**Dizziness,**

1 In patients complaining of dizziness, rule out serious cardiovascular, cerebrovascular, and other neurologic disease (e.g., arrhythmia, myocardial infarction [MI], stroke, multiple sclerosis).

2 In patients complaining of dizziness, take a careful history to distinguish vertigo, presyncope, and syncope.

3 In patients complaining of dizziness, measure postural vital signs.

4 Examine patients with dizziness closely for neurologic signs.

5 In hypotensive dizzy patients, exclude serious conditions (e.g., MI, abdominal aortic aneurysm, sepsis, gastrointestinal bleeding) as the cause.

6 In patients with chronic dizziness, who present with a change in baseline symptoms, reassess to rule out serious causes.

7 In a dizzy patient, review medications (including prescription and over-the-counter medications) for possible reversible causes of the dizziness.

8 Investigate further those patients complaining of dizziness who have:

- signs or symptoms of central vertigo.

- a history of trauma.

- signs, symptoms, or other reasons (e.g., anticoagulation) to suspect a possible serious

underlying cause.

*Ref: mostly uptodate (dizziness, vertigo), Swanson’s*

**Population**: 3rd most common complaint among all outpatients and the single most common complaint among patients older than 75 years (in the US)

**Incidence**: 20 % of patients >60 yrs have dizziness severe enough to affect daily activities

**Risk factors:** In the **elderly, 7** characteristics associated with dizziness:

* Anxiety trait
* Depressive symptoms
* Impaired balance (path deviation and time to turn circle greater than four seconds)
* Past myocardial infarction
* Postural hypotension (mean decrease in blood pressure 20 %)
* 5 or more medications
* Impaired hearing

**History: –** Ask open-ended questions

Clarify description of dizziness, i.e.: ***vertigo*** 🡪 out sensation of spinning - “whirling”, "tilting," or "moving." Vague dizziness, imbalance, or disorientation; ***presyncope*** 🡪 feeling faint like they’re going to pass out; ***disequilibrium***🡪 feeling of imbalance when standing/walking

Cardiac Sxs: chest pain, palpitations, dyspnea

History of cardiac disease, including cardiac dysrhythmias (tachycardias or bradyarrhythmias), coronary heart disease, congestive heart failure

Ask about psychiatric symptoms, often they don’t volunteer these symptoms

Time course – vertigo is usually not continuous even when caused by central lesion (vertigo that is continuous is often psychogenic); chronic dizziness needs re-evaluation to detect changes or need for further investigations

Provoking factors – i.e.: positional or postural changes

Aggravating factors – vertigo is almost always made worse with head movement

Associated Sx – nausea, vomiting, hearing loss, headache, photophobia, diplopia, dysarthria, dysphagia, weakness, or numbness (vertigo due to stroke almost always associated with these)

Drugs – i.e. antidepressants, calcium channel or beta-blockers

***Cause of Dizziness varies with age -*** in elderly, higher incidence of central vestibular causes of vertigo (approx 20 %) most often stroke; psychiatric conditions and presyncope more so in young people

***Common cause of presyncope/syncope***: Orthostatic hypotension, cardiac arrhythmias, and vasovagal attacks (lack of spinning sensation cannot be used to exclude vestibular disease); disequilibrium – a musculoskeletal disorder interfering with gait, vestibular disorder, and/or cervical spondylosis; visual impairment can make the problem worse

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|  | **Signs of Peripheral Cause of Vertigo** | **Signs of Central Cause of Vertigo** |
| Nystagmus | Unidirectional, fast toward the normal ear, never reverses direction  Horizontal with a torsional component, never purely torsional or vertical  Suppressed effect of visual fixation | Sometimes reverses direction when patient looks in the direction of the slow phase  Can be any direction (vertical, horizontal or torsional)    No suppression of visual fixation |
| Neuro signs? | No other neurologic signs | Sever instability, patient often falls when walking |
| Hearing/tinnitus | Deafness or tinnitus may be present | No deafness or tinnitus |

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| ***Periperhal causes of Vertigo***  Benign paroxysmal positional vertigo  Vestibular neuritis  Herpes zoster oticus (Ramsay Hunt syndrome)  Meniere's disease  Labyrinthine concussion  Perilymphatic fistula  Semicircular canal dehiscence syndrome  Cogan's syndrome  Recurrent vestibulopathy  Acoustic neuroma  Aminoglycoside toxicity  Otitis media | ***Central Causes of Vertigo***  Migrainous vertigo  Brainstem ischemia  Cerebellar infarction and hemorrhage  Chiari malformation  Multiple sclerosis  Episodic ataxia type 2 |

