Evaluation of the Dizzy Patient

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KEY QUESTIONS when evaluating the dizzy patient
1. How do you determine whether a patient has a benign cause of dizziness?
2. How does the physical examination confirm your suspicion of a benign cause of dizziness.
3. How do you treat dizziness?
Lightheadedness or Faintness

- Orthostatic hypotension
- Abnormalities of the cardiovascular system
- Altered ambulation
- Multiple-sensory-defect dizziness
- Benign disequilibrium of aging
- Hyperventilation
Vertigo (An illusory sensation of motion of self or surround)

- Physiologic
- Pathologic
  - Central origin
  - Peripheral origin
Peripheral Vestibular Causes of Dizziness

- Benign paroxysmal positional vertigo
- Vestibular neuronitis
- Meniere’s disease
- Acoustic neuroma
- Aminoglycoside ototoxicity
- Herpes zoster oticus
- Labyrinthine concussion
- Perilymph fistula
- Cholesteatoma
- Otosclerosis
- Recurrent vestibulopathy
Central Causes of Dizziness

• Migraine-related dizziness
• Cerebellar or brainstem stroke
  – Vertebrobasilar transient ischemic attacks
• Brain tumors
• Multiple sclerosis
Symptom Patterns of Vertigo

- **Benign paroxysmal positional vertigo** (benign positional nystagmus, cupulolithiasis): normal hearing, intermittent episodes of vertigo with head turning, the most common cause of vertigo

- **Vestibular Neuronitis** (vestibular neuritis, labyrinthitis): normal hearing, second in frequency, sudden onset of severe, constant vertigo made worse by head movement that resolves over the course of days to weeks
Symptom Patterns of Vertigo (Cont.)

• **Meniere’s Disease**: intermittent episodes of vertigo lasting minutes or hours in association with unilateral hearing loss, tinnitus, and ear fullness

• **Central causes of vertigo**: vertigo with neurologic symptoms such as headache, changes in vision, weakness, numbness and impaired speech
The Clinical History and Physical Examination

Does this dizzy patient have vertigo?

- True vertigo accounts for roughly half of the causes of dizziness
- Sometimes asking about specific circumstances such as when the symptoms occur, other neurologic or otologic symptoms, and whether recurrent may help pinpoint the diagnosis more than the description of the dizziness.
Ask the following questions:

- Are the symptoms characterized by a sense of motion such as spinning, rocking or tilting?
- Is there a sense of imbalance when walking, veering to the right or left, or concern about falling? Dysequilibrium accounts for roughly 3% of causes of dizziness.
Does this patient have a benign cause of dizziness?

- 40% of dizzy patients will have peripheral vestibular disorders affecting the inner ear and cranial nerve VIII
- Benign positional vertigo and vestibular neuronitis are the most frequent diagnoses

Inquire about associated hearing loss.

- For patients without associated hearing loss, the likelihood of a cerebello-pontine mass as the cause of vertigo is low (probability $1 \times 10^{-4}$)
Inquire about whether the dizziness is episodic or persistent.

- No hearing loss and episodic, brief, intense vertigo is likely benign positional vertigo
- No hearing loss and persistent vertigo lasting hours to days with nausea is likely vestibular neuronitis
The Clinical History and Physical Examination (Cont.)

Inquire about associated otologic complaints.

- Peripheral vestibular disorders are often associated with otologic complaints such as hearing loss, tinnitus, or ear fullness.
- Hearing loss and episodic vertigo lasting hours with tinnitus and a sensation of ear fullness is most consistent with Ménière disease.
- Hearing loss and severe persistent vertigo lasting hours to days with nausea is most consistent with labyrinthitis.
The Clinical History and Physical Examination (Cont.)

Does this patient have a central cause of dizziness?

- Roughly 10% of all dizziness may be central in origin

Inquire about associated neurologic complaints.

- Central vestibular disorders are more likely to be associated with headache, visual changes, numbness, weakness, and incoordination

Inquire about antecedent trauma and other risk factors.
The Clinical History and Physical Examination (Cont.)

