TIA: When to Admit and Workup

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Disclosures

• Site PI at UCH for the POINT (Platelet Oriented Inhibition in New TIA and Minor Ischemic Stroke Trial)
Learning Objectives

• What is the difference between a TIA and stroke?
• Who needs to be admitted for TIA?
• What are general secondary prevention practices after TIA or stroke?
• What are the indications for dual antiplatelet therapy?
What is the difference between a Stroke and a TIA?
What is a Stroke?

• Fixed focal neurological deficit attributable to arterial or venous territory, typically lasting longer than 24 hours with evidence of acute infarction.

• So what’s a TIA?
  – a brief episode of neurological dysfunction caused by focal brain or retinal ischemia, with clinical symptoms typically lasting less than one hour, and without evidence of acute infarction
MRI in TIA vs Stroke

2 patients, both with right sided weakness
What is the workup for a TIA?
The usual!

- Echo
- MRI/MRA or CT/CTA or ultrasound (less desirable, in my opinion)
- EKG
What about prolonged cardiac monitoring?

- Who should get it?
- What kind is best?
Who needs to be admitted for a TIA?
65 year old man with right face/arm/leg weakness

- Resolved on the way in to the hospital
- Lasted about 50 minutes
- No prior symptoms
- Now completely neurologically intact
Why should I care about TIA?

• Common problem
  – Stroke Incidence: ~795,000 strokes per year
    • About 15% are preceded by TIA!
  – TIA Prevalence 2.3%, or 5 million people
  – TIA Incidence: 0.83 per 10,000 (age, sex and race adjusted)

• Sequela of disease
  – STROKE!
    • 3-10% at 2 days
    • 9-17% at 90 days
  – Other CV disease
    • 43% combined risk of stroke, MI or vascular death over 10 years

# ABCD²

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Points</th>
<th>Score</th>
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<tbody>
<tr>
<td>Age</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>≥ 60 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic BP ≥ 140 mm Hg OR Diastolic BP ≥ 90 mm Hg</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Clinical features of TIA (choose one)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unilateral weakness with or without speech impairment OR</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Speech impairment without unilateral weakness</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIA duration ≥ 60 minutes</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TIA duration 10-59 minutes</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
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**Total ABCD² score** 0-7

<table>
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<tr>
<th>ABCD² Score</th>
<th>2-day Stroke Risk</th>
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<tbody>
<tr>
<td>0-3</td>
<td>1.0%</td>
</tr>
<tr>
<td>4-5</td>
<td>4.1%</td>
</tr>
<tr>
<td>6-7</td>
<td>8.1%</td>
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</table>

Is admission required?

• TIA Clinics are revolutionizing TIA treatment!
• Multiple studies show that they are just as effective as admission if done quickly!
  – Two Aces
  – EXPRESS Study
  – SOS-TIA
  – And others...
• Clinics are cost effective and have no reduction of tPA utilization!
What are general secondary prevention practices after a stroke or TIA?
Secondary Stroke Prevention

- **Hypertension:**
  - Goal is *normotension*
  - Use meds to get there when needed
    - Probably thiazide and ACE inhibitor are most beneficial
- **Diabetes**
  - Goal A1c <7
Secondary Stroke Prevention

• Lipids... things are getting interesting!
- **ASCVD**: Atherosclerotic cardiovascular disease
  - Coronary heart disease
  - Stroke
  - Peripheral arterial disease
  - PRESUMED to be of atherosclerotic origin

**Figure 2. Major recommendations for statin therapy for ASCVD prevention**

- **ASCVD Statin Benefit Groups**
  - Heart healthy lifestyle habits are the foundation of ASCVD prevention.
  - In individuals not receiving cholesterol-lowering drug therapy, recalculate estimated 10-y ASCVD risk every 4-8 y in individuals aged 40-75 y without clinical ASCVD or diabetes and with LDL-C 70-180 mg/dL.

