Emergency Education Center

Stroke Night

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Acute Stroke for the Pre-Hospital Provider

• FINANCIAL DISCLOSURE: None
• UNLABELED/UNAPPROVED USES DISCLOSURE: Yes
Outline

Before tPA

- *Is this a stroke?*
- When did it start?
- Ischemic or hemorrhagic?
- Should tPA be offered?

After tPA

- Post-tPA Care
- MRI selection
- IA Recanalization
- Hemicraniectomy
- Telemedicine
- EMS Pearls
The 5 Warning Signs of Stroke

Sudden onset of:

- Numbness or weakness on one side
- Confusion* or difficulty speaking
- Visual loss in one or both eyes
- Dizziness*, trouble walking or imbalance
- Severe headache of unknown cause
Cincinnati Prehospital Stroke Scale

**Facial Droop**

*Instruction:* Ask patient to smile

- **Normal:** Both sides of face move equally
- **Abnormal:** One side of face does not move as well

**Arm Drift**

*Instruction:* Ask patient to close eyes and extend both arms straight out for 10 seconds

- **Normal:** Both arms move the same or not at all
- **Abnormal:** One arm does not move or drifts down

**Speech**

*Instruction:* Ask patient to say “You can’t teach an old dog new tricks.”

- **Normal:** Patient says correct words without slurring
- **Abnormal:** Patient slurs words, says wrong words, or is unable to speak

*Any new abnormal finding suggests a diagnosis of stroke*

UW Stroke Code Activation Pathway via EMS

EMS Assessment, including Cincinnati Prehospital Stroke Scale

EMS Calls ED Charge Nurse

(+) Cincinnati Scale
Last known well < 12 hours

Charge Nurse Immediately Discusses with ED Attending

DO NOT ACTIVATE

Yes to both

ACTIVATE STROKE CODE
5 Major Presentations

- Dominant hemisphere stroke
- Non-dominant hemisphere stroke
- Cerebellar stroke
- Brainstem stroke
- Hemorrhagic stroke
Dominant Hemisphere Stroke

- Left gaze deviation
- Aphasia
- Right hemianopia
- Right hemiparesis and hemisensory loss
Non-dominant Stroke

- Right gaze deviation
- Left sided neglect
- Left hemianopia
- Left hemiparesis and hemisensory loss
Cerebellar Stroke

- Ataxia—usually lateralized
- Dysarthria
Brainstem Stroke

- Altered consciousness
- Abnormal pupillary/eye movements
- Ataxia
- Dysarthria
- Vertigo, nausea, vomiting, hiccups

- Crossed signs:
  - One side of the face
  - Opposite side of the body
Hemorrhagic Stroke

• Similar presentation as ischemic stroke

• Severe headache

• Very high BP

• +/- Rapid decline in level of arousal
Posturing
Stroke Mimics

• Hypoglycemia
• Anamnestic response (UTI, etc.)
• Post-ictal (Todd’s) paralysis
• Migraine
• Conversion
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When Did it Start?

- If the onset time isn’t documented, the clock starts with the time the patient was last known to be in his usual state of health (last known well).

- May need to be creative . . .
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Ischemic or Hemorrhagic?
Ischemic or Hemorrhagic?
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NINDS tPA Trial

Modified Rankin Scale

<table>
<thead>
<tr>
<th></th>
<th>0-1</th>
<th>2-3</th>
<th>4-5</th>
<th>Death</th>
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<tr>
<td>Placebo</td>
<td>26</td>
<td>25</td>
<td>27</td>
<td>21</td>
</tr>
<tr>
<td>t-PA</td>
<td>39</td>
<td>21</td>
<td>23</td>
<td>17</td>
</tr>
</tbody>
</table>
Time is of the Essence

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Post-Thrombolysis Care

• BP must remain below 180/105
  – Q15 minutes x 2 hours
  – Q30 minutes x 6 hours
  – Q60 minutes x 16 hours
BP Meds

- Labetolol 10 mg IV prn
- Nicardipine infusion 5-15 mg/hr
- Avoid nitroprusside / nitroglycerin
- Don’t be too aggressive!
Post-Thrombolysis Care

• Hold aspirin, heparin, etc. for 24°
  – Use SCDs for DVT prophylaxis

• Avoid procedures (Foley, NGT, etc.)

• NPO pending dysphagia screening
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Diffusion-Perfusion Mismatch

DWI

PWI
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Mechanical Embolectomy

Mechanical Embolectomy
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Hemicraniectomy
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• **Telemedicine**
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The prevailing model:
The new model:
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  • **EMS Pearls**
Facilitating Treatment

• Recognize that the problem is stroke
  – Know the symptoms
  – Know the classic clinical presentations
  – *Use the Cincinnati scale*
Facilitating Treatment

• Be on the lookout for mimics:
  – Fingerstick glucose, esp. for diabetics
  – Evidence of seizure
Facilitating Treatment

- Help determine the time of onset:
  - Witnessed?
  - Time last known well
Facilitating Treatment

• Bring the patient to a hospital equipped to evaluate and treat stroke
  – Activate *stroke code* in advance
  – Do not delay—*load and go!*