Critical Role of EMS in Acute Stroke

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My Background
- NeuroInterventional Surgeon
  - Stroke, aneurysm, AVM, tumors, compression fractures
- Harvard Medical School / Massachusetts General Hospital
  - Internal Medicine
  - Neurology
  - Stroke & Neurocritical Care
  - Endovascular Neurosurgery

Acute Stroke – Time is Brain

Penumbra (at risk)
Core (irreversibly damaged)

Positive Endovascular Stroke Trials 2015

<table>
<thead>
<tr>
<th>Trial</th>
<th>Control</th>
<th>Endovascular</th>
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</thead>
<tbody>
<tr>
<td>MR CLEAN P&lt;0.05</td>
<td>19%</td>
<td>33%</td>
</tr>
<tr>
<td>REVASCAT P&lt;0.05</td>
<td>28%</td>
<td>44%</td>
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<tr>
<td>ESCAPE P&lt;0.001</td>
<td>29%</td>
<td>53%</td>
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<tr>
<td>SWIFT PRIME P&lt;0.001</td>
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<td>60%</td>
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<tr>
<td>EXTEND-IA P&lt;0.01</td>
<td>40%</td>
<td>71%</td>
</tr>
<tr>
<td>THERAPY NS P&lt;0.001</td>
<td>30%</td>
<td>38%</td>
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Stentriever Devices – Solitaire

Neurons potentially lost: 19 million
May age the brain by 3.1 weeks.
Stentriever Devices – TrevoXP

Penumbra Clot Aspiration

5MAX™
ACE64

Renewed Focus on Work Flow

Recognition: FAST!

60% of stroke patients call EMS >1 hour into symptoms

Focus on EMS Outreach & Education

Stroke Care in Broward County

- State of stroke care in Broward county
  - 8 Comprehensive Stroke Centers (CSCs)
  - High population of elderly
  - Absence of a quality improvement oversight committee
  - EMS triage criteria based solely on distance and not on quality of care at destination
  - No transparency among CSCs for door-to-treatment times and clinical outcomes
  - Lack of research or QI collaboration among CSCs

Memorial:
Hollywood
Miramar
Pines
BSO
Hallandale
Davie
N Miami-Dade
Traditionally based on distance to nearest PSC vs CSC
- Bypass PSC, if CSC <20 minutes away
- Triage to nearest PSC applies to rural areas where CSCs may not be readily available
- Question is not whether to triage to PSC or CSC, but rather which CSC to choose from
- In order to help EMS decide, must have transparency of in-hospital processes, time metrics, outcomes
FaceTime Evaluation

Call Dr. Brijesh Mehta NeuroInterventional Surgeon
Stroke Alerts
RACE Score >5
Available 24/7 for any Stroke Questions

Updated October 17, 2014

Stroke Process Metrics

MHS Median Time in Minutes (8/2014 - 7/2015)

115 Stroke Thrombectomy Cases
Goal P2P Time 60 minutes

EMS Alert & Early Cath Lab Activation

Median Door-to-Cath Lab Arrival Time (minutes) Aug 2014-15
Acute Stroke Thrombectomy Cases

Individual Time Points
- ER arrival
- CT scan (picture) – scout image
- Cath lab entry
- Arterial puncture
- Treatment – device deployed
- Reperfusion – time vessel open

Key Intervals
- Door-to-Treatment 90 min
  - Door-to-Picture <15 min
  - Picture-to-Puncture <60 min
  - Puncture-Treatment <25 min
- Outcomes
  - Initial NIHSS score
  - Discharge NIHSS score
  - 90-day mRS

Proposed Metrics for Broward Stroke Network
Thank You

Contact Information

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