DIZZINESS & ATAXIA AS A PRESENTATION OF ACUTE STROKE

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WHY?

• 0.7-3.0% of patients presenting with isolated vertigo will have CEREBELLAR INFARCTION!

• 1-3 out of every 100 patients who present with dizziness.

• Miss Diagnosis Rate: 35% of those diagnosed as benign condition

• Pts with missed cerebellar infarction are at higher risk of complications and mortality approaches 40%.
Alternative Diagnoses

• Vertigo Def: pathologic illusion of movement, usually experienced as spinning.
• Ataxia Def: disorder of movement through space
• 17% will not report classical rotational vertigo
• Most common Vertigo Syndromes
  – Benign Paroxysmal Positional Vertigo
  – Meniere’s Disease
  – Migrainous Vertigo
  – Vestibular Neuritis
**ALTERNATIVE DX, CONT’D**

- **BPPV:**
  - intense, short, worse with movement, n/v
  - Viral, traumatic, otolith, dix-hallpike, torsional or vertical nystagmus.

- **Meniere’s Dz:**
  - Vertigo + cochlear complaints, hearing loss, ringing, fullness.
  - 0.3% of pts with hearing loss will have infarction, if present it is unlikely infarction

- **Migrainous Vertigo**
  - Aura, migraine diagnosis, recurrent episodes, exclusion of other dx

- **Vestibular Neuritis**
  - Gradual onset, long lasting, viral etiology, normal neuro exam, n/v
  - HEAD IMPULSE TEST (see last slide)
CEREBELLAR INFARCTION

- Estimated 2.3% of all strokes!!

Occlusion of:
- Superior Cerebellar Art
- Ant. Inf. Cerebellar Art
- Post. Inf. Cerebellar Art
CEREBELLAR INFARCTION CONT’D

• Large infarctions include signs of brainstem injury:
  – Diplopia, dysarthria, limb ataxia, weakness or numbness.

• 10% of all cerebellar infarctions will present with ISOLATED VERTIGO!!!
  – No localizing findings on motor, sensory, reflex, cranial nerve, or limb coordination exam.
**How Will You Know??**

- Diagnostic challenge, high index of suspicion.
- Mimics are relatively benign and self limited, therefore **Think Stroke First!!**
  - Maximal intensity at onset
  - CV risk factors, htn, hx/rf for thrombosis
  - **ATAXIA**: 71% of patients with cerebellar inf. And isolated vertigo will present with the inability to walk without support.
  - **Direction Changing Nystagmus** (multi-directional nystagmus)
    - Nystagmus that changes direction with patients gaze
    - Pt looks right eye beats, pt looks left eye beats left
ATAXIA & MULTIDIRECTIONAL NYSTAGMUS

• Nystagmus can be caused by meds, alcohol. Can be normal and fleeting in extreme lateral strain due to muscle fatigue.

• Commonly present with no other brainstem findings.

• At least 1 of the 2 findings was seen in 84% pts with cerebellar infarction and vertigo in 1 study.
CEREBELLAR INFARCTION
SUMMARY

• Up to 3% of patients with vertigo, high index of suspicion

• Vertigo +
  – Cv risk factors, thromboembolic risk factors
  – Focal neuro deficits
  – Inability to walk without support
  – Multidirectional nystagmus

• 1 study showed 15 out of 15 missed cases lacked a documented standard neuro exam or gait examination.

Figure 1. Head impulse test. A: The right ear has intact peripheral vestibular function. When the head is turned to the right, the vestibulo-ocular reflex moves the eyes to maintain visual fixation. B: The right ear now has impaired vestibular function. When the head is turned to the right, the eyes move with it, breaking visual fixation, and a refixation saccade is seen as the eyes dart back to the examiner’s face. This indicates a peripheral vestibular disorder on the right side. Reprinted from The Lancet Neurology, Vol. 7, Edlow JA, Newman-Toker DE, and Savitz SI, Diagnosis and initial management of cerebellar infarction*, Page No. 959, Copyright 2008, with permission from Elsevier.