- **Clinical ASCVD**
  - Adults age >21 y and a candidate for statin therapy
  - Yes
  - No

- **Definitions of High- and Moderate-Intensity Statin Therapy**
  - (See Table 5)
  - High: Daily dose lowers LDL-C by approx. ≥50%
  - Moderate: Daily dose lowers LDL-C by approx. 30% to <50%

- **LDL-C ≥190 mg/dL**
  - Yes
  - High-intensity statin
    - Age ≤75 y
    - High-intensity statin (Moderate-intensity statin if not candidate for high-intensity statin)

  - No
  - Moderate-intensity statin
  - Age >75 y OR if not candidate for high-intensity statin
  - Moderate-intensity statin

- **Diabetes**
  - Type 1 or 2
  - Age 40-75 y

- **Estimate 10-y ASCVD Risk with Pooled Cohort Equations**
  - Yes
  - Moderate-to-high intensity statin
  - No
  - ≤7.5% estimated 10-y ASCVD risk and age 40-75 y
  - Moderate-to-high intensity statin

- **ASCVD prevention benefit of statin therapy may be less clear in other groups**
  - In selected individuals, consider additional factors influencing ASCVD risk and potential ASCVD risk benefits and adverse effects, drug-drug interactions, and patient preferences for statin treatment.
So what should I give them?

<table>
<thead>
<tr>
<th>Atorva</th>
<th>Fluva</th>
<th>Lova</th>
<th>Prava</th>
<th>Rosuva</th>
<th>Simva</th>
<th>% LDL Decrease</th>
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<tbody>
<tr>
<td>40 mg</td>
<td>20 mg</td>
<td>20 mg</td>
<td>10 mg</td>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 mg</td>
<td>80 mg</td>
<td>40 or 80 mg</td>
<td>40 mg</td>
<td>20 mg</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>20 mg</td>
<td>80 mg</td>
<td>40 mg</td>
<td>5 mg</td>
<td>40 mg</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>40 mg</td>
<td>10 mg</td>
<td>80 mg</td>
<td>20 mg</td>
<td>47%</td>
<td></td>
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<tr>
<td>80 mg</td>
<td></td>
<td></td>
<td>40 mg</td>
<td>55%</td>
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</tr>
</tbody>
</table>

Red = High Intensity, decreases LDL by ≥50%
Green = Moderate Intensity, decreases LDL by 30-50%
Yellow = Lowers LDL by ≤ 30%
Italics = Not tested in RCTs by FDA approved
What should I do if the TIA is cryptogenic?

• Treat!
What if the patient has atrial fibrillation?

- Look at other risk factors!
What is my goal?

- No LDL goal anymore...
- In my opinion....
65 year old man with right face/arm/leg weakness

- Resolved on the way in to the hospital
- Lasted about 50 minutes
- No prior symptoms
- Now completely neurologically intact
- He’s originally from China, and has been in the United States for 5 years
Should you leave it to CHANCE?

- Randomized, double blind
- Done in CHINA
- Within 24 hours if TIA and minor ischemic stroke
- Clopidogrel vs placebo
  - Plus aspirin, 75 mg
- Primary outcome: Stroke

CHANCE Results....

Stroke
• Clopidogrel + ASA group: 8.2%
• Placebo + ASA group: 11.7%  
  – p<0.001

Hemorrhage
• Clopidogrel + ASA group: 0.3%
  – Systemic hemorrhage (mod & severe) and intracranial hemorrhage was the same for each group – 0.3%
65 year old man with right face/arm/leg weakness

- Resolved on the way in to the hospital
- Lasted about 50 minutes
- No prior symptoms
- Now completely neurologically intact
- He’s originally from North Dakota, and has been in Colorado for 5 years
Should you CHANCE it?
Any other indications for dual antiplatelets?

- Intracranial stenosis: SAMMPRIS trial
  - 70-99% stenosis
  - TIA or stroke
- Randomized to stenting vs aggressive medical management
  - ASA + plavix for 2 months
  - Rosuvastatin
  - One anti-HTN med was given for free

The trial stops...Early.

- Because medical management wins!
  - 30-day stroke or death
    - Stenting: 14.7%
    - Medical Management: 5.8%

**Figure 1.** Kaplan–Meier Curves for the Cumulative Probability of the Primary End Point, According to Treatment Assignment.

The primary end point was stroke or death within 30 days after enrollment or after a revascularization procedure for the qualifying lesion during the follow-up period or stroke in the territory of the qualifying artery beyond 30 days. The curves were truncated at 15 months because relatively few patients have been followed beyond this time and there have only been two primary end-point events beyond 15 months, both in the group receiving percutaneous transluminal angioplasty and stenting (PTAS) (one at 26.1 months and one at 26.2 months). The maximum duration of follow-up is 28.9 months for the group receiving medical management only and 28.1 months for the PTAS group. The inset shows the same data on an enlarged segment of the y axis.
THANK YOU!

• Questions?