Brain Docs Making “House Calls”

Gathering of Eagles XVIII
February 19, 2016

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✶ 63 Square miles
✶ Population ~330,000 (nighttime) ~550,000 (daytime)
✶ 10-12 ambulances
✶ ~75,000 calls per year
✶ 1 Comprehensive Stroke Center
✶ 4 Primary Stroke Centers
We Cannot All Afford One of These
Stroke Inducing Vehicle
Time is Brain
## Stroke Chain of Survival

<table>
<thead>
<tr>
<th>DETECTION</th>
<th>Recognition of stroke signs and symptoms</th>
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<td>DISPATCH</td>
<td>Call 9-1-1 and priority emergency medical services dispatch</td>
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<tr>
<td>DELIVERY</td>
<td>Prompt transport and prehospital notification to hospital</td>
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<td>DOOR</td>
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<td>DATA</td>
<td>ED evaluation, prompt laboratory studies, and computed tomography imaging</td>
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**rTPA Exclusion Criteria (3 Hour Window)**

- Significant head trauma or prior stroke in previous 3 months
- Symptoms suggest subarachnoid hemorrhage
- Arterial puncture at noncompressible site in previous 7 days
- History of previous intracranial hemorrhage
- Intracranial neoplasm, arteriovenous malformation, or aneurysm
- Recent intracranial or intraspinal surgery
- Elevated blood pressure (SBP > 185 mm Hg or DBP > 110 mm Hg)
- Active internal bleeding
- Acute bleeding diathesis
  - Platelet count less than <100,000/mm$^3$
  - Heparin received within 48 hours, resulting in abnormally elevated aPTT greater than the upper limit of normal
  - Current use of anticoagulant with INR > 1.7 or PT > 15 seconds
  - Current use of direct thrombin inhibitors or direct factor Xa inhibitors with elevated sensitivity laboratory tests
  - Blood glucose concentration < 50 mg/dL
  - CT demonstrates multilobar infarction (hypodensity > 1/3 cerebral hemisphere)
**rTPA Relative Exclusion Criteria (3 Hour Window)**

- Only minor or rapidly improving stroke symptoms (clearing spontaneously)
- Pregnancy
- Seizure at onset with postictal residual neurological impairments
- Major surgery or serious trauma within previous 14 days
- Recent gastrointestinal or urinary tract hemorrhage (within previous 21 days)
- Recent acute myocardial infarction (within previous 3 months)
rTPA Relative Exclusion Criteria (4.5 Hour Extended Window)

- Aged > 80 years
- Severe Stroke (NIHSS>25)
- Taking an oral anticoagulant regardless of INR
- History of both diabetes and prior stroke
If You Want to Change the System...

Sequential Process:

1. Symptom Onset
2. Definitive Care

Simultaneous Process:

1. Symptom Onset
2. Definitive Care
Recognition and activation of the emergency response system
Immediate high-quality CPR
Rapid defibrillation
Basic and advanced emergency medical services
Advanced life support and postarrest care
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Barnes-Jewish Hospital Stroke Card

WE NEED YOUR HELP
Please call 314-362-9123

Your friend or loved one may be having a stroke and is being taken to the Barnes-Jewish Hospital Emergency Room.

When the operator answers, please say “Hello, I am calling with an ambulance stroke card. May I speak to the stroke doctor?”

A Washington University stroke specialist will assist you.
The Effect of a Stroke Card

BJH ED IV tPA Patient Yearly Summary

- No. of IV tPA Patients
- Door to Bolus
- Arrival to CT Completed

Graph showing trends from 2005 to 2015 with specific data points for each year.
Challenges

- Not all hospitals have set this up (yet)
- Providers giving the stroke card to everyone
  - Witness calling Barnes Jewish Hospital but transporting to another stroke hospital
- Providers forgetting to use the stroke card
  - Placed in pouch with glucometer
- Change in the phone number at Barnes Jewish Hospital
- Stroke Cards provided through grant funding
- What about large vessel occlusion?
Questions?

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