Vertigo

- Background
  - Dizziness and vertigo account for 4% of ED visits, with 3-5% of these being strokes
  - Vertigo is from asymmetry of the vestibular system that can involve labyrinth, vestibular nerve, or central vestibular structures in the brainstem or cerebellum
  - Vertigo is one type of dizziness. Also consider pre-syncope, lightheadedness, headache, etc... since patients frequently use the term 'dizziness' to describe multiple symptoms

  - Vertigo can be Peripheral (benign) vs Central (stroke or posterior circulation ischemia) - this update will give you the tools to help distinguish between the two
- History (*time course is a good tool for evaluation*)
  - Recurrent vertigo lasting <1 minute is usually benign paroxysmal positional vertigo (BPPV)
    - BPPV can be idiopathic, from head trauma or whiplash, from vestibular neuritis or infection, etc...
  - Single episode of vertigo lasting several minutes to hours may be due to vestibular migraine - may also have photophobia, phonophobia and perhaps visual aura
  - Single episode of vertigo lasting minutes to hours may also be from posterior ischemia
  - Prolonged, severe episodes of vertigo that occur with vestibular neuritis can last for days-weeks (many of these patients had a recent viral syndrome)
- Physical Exam
  - BPPV is best diagnosed with the Dix Hallpike maneuver
    - Tests for canalithiasis of the posterior semicircular canal, which is the most common semicircular canal affected in BPPV
    - Test both sides - the downward ear is the affected ear
    - Nystagmus and vertigo usually appear a few seconds of latency after the maneuver, and symptoms last < 30 seconds. Repeat maneuvers will elicit a progressively minimized response.
      - If patient has central vertigo, Dix Hallpike will have no latency, > 1 minute of symptoms and the response with remain the same on repeat maneuvers
    - Cleveland clinic has a great patient information page for BPPV
  - HINTS exam (*see the UpToDate attached image for the best way to study the HINTS exam)*
    - Use to evaluate for the possibility of a central cause of vertigo. It will distinguish brainstem and cerebellar ischemia from vestibular neuritis and peripheral vertigo

        - **The test is for patients with active continuous feeling of vertigo or dizziness, not useful for patient with transient position-related vertigo (usually BPPV)**
        - Three components:
            - Head Impulse: Patient should fix gaze on an object and examiner turns patients head side-to-side. The eyes will remain on the target in case of a central cause of vertigo (this is referred to as a normal head-impulse test). The eyes will be dragged off-target followed by a corrective saccade in a peripheral cause of vertigo.
            - Nystagmus: Direction-changing nystagmus is concerning for central vertigo
            - Test of Skew: Cover one eye, then see if there is a vertical shift when the eye is uncovered
        - Any of the components being abnormal suggests a brainstem or cerebellar lesion/pathology and further evaluation is warranted
        - HINTS exam is considered to be MORE sensitive than MRI for stroke in the first two days of symptoms
- Diagnostics
    - If necessary (to rule out central cause - e.g. stroke), the imaging of choice is an MRI and MRA. MRI will evaluate for infarct, MRA will evaluate for stenosis or occlusion of the posterior circulation
    - CT scanning is an alternative (no MRI available, metallic implants) but is less sensitive and therefore not the first-line recommendation
    - CT has 7-16% sensitivity for acute ischemic strokes, particularly posterior strokes
    - MRI detects 80-85% of acute posterior strokes within 48 hours
- Treatment
    - Home management of BPPV is usually effective using the Epley maneuver. Cleveland clinic has a great handout on this.
        - If no improvement, can refer to vestibular therapy
    - Vestibular therapy can be useful for peripheral or central vertigo
    - Medications
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        - These meds are best used for symptom relief in acute episodes of vertigo lasting hours-days - they aren't useful for very brief episodes of vertigo (BPPV) unless the frequency of episodes is very high
            - Stop after 48-72 hours of symptoms to allow for central compensation
        - Antihistamines, specifically meclizine
        - Benzodiazepines
        - Antiemetics (ondansetron, metoclopramide or prochlorperazine)
- References (in addition to the links above)
    - Diagnosing Stroke in Acute Dizziness and Vertigo
    - AAFP article on dizziness

Vertigo
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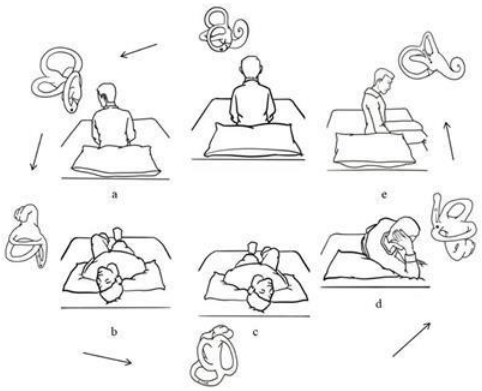
  - Self-Treatment of Posterior Canal Benign Paroxysmal Positional Vertigo: A Preliminary Study



Self-Treatment of Posterior Canal Benign Paroxysmal Positional Vertigo: A Preliminary Study - Frontiers

Objectives: The purpose of this study is to investigate a modified Epley maneuver for self-treatment of posterior canal benign paroxysmal positional vertigo (PC-BPPV).Methods: The study recruited 155 patients with PC-BPPV. All patients were randomized into the Epley maneuver group (n = 77) and modified Epley maneuver group (n = 78). We analyzed the resolution rate (1 day and 1 week), residual ...

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