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| ***Differentiating possible central causes of vertigo*** | | | | | | |
| Migrainous vertigo | Recurrent episodes, last several minutes to hours | History of migraine | Central or peripheral characteristics | Migraine headache accompanying or following vertigo, positive visual phenomena | Usually none | All tests are normal |
| Vertebrobasilar TIA | Single or recurrent episodes lasting several minutes to hours | Older patient, vascular risk factors, and or cervical trauma | Central characteristics | Usually other brainstem symptoms | None | MRI + DWI may demonstrate vascular lesion. |
| Brainstem infarction | Sudden onset, persistent symptoms over days to weeks | As above | Central characteristics | **Usually** other brainstem symptoms, especially lateral medullary signs | None | MRI will demonstrate lesion |
| Cerebellar infarction or hemorrhage | Sudden onset, persistent symptoms over days to weeks | Older patient, vascular risk factors, especially hypertension | Central characteristics | Gait impairment is prominent. Headache, limb dysmetria, dysphagia **may** occur | None | Urgent MRI, CT will demonstrate lesion |

**Treatment of Vertigo of peripheral cause (3 categories):**

1. Specific to the underlying vestibular disease
2. Alleviating the acute symptoms of vertigo

anticholinergics (scopolamine patch behind ear q3days),

antihistamines (meclizine, dimenhydrinate, diphenhydramine)

Phenothiazine antiemetics (prochlorperazine, promethazine, metoclopramide, domperidone, ondansetron)

Benzodiazepines

Promoting recovery, i.e.: vestibular rehab – exercises such as moving head up and down, then side to side daily for several mins daily.

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| Cause | SX | Treatment |
| Meniere’s disease | Vertigo lasting hours-days, hearing loss, tinnitus, aural fullness | Avoidance of caffeine/alcohol  Low-dose HCTZ, anti-emetics  Serc |
| Acute labyrinthitis | Vertigo lasting days, associated hearing loss, usually after URTI in which there is a middle ear effusion | Rest, antiemetics, antibiotics if middle ear fluid is infected |
| Vestibular neuronitis | Vertigo lasting days  No hearing loss, no ear pain  Maybe after URTI  No other Sx | Rest, reassurance, antiemetics |
| Benign Positional Vertigo | Vertigo lasting seconds,  Associated with rolling head left or right or looking up | Reassurance, exercises – Dix Hallpike |

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| ***Non – cardiovascular*** | ***Cardiovascular*** |
| Reflex mechanisms  Vasovagal and vasodepressor syncope (neurocardiogenic syncope)  Micturition  Deglutition  Cough  Orthostatic hypotension  Dysautonomias  Fluid depletion  Illness, bed rest, deconditioning  Drugs - antidepressants, sympathetic blockers  Psychogenic  Hysterical  Panic disorder  Anxiety disorder  Undiagnosed seizures  Improperly diagnosed syncope - confusional states, e.g., due to hypoglycemia, stroke  Drug-induced loss of consciousness (consider alcohol, illicit drugs) | Cardiovascular disease  Arrhythmic causes  AV block with bradycardia (structural changes, drugs)  Sinus pauses/bradycardia (vagal causes, sick sinus syndrome, negative chronotropic drugs such as beta blockers and calcium channel blockers)  Ventricular tachycardia due to structural heart disease  Nonarrhythmic causes  Hypertrophic cardiomyopathy  Aortic stenosis  Syncope of unknown origin  About 50 percent of patients presenting to the hospital |

***Look for common causes of syncope if indicated by History***

**Major uncommon causes of syncope**

Arrhythmic causes - SVT, Long QT, Idiopathic VTach, MI causing bradycardias and tachycardias, Right ventricular dysplasia

Nonarrhythmic causes - PE, Pulmonary hypertension, Dissecting aortic aneurysm, Subclavian steal, Atrial myxoma, Cardiac tamponade, Noncardiovascular disease,

Reflexes - Defecation, Glossopharyngeal, Postprandial, Carotid sinus hypersensitivity, Hyperventilation, Other - Migraine, Carcinoid syndrome, Systemic mastocytosis, Metabolic, Hypoglycemia, Hypoxia, Multivessel obstructive cerebrovascular disease