each episode, any provoking factors, and the symptoms that accompany the dizziness. Causes of dizziness can be divided into episodes that last for seconds, minutes, hours, or days. Common causes of brief dizziness (seconds) include benign paroxysmal positional vertigo (BPPV) and orthostatic hypotension, both of which typically

are provoked by changes in position [4,6]. Symptoms that accompany vertigo may be helpful in distinguishing peripheral vestibular lesions from central causes [7]. Unilateral hearing loss, tinnitus and other aural symptoms (ear pain, pressure, fullness) typically point to a peripheral cause. Symptoms such as double vision, numbness and limb ataxia suggest a brainstem or cerebellar lesion [6,7].

A useful categorization divides patient with vertigo into those with acute prolonged severe vertigo (e.g., vestibular neuritis, stroke), recurrent spontaneous attacks (e.g., Meniere's disease, vestibular migraine), recurrent positionally triggered attacks (benign paroxysmal positional vertigo), and chronic persistent dizziness (e.g., psychogenic, cerebellar ataxia) [3,8,9]. Vertigo is never continuous for more than a few weeks. Constant dizziness lasting for months is usually psychogenic, not vestibular.

Discussion

As guided by the detailed history, physical examination of a patient with dizziness or vertigo should include eardrum examination, tuning fork tests, presence of nystagmus and abnormalities of the smooth pursuit mechanism, test for skew deviation, examination of the cranial nerves, fundus examination for signs of raised intracranial pressure, cerebellar screening tests, Romberg's test, Unterberger's stepping test, positional testing and rotatory chair test for vestibular function. A thorough cardiovascular examination should be performed if an underlying cardiac cause is suspected based on other findings or known cardiac disease.

Certain types of vertigo occur spontaneously, while others are precipitated by maneuvers that change head position or middle ear pressure (e.g., coughing, sneezing or valsalva maneuvers). Vertigo provoked by maneuvers that change head position like lying down, rolling over in bed, and bending the neck back to look up suggests positional vertigo [4].

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All patients with episodic dizziness, especially if it is provoked by positional change, should be tested with the Dix - Hallpike maneuver. Use of Frenzel eyeglasses can improve the sensitivity of the test. The choice of other ancillary tests like audiometry, electro- or video-nystagmography, head-impulse test, caloric testing, or MRI should be guided by the history and examination findings.

Vestibular causes of dizziness may be due to peripheral lesions that affect the labyrinths or vestibular nerves or to involvement of the central vestibular pathways. Attention should be given to any symptoms or signs that point to central dysfunction (diplopia, weakness or numbness, dysarthria, dysphagia, or limb ataxia).

Associated symptoms like headache, photophobia, sonophobia and visual aura suggest migrainous vertigo. The presence of stroke risk factors such as hypertension, diabetes mellitus, smoking and a history of vascular disease support a diagnosis of vertebrobasilar ischemia [1]. Certain medications are associated with vestibular (e.g., cisplatin, aminoglycoside) or cerebellar (e.g., phenytoin) toxicity, which can cause vertigo or dizziness.

Vascular disorders cause presyncopal dizziness as a result of cardiac arrhythmia, orthostatic hypotension, medication effects, or another cause. The prevalence of dizziness in elderly population ranges from 4% to 30%. Dizziness is associated with functional disability, 10-20% of sufferers fall because of their symptoms [2,10]. Assessment of dizziness in elderly patients is challenging because it is frequently attributable to multiple problems, including vertigo, cerebrovascular disease, neck disorders (cervical spondylosis), postural hypotension, physical deconditioning and medications [2,11]. Visual impairment from cataracts and other conditions is common in elderly and likely exacerbates the disability that is associated with dizziness. Other causes of dizziness include non-vestibular imbalance and gait disorders (e.g., loss of proprioception from sensory neuropathy, parkinsonism), anxiety, or panic disorder. Dizziness in elderly might be better considered a geriatric syndrome that results from impairment or disease in multiple systems (cardiovascular, neurologic, sensory, cervical spine, psychological, and medication-related).

Conclusion

The systematic history and physical examination play a major role in distinguishing the various conditions responsible for dizziness or vertigo. The differential diagnosis of dizziness can be narrowed with easy-to-perform physical examination tests, including general medical (orthostatic hypotension), neurological, and vestibulo-ocular reflexes in dynamic head movements (Dix-Hallpike maneuver, head impulse test). Investigating a case without the history and examination might end-up missing the common causes or undesirably investigating an incidental finding.

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