



THE INTERNET STROKE CENTER

PRESENTATIONS AND DISCUSSIONS ON STROKE MANAGEMENT

Emergency Stroke Evaluation & Diagnosis

About this Presentation

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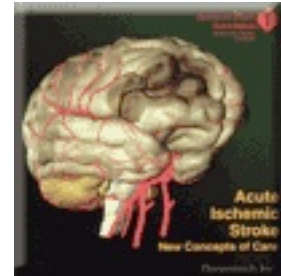


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Evaluation by EMS Personnel

AHA Stroke Council Recommended Assessment of a Person with a Suspected Stroke by EMS Personnel

Assure adequate airway

Monitor vital signs

Conduct general assessment

- Evidence of trauma to head or neck
- Card

Conduct neurological examination

- Level of consciousness
- Presence of seizure activity
- Glasgow Coma Scale/NIHSS
- Pupils: size, equality, reactivity
- Individual limb movements

Source:

Adapted from Adams HP, et al. *Circulation*. 1994;90:1588-1601

Clinical Presentations

Clinical Presentations of Acute Stroke

Alteration in Consciousness

- Stupor or Coma
- Confusion or agitation/memory loss
- Seizures
- Delirium

Headache

- Intense or unusually severe
- Associated with decreased level of consciousness/neurological deficit
- Unusual/severe neck or facial pain

Aphasia (incoherent speech or difficulty understanding speech)

Facial weakness or asymmetry

- Paralysis of facial muscles (e.g., when patients speaks or smiles)
- May be on same side (ipsilateral) or opposite side contralateral to limb paralysis

Incoordination, weakness, paralysis, or sensory loss of one or more limbs (usually one half of the body and in particular the hand)

Ataxia (poor balance, clumsiness, or difficulty walking)

Visual loss

- Monocular or binocular
- May be partial loss of the field

Intensive vertigo, double vision, unilateral hearing loss, nausea, vomiting, photophobia, or phonophobia

Source:

American Heart Association. Basic Life Support for Healthcare Providers and Advanced Cardiac Life Support.

Differential Diagnosis of Stroke

Ischemic stroke

Hemorrhagic stroke

Craniocerebral / cervical trauma

Meningitis/encephalitis

Intracranial mass

- Tumor
- Subdural hematoma

Seizure with persistent neurological signs

Migraine with persistent neurological signs

Metabolic

- Hyperglycemia (nonketotic hyperosmolar coma)
- Hypoglycemia
- Post-cardiac arrest ischemia
- Drug/narcotic overdose

Source:

American Heart Association. Basic Life Support for Healthcare Providers and Advanced Cardiac Life Support.

Conditions that Mimic Stroke in the Emergency Department

Of 411 patients with an initial diagnosis of stroke, 78 (19%) were eventually found to have other conditions, the majority consisting of:

- Postictal states
- Systemic infections
- Tumors
- Toxic-metabolic disturbances

Variables increasing the odds of a stroke "mimic" in patients with initial diagnosis of stroke:

- Decreased level of consciousness
- Normal eye movements

Variables decreasing the odds of a stroke "mimic" in patients with initial diagnosis of stroke:

- Abnormal visual fields
- Diastolic BP > 90 mmHg
- Atrial fibrillation of ECG
- History of angina

Source:

[Libman RB, et al, Arch Neurol. 1995;52:1119-22](#)

Left and Right Hemisphere Stroke: Common Patterns

Left (Dominant) Hemisphere Stroke: Common Pattern

- Aphasia
- Right hemiparesis
- Right-sided sensory loss
- Right visual field defect
- Poor right conjugate gaze
- Dysarthria
- Difficulty reading, writing, or calculating

Right (Non-dominant) Hemisphere Stroke: Common Pattern

- Neglect of left visual field
- Extinction of left-sided stimuli
- Left hemiparesis
- Left-sided sensory loss
- Left visual field defect
- Poor left conjugate gaze
- Dysarthria
- Spatial disorientation

Source:

[Adams HP, et al. Circulation. 1994;90:1588-1601](#)

Brain Stem / Cerebellum / Posterior Hemisphere Stroke: Common Patterns

- Motor or sensory loss in all four limbs
- Crossed signs
- Limb or gait ataxia
- Dysarthria
- Dysconjugate gaze
- Nystagmus
- Amnesia
- Bilateral visual field defects

Small Subcortical Hemisphere or Brain Stem (Pure Motor) Stroke: Common Pattern

- Weakness of face and limbs on one side of the body without abnormalities of higher brain function, sensation, or vision

Small Subcortical Hemisphere or Brain Stem (Pure Sensory) Stroke: Common Pattern

- Decreased sensation of face and limbs on one side of the body without abnormalities of higher brain function, motor function, or vision

Source:

[Adams HP, et al. Circulation. 1994;90:1588-1601](#)

Tests for Emergent Evaluation

Tests for the Emergent Evaluation of the Patient with Acute Ischemic Stroke

- CT of the brain without contrast
- Electrocardiogram
- Chest x-ray
- Hematologic studies (complete blood count, platelet count, prothrombin time, partial thromboplastin time)
- Serum electrolytes
- Blood glucose
- Renal and hepatic chemical analyses
- National Institutes of Health Scale (NIHSS) score

Source:

[Adams HP, et al. Circulation. 1994;90:1588-1601](#)

Acknowledgements

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