• Review medication list
• Is this patient orthostatic?
• Is the neurologic examination abnormal?
  – Ambulation is key.
• Does this patient have an abnormal ear examination?
  – Ear drainage may be a complication of chronic otitis (Cholesteatoma) along with hearing loss and vertigo
  – Ramsay Hunt syndrome may be identified by the presence of vesicles along with hearing loss, and facial palsy.
Does this patient have positional nystagmus that reproduces the patient’s symptoms?
Treatment Considerations

- BPPV
- Vestibular Neuritis
- Meniere’s Disease
- Vestibular Migraine
Treatment of BPPV

Particle repositioning (Epley maneuver)
Vestibular Rehabilitation
Treatment of Vestibular Neuritis

Short course of corticosteroids
Vestibular rehabilitation
Treatment of Meniere’s Disease

• Signs and symptoms: Vertigo; unilateral hearing loss; tinnitus; fullness
• Pathophysiology: Endolymphatic hydrops
• Diagnosis: Low frequency hearing loss
• Treatment: Dietary – Sodium reduction; diuretic therapy: HCTZ + Triamterene
Treatment of Vestibular Migraine

• Signs and symptoms: Migraine and vertigo
• Pathophysiology: Unknown
• Diagnosis: Clinical criteria
• Treatment: Rx for migraine
Treatment Options for Vestibular Migraine

Avoid dietary and other triggers

Treat underlying migraine phenomenon

• Antidepressants (e.g., TCAs such as amitriptyline 50-100 mg/day or SSRIs such as sertraline 25-75 mg/day)
• Beta blockers (e.g., propranolol 80-320 mg/day)
• Calcium channel blockers (e.g., verapamil 80-120 mg/day)
• Triptans
• Anticonvulsants (e.g., topiramate 25-200 mg/day or valproic acid 250-1000 mg/day)

Treat movement-associated disequilibrium

• Vestibular rehabilitation therapy

Treat space and motion discomfort

• Clonazepam (0.25-0.5 mg/day)
# Medications Commonly Used to Reduce Dizziness, Vertigo, and Associated Nausea

<table>
<thead>
<tr>
<th>Drug (brand name)</th>
<th>Pharmacologic Class</th>
<th>Dose</th>
<th>Primary Use</th>
<th>Adverse Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meclizine (Antivert™, Bonine™)</td>
<td>Anticholinergic Antihistamine</td>
<td>12.5-25 mg q 4-6 h orally</td>
<td>Dizziness</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Dimenhydrinate (Dramamine™)</td>
<td>Anticholinergic Antihistamine</td>
<td>50 mg q 4-6 h orally</td>
<td>Dizziness</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Cyclizine (Marezine™)</td>
<td>Anticholinergic Antihistamine</td>
<td>50 mg q 4-6 h orally or IM</td>
<td>Dizziness</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Diazepam (Valium™)</td>
<td>Benzodiazepine</td>
<td>1-2 mg BID orally; 2-10 mg (1 dose) given acutely orally, IM or IV</td>
<td>Dizziness</td>
<td>Lethargy</td>
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<tr>
<td>Clonazepam (Klonopin™)</td>
<td>Benzodiazepine</td>
<td>0.25-0.5 mg BID orally</td>
<td>Dizziness</td>
<td>Lethargy</td>
</tr>
<tr>
<td>Prochlorperazine (Compazine™)</td>
<td>Phenothiazine</td>
<td>10 mg orally or IM q 6 hours or 25 mg rectally every 12 hours</td>
<td>Nausea</td>
<td>Extrapyramidal reactions, drowsiness, anticholinergic effects</td>
</tr>
<tr>
<td>Promethazine (Phenergan™)</td>
<td>Phenothiazine</td>
<td>25 mg q 6-12 h orally or rectally</td>
<td>Nausea</td>
<td>Extrapyramidal reactions, drowsiness, restlessness</td>
</tr>
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### Medications Commonly Used to Reduce Dizziness, Vertigo, and Associated Nausea (continued)

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<tr>
<td>Trimethobenzamine (Tigan™)</td>
<td>Substituted ethanolamine</td>
<td>250 mg q 6-8 h or 200 mg rectally or IM</td>
<td>Nausea</td>
<td>Extrapyramidal reaction (unusual)</td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl™)</td>
<td>Antihistamine</td>
<td>25-100 mg q 8 h orally</td>
<td>Nausea</td>
<td>Drowsiness</td>
</tr>
<tr>
<td>Hydroxyzine (Vistaril™, Atarax™)</td>
<td>Piperazine derivative</td>
<td>25-50 mg q 8 h orally</td>
<td>Nausea</td>
<td>Drowsiness</td>
</tr>
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