

Approach to the Dizzy Patient

Dizziness is one of the most common, but nonspecific complaints in the ED. Patient's presentation of dizziness usually falls within one of the following categories: **vertigo, near syncope, disequilibrium, and psychogenic dizziness**. Vertigo is defined as the illusion of movement and patients frequently describe it as "the room is spinning". Near syncope is the feeling that one is about to faint, associated with pallor, diaphoresis and nausea, and is secondary to global hypoperfusion of the brain. Near syncope can be due to orthostasis secondary to hypovolemia or cardiac origin. Disequilibrium is due to a sense of imbalance while ambulating and is usually asymptomatic while lying down. This can be caused by peripheral neuropathy, visual impairment, or cervical spondylosis. Psychogenic dizziness is commonly due to an anxiety state. It is critical to ask the patient to describe their symptoms in order to accurately diagnose and treat their particular cause.

Vertigo accounts for approximately 54% of dizziness presentations. One must **differentiate between peripheral (benign) and central (serious) etiologies**. Peripheral vertigo is usually abrupt and intense, accompanied by nausea and vomiting, and typically resolves within days to weeks. The most common cause of peripheral vertigo is benign paroxysmal positional vertigo (BPPV). BPPV is most common in elderly and is caused by **otoconia displacement**. Symptoms are positional with rapid head movements, subside within one minute and fatigue with repeated stimuli. It is uncommon to have hearing loss or tinnitus. Other causes of peripheral vertigo include vestibular neuritis, labyrinthitis, and Meniere's disease. These can be distinguished based on associated symptoms. Vestibular neuritis is commonly caused by a virus, has **sudden-onset vertigo and often has accompanied URI symptoms**. It gradually subsides over several days. Labyrinthitis is **associated with hearing loss**. Meniere's disease is defined by the triad of **vertigo, tinnitus, and hearing loss**. It is caused by distension in the endolymphatic system, where leakage of fluid from endolymph to perilymph occurs. Patients with Meniere's disease have chronic recurrent episodes. Ototoxic drugs, such as salicylates and aminoglycosides, can also cause a peripheral vertigo.

Central causes of vertigo are more serious and can be life-threatening, including **vertebral basilar insufficiency (VBI), multiple sclerosis, and cerebellar hemorrhage/infarction**. VBI is caused by transient ischemic attacks to the brainstem and can account for up to 50% of central vertigo cases. Central vertigo is usually **moderate in intensity, constant, and additional neurologic signs/symptoms are likely present**; therefore, a careful neurological exam is necessary to rule out one of these more serious causes of central vertigo. Truncal ataxia is typical with abnormal Romberg sign in cases of cerebellar hemorrhage or infarction.

Diagnosis is largely based on presentation and associated symptoms. Imaging is usually not needed in peripheral causes of vertigo but necessary if a central cause is suspected. It was found in one study that diagnostic yield for head CT in the ED for acute dizziness was low (2.2%; 1.6% for emergent findings), but MRI changed the diagnosis in up to

16% of the time (acutely in 8% of cases), showing the **important role of MRI in appropriately selected cases**. Vestibular, hearing, and a thorough neurological exam are crucial in accurately diagnosing the underlying cause of the patient's vertigo. BPPV is confirmed by the Hallpike test, in which the patient is repositioned from sitting to supine, while rotating the head. Patients with BPPV will exhibit short-lived nystagmus with the rapid component toward the affected ear. Patients with peripheral vertigo are often very symptomatic and treated with antihistaminic and anti-serotonergic medications. **Meclizine, promethazine, and Zofran** are often used to relieve symptoms. **Benzodiazepines** can also be effective by preventing the process of vestibular rehabilitation. BPPV can be treated with the Epley maneuver, which is a canalith repositioning maneuver. Vestibular neuritis and labyrinthitis are commonly treated with **steroids and acyclovir** due to their likely viral etiology.

Resources / Further Reading

1. Kerber, Kevin A. "Vertigo and Dizziness in the Emergency Department." *Emergency medicine clinics of North America* 27.1 (2009): 39–viii. *PMC*. Web. 9 Dec. 2014.
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3. Ma, O. John., and David Cline. *Emergency Medicine Manual*. New York: McGraw-Hill, Medical Pub. Division, 2004. Print.
4. <http://www.ncbi.nlm.nih.gov/pubmed/22974644>
5. <http://www.ncbi.nlm.nih.gov/pubmed/24462034>
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