

Find the root cause of dizziness

Tests to do before referral

■ by Athanasios Katsarkas, MD

Dizziness refers to a distortion of space perception or to a disturbance of bodily adjustment to the surrounding area. In vertigo, a subset of dizziness, the prominent symptom is the sensation of spinning around. Is the presence of vertigo a definite sign of vestibular disease? No. Is the absence of vertigo a definite sign that there is no vestibular disease? No. The central nervous system (CNS) receives input from the environment through the senses, vision, proprioception, vestibular functions and hearing, and processes it to generate a response that reaches the peripheral organs. In this way, we achieve postural control, or balance, as well as clear vision during locomotion, regardless of head movements.

In evaluating dizziness, a detailed history and the clinical examination are the clinician's most important tools. When dizziness is an intermittent problem, however, the diagnosis is sometimes impossible unless the patient is assessed during the time symptoms are present. Finally, refer to a neurologist or an otolaryngologist when the diagnosis is uncertain or impossible and the suspicion is CNS or ear disease.

Root causes

FAULTS IN

- sensory input — e.g. loss of vision, vestibular disease, sensory neuropathies
- processing of sensory info in the CNS — e.g. organic CNS disease
- response of peripheral organs — e.g. muscles, bones

CNS DISEASES CAUSING ACUTE DIZZINESS, e.g.

- cerebrovascular episodes
- multiple sclerosis

CNS DISEASES ENTAILING CHRONIC PROGRESSIVE DIZZINESS, e.g.

- locomotor diseases
- tumours

NON-CNS OR NONVESTIBULAR SOURCES

- cardiovascular disease
- endocrine problems
- psychologic problems — e.g. psychogenic dizziness
- medications — e.g. antihypertensives, antidepressants, anti-anxiety drugs

History

CRUCIAL QUESTIONS

- what exactly is the sensation the patient calls dizziness
- time of onset
- whether dizziness is intermittent
- if yes, the most recent and the first episode
- concomitant symptoms, if any
- general health condition
- medications in use

Physical exam

SEARCH FOR NYSTAGMUS

- in upright position (spontaneous nystagmus)
- in various off-vertical head positions (positional nystagmus)

CHECK OUT POSTURAL CONTROL

- Romberg position, eyes closed
- tandem gait, eyes open and closed

VERIFY VESTIBULAR FUNCTIONS

- caloric test
 - simplest, may be performed in the office
 - shows the difference of excitability between the 2 ears
- dynamic posturography — capability of postural control
- rotational tests for vestibulo-ocular reflex. The last two tests are useful to determine the functional capabilities of the patient

Acute or chronic

ACUTE UNILATERAL VESTIBULAR DISEASE

- sensation of spin
- loss of postural control and tendency to fall towards affected side
- nystagmus with fast phase towards the healthy side
- nausea and vomiting
- symptoms disappear slowly
 - recovery — vestibular function has returned to normal, or
 - compensation — vestibular function still deficient, but other sensory modalities and rearrangement of signals in CNS help out

PROGRESSIVE UNILATERAL VESTIBULAR DISEASE

- unsteadiness (loss of postural control)
- blurred vision during head movements

BILATERAL VESTIBULAR DISEASE

- severe imbalance with little tendency to compensate
- often caused by ototoxicity
- also a result of autoimmune diseases, etc.

Hearing loss and tumours

MÉNIÈRE'S DISEASE

- fluctuating inner ear (sensorineural) hearing loss, mainly in low frequencies
- tinnitus of fluctuating intensity
- episodes of acute vertigo, which last for a few hours
- during these episodes, the ear becomes very deaf and the intensity of tinnitus increases

SUDDEN UNILATERAL HEARING LOSS

- acute onset

Positional vertigo

DIAGNOSIS

- most important clinical test – observe the nystagmus and its duration

BENIGN PAROXYSMAL POSITIONAL VERTIGO (BPPV)

- short duration (seconds)
- occurs in off-vertical head positions
- more common in the elderly
- semicircular canals or otoliths are affected

PERSISTENT POSITIONAL VERTIGO

- lasts as long as the head maintains the provocative position
- in most cases, origin is peripheral, but it may be of CNS origin

Vestibular neuronitis

- also sometimes called labyrinthitis
- acute onset, similar to Ménière's disease
- no auditory manifestations
- slow improvement, either by recovery or compensation
- episodes of acute onset may recur for some time
- mainly due to viruses

- often starts with vertigo

- vertigo subsides in hours or days
- hearing loss may recover or remain permanently
- mainly due to viruses, occasionally to vascular episodes

TUMOURS

- acoustic neuromas
- meningiomas
- imaging — clinches diagnosis
- modern surgical techniques — preserve function if possible

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