Stroke assessment

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The Cincinnati Prehospital Stroke Scale

Facial droop

(have patient show teeth or smile)

NORMAL

ABNORMAL

- Both sides of face move equally.
- One side of face does not move as well as the other side.

Arm drift

(patient closes eyes and extends both arms straight out, with palms up for 10 seconds)

NORMAL

ABNORMAL

- Both arms move the same or both arms do not move at all.
- One arm does not move or one arm drifts down compared with the other.

Abnormal speech

(have the patient say "you can't teach an old dog new tricks")

- Normal — Patient uses correct words with no slurring.
- Abnormal — Patient slurs words, uses the wrong words, or is unable to speak.

If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%.

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Suspected stroke algorithm: Goals for management of stroke

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Identify signs and symptoms of possible stroke active emergency response

Critical EMS assessments and actions

- O_2 Support ABCs: Give oxygen if indicated
- Perform prehospital stroke assessment
- Check glucose
- Establish time of symptom onset (last normal)
- Triage to stroke center
- Alert hospital
- Activate stroke team

If onset > 3 hours OR large vessel occlusion

Immediate general assessment and stabilization*

TIME GOALS

Within 10 min of ED arrival physician evaluation

- Assess ABCs, vital signs
- Provide oxygen, if hypoxic
- Obtain IV access and perform laboratory assessments
- Check glucose; treat if indicated
- Obtain 12-lead ECG
- Perform neurologic screening assessment
- Order emergent CT brain without contrast or MRI scan

Immediate neurologic assessment by stroke team or designee

- Review patient history
- Establish time of symptom onset or last known normal
- Perform neurologic examination (NIH Stroke Scale or Canadian Neurological Scale)

Within 20 min of ED arrival CT scan of head

Does CT scan show hemorrhage?

No hemorrhage

Probably acute ischemic stroke; consider fibrinolytic therapy

Within 45 min of ED arrival results of CT scan

- Check fibrinolytic exclusions
- Repeat neurologic exam: are deficits rapidly improving to normal?

Patient remains candidate for fibrinolytic therapy?

Within 60 min of ED arrival administration of TPA

Not a candidate → **Consider EVT transfer within 60 minutes**

Candidate*

Stroke admission within 3 hours

Review risks/benefits with patient & family.
If acceptable:

- Give rTPA**
- No anticoagulants or antiplatelet treatment for 24 hours

- Begin post-rTPA stroke pathway
- Aggressively monitor:
  - BP per protocol
  - For neurologic deterioration
- Emergent admission to stroke unit or intensive care unit

Hemorrhage

Consult neurologist or neurosurgeon; consider transfer if not available.

- Begin stroke or hemorrhage pathway
- Admit to stroke unit or intensive care unit

* Jauch EC, Cucchiara B, Adeoye O, Meurer W, Brice J, Chan Y-F, Gentile N, Hazinski MF. " Part 11: adult stroke: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care". Circulation. 2010;122(suppl 3):S818-S828. http://circ.ahajournals.org/content/122/18_suppl_3/S818 ** Tissue Plasminogen Activator for Acute Ischemic Stroke. N Engl J Med. 1995:333(24)1581-1587

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