

Dizziness and Vertigo

Learning Goals

- Define
 - Vertigo
 - Faintness
 - Disequilibrium
 - Visual-induced dizziness
 - Giddiness
- Diagnostic assessment including dizziness simulation battery
- Clinical Syndromes

Case Studies

A. 22 Year-old white male is recovering from URI. He awakens with severe dizziness, nausea and imbalance. He can not walk and crawls to the bathroom and falls when he stands up. He is taken to ED. Exam shows broad-based ataxic gait and horizontal and rotatory nystagmus.

- What is wrong?
- How do we confirm diagnosis?
- What do we do about it?
- What is the natural history of disorder?

B. 37 year-old black male CPA hits his forehead on the steering wheel and temporal region on window in MVA. Post-accident, he has headache and neck pain, which resolves in 5 days. One week later, he rolls over in bed and has severe 30 second episode of "world-spinning". This resolves completely, but recurs 2 nights later.

C. 60 year-old white female develops sudden episode of vertigo and ringing in her ears. She also notes decreased hearing in both ears. This persists for 2 days and resolves.

D. 52 year-old black female with hypertension, NIDDM and CAD reports episode of diplopia, vertigo, left facial numbness, and gait unsteadiness. This persists for 30 minutes and resolves. BP is 130/95.

E. 38 year-old white female actress reports multiple episodes of giddiness and light-headedness. She also describes perioral and acral paresthesias. These last 2 minutes and resolve. Neuro exam is normal. Both parents have MS. Patient has MRI which shows two high signal subcortical T-2 lesions.

F. 25 year-old professional basketball player has sudden episodes of dizziness, light-headedness, visual blurring and legs feel weak and rubbery. These persist for 30 seconds and resolve. On one occasion, he passes out and during the episode becomes rigid and has myoclonic jerks, and rapidly regains consciousness and alertness.

G. A 28 year old medical student is getting ready for his surgery rotation when he is informed that he will be assigned to the Charity Hospital service, and that there will be call in house every third night, and he will be expected to perform daily rectal exams on an entire ward. He immediately vomites and complains of the world spinning. However, when a colleague informs him that he misread the schedule and is in fact assigned to Touro, he experiences a dramatic recovery.

DIZZINESS AND SYNCOPE

DIZZINESS:

A Disturbed sense of relationship to space.

1. Vertigo
2. Disequilibrium
3. Lightheadedness
4. Pre-syncope

VERTIGO:

An unreal sense of movement in space, subjective "I'm spinning".

Objective "The Room is Spinning" may also be a sense of linear acceleration.

PERIPHERAL V. CENTRAL VERTIGO:

PERIPHERAL:

Positional, intense nausea and vomiting, possible tinnitus and hearing loss. Nystagmus, which is suppressed on fixation and fatigues, horizontal or torsional, unidirectional, decreases when looking to affected side, fast component away from affected side.

Central not positional, less nausea and vomiting, associated with other brainstem or cranial nerve signs, nystagmus not suppressed by fixation, not fatiguable, may be vertical, changes direction according to direction of gaze.

Hallpike-Dix/Nylen-Barany manoeuvre:

Latency to onset of nystagmus and symptoms in peripheral vertigo, not in central.

CAUSES OF PERIPHERAL VERTIGO:

1. Benign positional vertigo
2. Vestibular neuronitis
3. Labyrinthitis
4. Meniere's disease
5. Ramsay-Hunt syndrome
6. Ototoxic drugs e.g., Aminoglycosides
7. Air travel
8. Trauma
9. Motion sickness

CAUSES OF CENTRAL VERTIGO:

1. Cerebrovascular disease
2. MS
3. Neoplasms
4. Migraine
5. Epilepsy

TREATMENT OF VERTIGO:

1. Anti-histamines (e.g. meclizine (antivert))
2. Anti-nauseants (e.g. prochlorperazine (compazine))
3. Sedatives (e.g. diazepam (Valium))
4. Epley maneuver for BPV

DYSEQUILIBRIUM: DERANGEMENT OF BALANCE.

Neurophysiology of balance: 3 types of sensory input-visual, vestibular, proprioceptive-and integrating function of the cerebellum. As long as the cerebellum is functioning properly, you can do without one of the three sensory modalities. This is why the Romberg sign is present in vestibular and proprioceptive disorders.

Problems with vision and proprioception are common in the elderly and contribute to disequilibrium. Other causes include cerebellar/brainstem strokes, posterior fossa tumors, intoxication, and disorders of the basal ganglia such as Parkinson's and progressive supranuclear palsy.

Treatment is directed to the underlying disorder. Night-lights may be of benefit.

LIGHTHEADEDNESS:

This is usually due to hyperventilation and may be associated with anxiety disorders, particularly panic attacks.

This is best treated with breathing into a brown paper bag acutely and an anti-anxiety agent if this is recurrent.

PRE-SYNCOPE AND SYNCOPE:

Faintness, passing out, often associated with nausea, diaphoresis, tunnel vision, tinnitus, and palpitations.

CAUSES:

Hypoperfusion of the brain which may be due to:

1. Hypovolemia
2. Drug induced hypotension
3. Vasovagal
4. cough/micturition/defecation syncope
5. cardiac valvular disease (particularly as)
6. Cardiac arrhythmias (Brady-or tachy)
7. Heart failure
8. Carotid sinus syndrome
9. autonomic failure e.g. shy drager Syndrome

EVALUATION:

1. When does it occur? Standing? Supine? Head movements? Precipitants? Medication?
2. Postural vital signs
3. Cardiac Exam
4. EKG
5. Holter
6. EEG

TREATMENT IS DIRECTED TO THE UNDERLYING CAUSE.