

Stroke Assessment for EMS

Deepak Nair, MD
Stroke & Neurocritical Care
Illinois Neurological Institute
OSF Healthcare

Objectives

- FAST exam
- Stroke checklist
- Assess for LVO (large vessel occlusion)

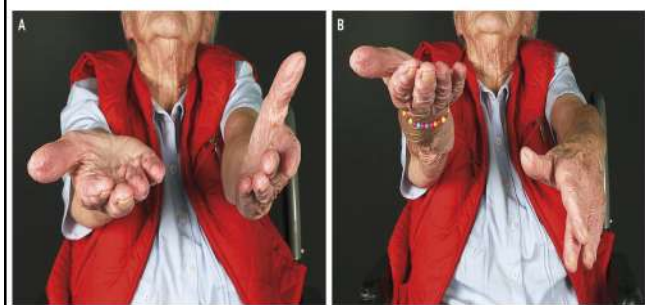
FAST Exam

- F = Facial weakness or asymmetry
- A = Arm weakness
- S = Speech disturbance
- T = Time of onset (TIME IS BRAIN)



Aphasia and Dysarthria

- Aphasia-impairment in ability to **formulate or interpret** language symbols
 - Can be grouped as expressive vs. receptive
 - Can be grouped as fluent vs. non-fluent
- Dysarthria
 - **Muscles used in speech** are weak, paralyzed or uncoordinated
 - Language comprehension intact
 - Appropriate speaking intact
- Can occur separately or together



**WITH A STROKE,
TIME LOST IS BRAIN LOST.**

Learn more at StrokeAssociation.org or 1-888-4-STROKE.



FAST positive = STROKE!!

- Positive predictive value = ~80%
 - Some risk of missing posterior circulation strokes
 - High likelihood of capturing LVO (large vessel occlusion)
- Diagnosis is made pre-hospital
- Now what??

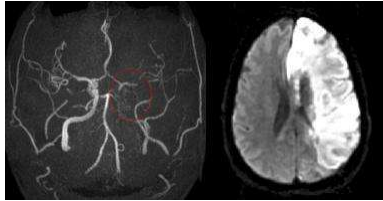
Stroke Checklist

- Stroke symptoms identified and recorded
- Onset time or last known well time obtained and recorded
- Antithrombotic medications listed _____
- BP done and recorded _____
- Accucheck done and recorded _____
- IV Gauge (18 gauge IV x2 in antecubital recommended)
- stated or actual weight obtained and recorded
- **Call in STROKE alert if symptoms are less than 6 hours or unknown at the time of evaluation**

Identifying Large Vessel Occlusion

- ICA or MCA occlusion

- Symptoms depend on which hemisphere
 - Left = aphasia
 - Right = neglect
- MCA syndrome
 - contralateral weakness/numbness
 - aphasia/neglect
 - gaze palsy



- Basilar occlusion

- More complicated
- 6 D's
 - Dizziness
 - Drowsiness
 - Dysarthria
 - Diplopia
 - ~~Dysphagia~~
 - Dead



Simplifying LVO detection

- The rationale

- Large cerebral vessels supply more than one brain territory
- Different brain territories control different functions
- LVO causes loss of multiple brain functions

- In reverse

- Look for loss of different brain functions
- If different functions are lost/abnormal, then different brain territories are injured
- Combination of symptoms = large vessel occlusion

Menu of Stroke Symptoms

- Any one of the following symptoms
 - **D's** = Drowsy, Dizzy, Double vision, Dysarthria
 - **Aphasia** = difficulty finding the right words, word salad, or mute (not just slurred speech alone)
 - **Gaze palsy** = eyes deviated to one side, or eyes unable to cross midline
 - **Neglect** = not able to pay attention to one side
- PLUS, any one of the following symptoms
 - **Weakness** of the face, arm, or leg
 - **Loss of sensation** of the face, arm, or leg
 - **Loss of vision** in one or both eyes



The D's

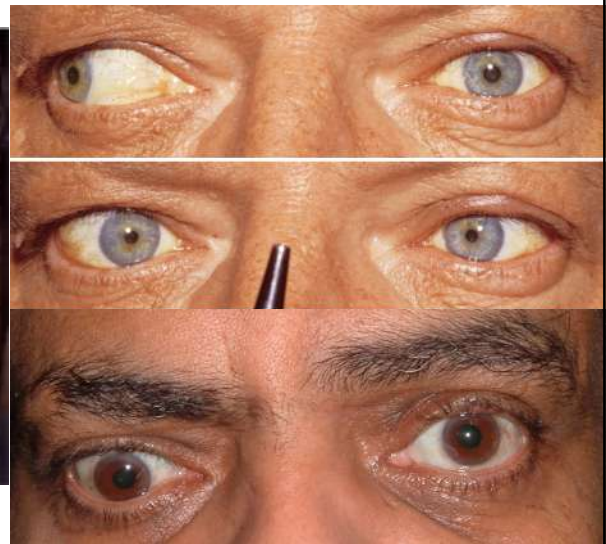
- Drowsy
 - Is patient alert?
 - Require stimulation to stay awake?
- Dizzy
 - Spinning sensation
 - Nystagmus (beating eyes)
- Double vision
 - Patient reported
 - Googly eyes
- Dysarthria
 - Slurred/drunk speech
 - Language content can be normal



Aphasia

- Inability to produce or understand language (spoken, written, signed)
- Ask patient to follow commands
 - Close your eyes
 - Stick out your tongue
- Have patient name common objects (watch, ring, pen, etc)
- Have patient repeat a short sentence
 - "The dog wants to go outside."

Gaze deviation/palsy



Neglect

- Inattention to one side
- Visual neglect
 - Have patient stare at your nose
 - Hold up both hands to check their peripheral vision
 - Ask how many hands they see
- Tactile neglect
 - Touch each arm and then both arms simultaneously
 - Each time, ask patient which side you are touching



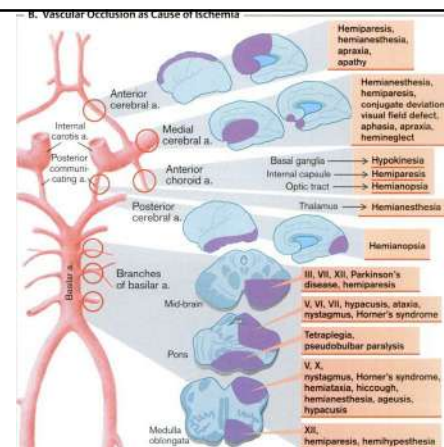
Normal view



Neglect and Anosognosia

Other focal deficits

- Weakness
 - Drift of arm or leg
 - Droop of face
- Numbness (loss of sensation, not just tingling)
- Vision loss
 - One eye = partial or total vision loss
 - Both eyes = not able to see to one side (from either eye)
 - Tested the same as visual neglect



TIME IS BRAIN... (and life)



- Earlier detection & treatment of stroke leads to better outcomes
- Large vessel occlusion (LVO) is associated with mortality of >80%
- Timely treatment of LVO can improve chance of recovery to independence in up to 80%
- Number needed to treat = 2
 - for measurable improvement in functional outcome

Questions?

