Practical Examination of the Dizzy Patient

Direct examination – tests requiring minimal equipment

Amal Abu Kteish
aabukteish@birzeit.edu

Direct examination – tests requiring minimal equipment

- Eye movement exam
  - Spontaneous and gaze without visual fixation
- VOR
  - Headshake
  - Dynamic visual acuity
  - Clinical rotating chair
- Balance function
  - CTSIB

Peripheral vs central nystagmus

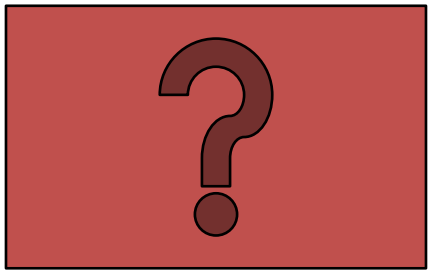
Peripheral origin

- Associated with acute lesion
- Direction fixed
- Must have horizontal component
- Adheres to Alexander's Law
- **Enhanced with fixation removed**
- Enhanced with head shake test

Central origin

- Associated with acute or chronic lesion
- Direction fixed or direction changing, may be vertical
- Rare to have horizontal component in primary gaze position
- **Enhanced or unchanged with fixation present**
- Vertical nystagmus with head shake test

Removing visual fixation



Removing visual fixation

- Eyes open in dark (either dark room or with VNG goggles)
- Eyes closed in dim light (only useful for ENG)
- Eyes open in dim light with Frenzel lenses

Frenzel lenses

Spontaneous and gaze without visual fixation

- Video 1
- https://www.youtube.com/watch?v=XJG52YjzsWY

Headshake

- Examines the ability to maintain stable gaze without generation of other eye movements (e.g. nystagmus) when the head has been shaken and fixation is removed

Measuring head-shaking nystagmus using direct observation

- Check for contraindications - neck problems
- Remove fixation with a device that allows tester to observe one or both eyes (e.g. Frenzel lenses)
- Patient seated with head tilted down by 30 degrees
- Head shaken from side to side

– Pt shakes head 20 times at 2Hz

– Then observe for nystagmus thro' frenzels

Measuring head-shaking nystagmus using direct observation

- Can be active (patient shakes own head) or passive (tester shakes head)
- Passive is preferred – better control
- Abrupt stop. Observe eyes (with fixation removed) for 30 seconds

– Normal result (no nystagmus) relies on symmetrical vestibular function and an intact velocity storage system

Headshake

- Abnormalities can originate from peripheral or central vestibular disorders

- Nystagmuscan be

- horizontal (non-localising)
- Vertical (central)

- Presence of head shaking nystagmus is helpful, absence is not

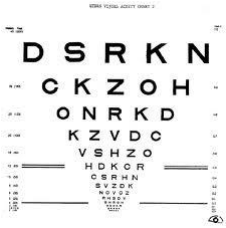
- Not to be used as isolated test

Positive headshake

- Video 2
- https://www.youtube.com/watch?v=Wh4swhhDizg

The dynamic visual acuity test

- Examines the ability to retain visual acuity during repetitive head movement
- Eye movements are not examined for this test. The test is carried out (and the results recorded) using a ETDRS chart



Measuring dynamic visual acuity

- Check for contraindications
- Patient sits 2 or 4 metres in front of a ETDRS chart
- Find the smallest line where can correctly identify all letters
- Tester tilts patient's head forward at 30^{o} and shakes head at 2Hz
- Find the smallest line where can correctly identify all letters

Measuring dynamic visual acuity - abnormalities

- Visual acuity compared when head still and shaking at 2Hz
- Abnormal if move up more than 2 lines
- Abnormality can arise from peripheral vestibular disorders
- Presence of abnormal DVA is helpful, absence is not
- Not to be used as isolated test

The dynamic visual acuity test

- Video 3
- https://www.youtube.com/watch?v=doHHU30U0eE
- https://www.youtube.com/watch?v=7SJYS37iESg

Clinical chair

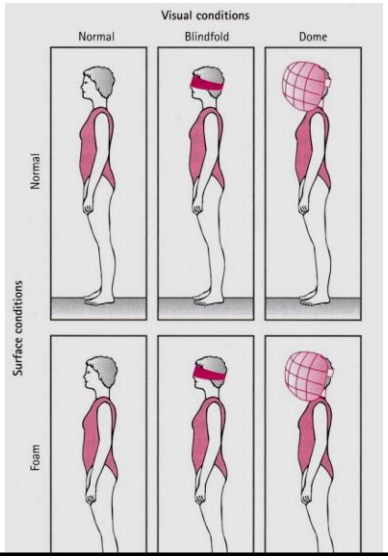
- Rotate pt in chair at 180°/s for 20 secsie 10 times with eyes closed
- Bring chair (and pt!) to a sudden stop and observe eyes with Frenzel lenses
- Nystagmus should persist for at least 10 secs
- Shortened response time or no

Nystagmus suggests vestibular loss

Clinical chair

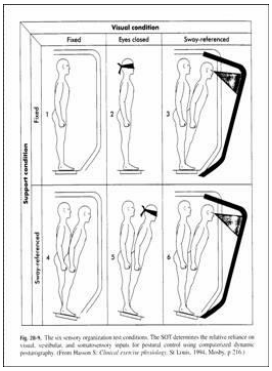
- Video 4
- https://www.youtube.com/watch?v=8RM9YIW3Hpo

Balance function – CTSIB



Balance function – CTSIB

- Clinical Test for Sensory Interaction in Balance
- Modified version – without dome
- Evaluates how effectively pt is able to use different balance inputs to control sway



Balance function – CTSIB

- Video 5
- https://www.youtube.com/watch?v=TMjR-JvG4Os