Interventional Treatment of Ischemic Stroke In Israel - Where are we? Where are we Headed?

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The Breakthrough In The Treatment Acute Stroke

IV tpa
Bridging Therapy
Endovascular
Patients eligible for intravenous r-tPA should receive intravenous r-tPA even if endovascular treatments are being considered.

Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria:

(a) pre-stroke mRS score 0 to 1,
(b) acute ischemic stroke receiving intravenous r-tPA within 4.5 hours of onset according to guidelines from professional medical societies,
(c) occlusion of the internal carotid artery or proximal MCA (M1),
(d) age ≥ 18 years,
(e) NIHSS score of ≥ 6,
(f) ASPECTS of ≥ 6, and
(g) treatment can be initiated (groin puncture) within 6 hours of symptom onset.
Still Need Studies
inadequate data available at this time

- occlusion of the M2 or M3 portion of the MCAs, anterior cerebral arteries, vertebral arteries, basilar artery, or posterior cerebral arteries
- NIHSS score <6 and causative occlusion of the internal carotid artery (New recommendation)
- Observing patients after intravenous r-tPA to assess for clinical response before pursuing endovascular therapy is not required to achieve beneficial outcomes and is not recommended.
• Angioplasty and stenting of proximal cervical atherosclerotic stenosis or complete occlusion at the time of thrombectomy may be considered but the usefulness is unknown (Future randomized studies are needed).

• It might be reasonable to favor conscious sedation over general anesthesia during endovascular therapy for acute ischemic stroke.(Randomized trial data are needed)
I.V-tPA and recanalization

- Overall chance for recanalization are only 30%
- Effectiveness and safety beyond 4.5 hours from time of symptom onset is not established
- 30% of re-canalized vessels re-occlude within a few hours
- Recanalization rates higher in distal branch occlusions and lower in large artery proximal occlusions
- Recanalization rates depend also on time to needle
Large Vessel Stroke
why go endovascular?

- Poor natural history in large vessel stroke
- Precise imaging of anatomy, pathology and collateral pattern
- Exact degree and timing of recanalization
- Increased therapeutic window
- Post-operative stroke, anticoagulation and many others
Acute Stroke – The Challenge !!!

Only 5% of Patients with Acute Stroke are Treated (Iv Tpa \ 2008) Compared to 25% with Acute MI Patients (Lytic or PTCA)

Mean Time to reach the Emergency Room from the beginning of symptoms

- MI - 3 H
- Acute Stroke - 4-10 H
Stroke: “Brain Attack”

• Stroke is an **EMERGENCY**!

• Most patients do not get any treatment due to the short time window

• The Population does not Recognize the Clinical Signs / 86% Think that the Signs are not Serious

• Community Doctors & ER Doctors - Unaware Treatment options

• Paramedics – 25% Wrong Diagnosis

• In Hospital delays
Subject: Estimates for Treating Acute Stroke
44 y.o arrived to other hospital

E.R 21:40 (peripheral hospital)
22:48 – 1st call + IV tPA
01:30 – arrived to Rambam E.R
01:43 – CT\CTP\CTA
**RMC:**

Geographic Coverage

Regional Network
Population ~2,400,000
NASIS REVASC
Started 2014 – Data were not published yet

<table>
<thead>
<tr>
<th>enez</th>
<th>בית חולים</th>
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<tr>
<td>2015</td>
<td></td>
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<tr>
<td>+ 50</td>
<td>רמב&quot;ם - חיפה</td>
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RMC experience

- An Organized Stroke Team from 02/2010

- **1000** CVA Patients per Year

- Patient arrived during the Time Window for Potential Stroke Treatments (less than 6h) –
  
  **20.3% for 2014**
  
  **24.5% for 2015**
Time is Brain

- 2015 - Time from door to CT
  20 min (9 min – 1h 5 min)
- Time door to puncture – 77 min
- Time from groin puncture to recanalization – 30 min (10 - 65)

Full recanalization in 98%
January 2013 – December 2014

<table>
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<tr>
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<th>Posterior Circulation</th>
<th>Anterior Circulation</th>
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<tr>
<td>78</td>
<td>(21%) 17</td>
<td>(79%) 61</td>
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<tr>
<td>2013 - 35%</td>
<td>62.4</td>
<td>60.2</td>
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<td>2014 - 45%</td>
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<tr>
<td>15</td>
<td>12.5</td>
<td>15.8</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>age</td>
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I.A
## Clinical Results

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<tr>
<th>suma</th>
<th>MCA</th>
<th>ICA</th>
<th>posterior</th>
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<tbody>
<tr>
<td>51 (66%)</td>
<td>35</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>17 (22%)</td>
<td>9</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>10 (12%)</td>
<td>4</td>
<td>2</td>
<td>4</td>
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<tr>
<td>78</td>
<td>48</td>
<td>13</td>
<td>17</td>
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MRS – 0-2 = 73%
MRS – 6 = 8%
1st case

F 62 Y/O
08;30 – Was Last seen in Full Health
10;30 – Rt Hemiplegia & Global aphasia
   NIHSS- 18
12:18 - E.R RMC
12;35 - CT/CTP/CTA
13;20 – 13;35 - Ansathesia
13;50 – Groin puncture (Mechanical Thrombectomy)
14;30 – End

No IV t-PA
2nd case

F 71 Y/O
19:30 – onset of symptoms – Rt Hemiplegia & Global aphasia – NIHSS- 18
20:45 - E.R
21:10 - CT/CTP/CTA
No IV t-PA
22:00 – 22:17 Anasthesia
22:30 – Groin puncture
23:05 - End
The Future
Stroke Targets

1. Perform an initial patient evaluation within 10 minutes of arrival in the emergency department
2. Notify the stroke team within 15 minutes of arrival
3. Initiate a CT scan within 25 minutes of arrival
4. Interpret the CT scan within 45 minutes of arrival
5. Ensure a door-to-needle time for IV rt-PA within 60 minutes from arrival.
6. Door to Groin puncture 90 min
Remember.. the key is prevention
Thanks you!