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

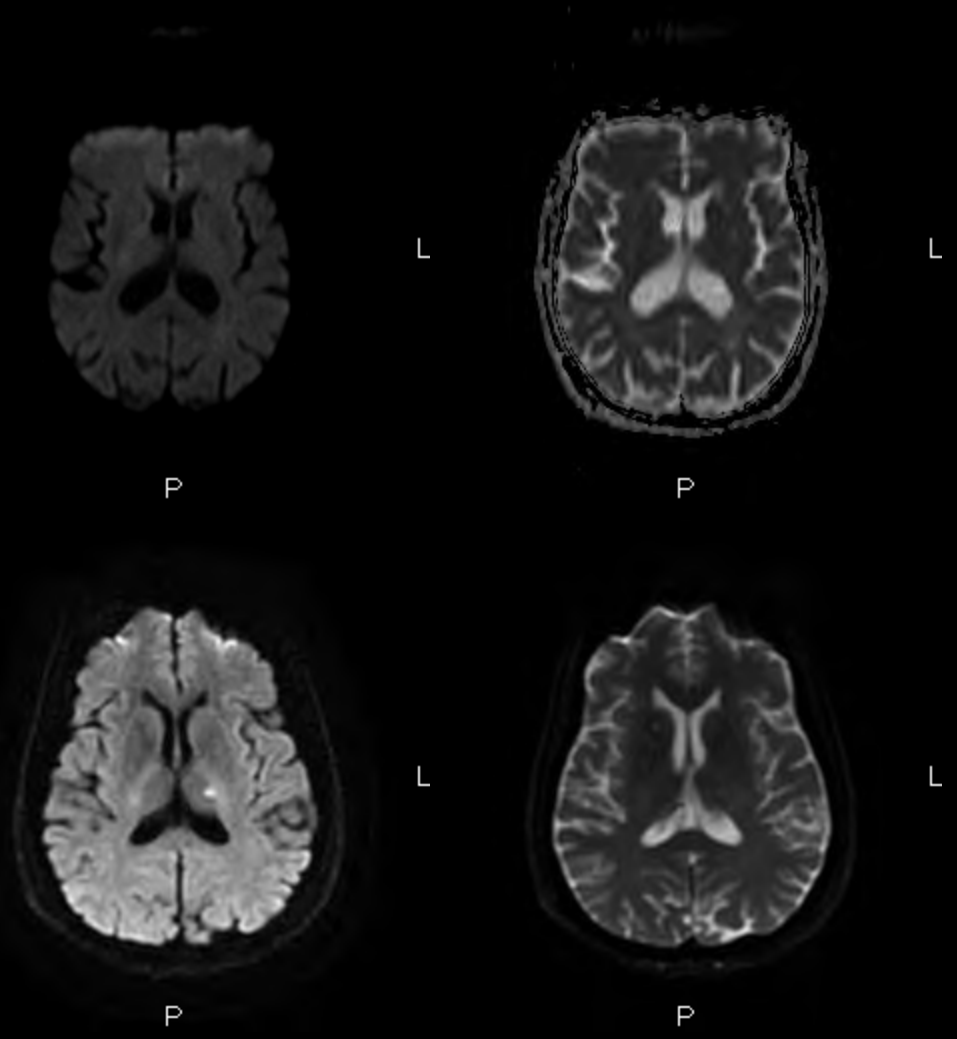
- What is the difference between a TIA and stroke?
- Who needs to be admitted for TIA?
- What are general secondary prevention practices after TIA or stroke?
- What are the indications for dual antiplatelet therapy?

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?

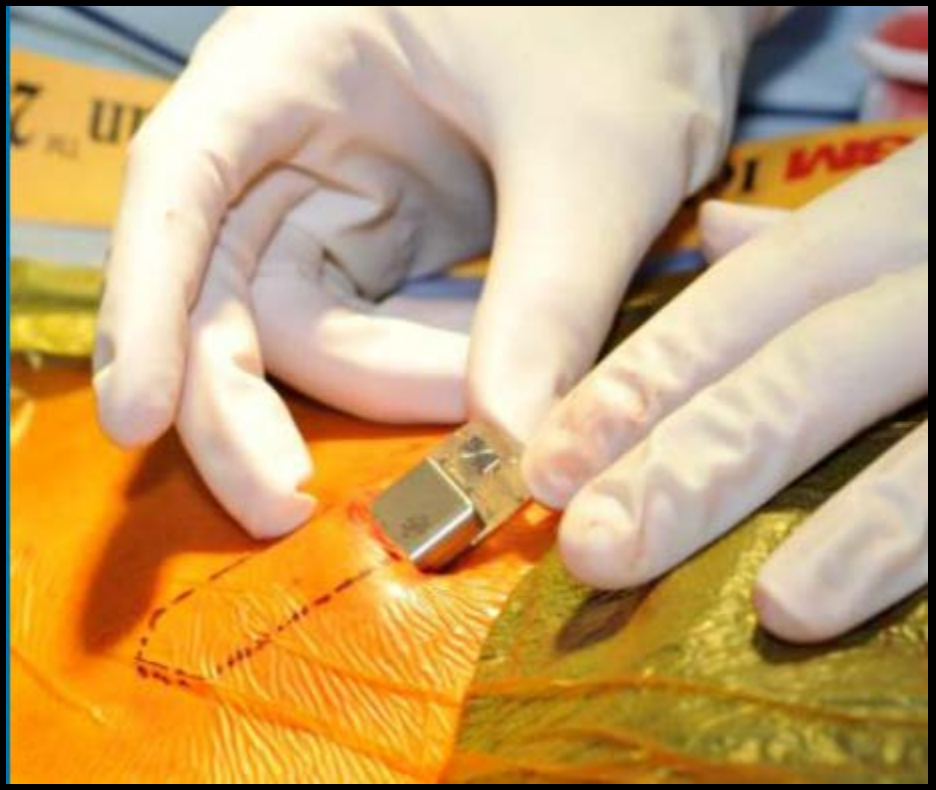


Photo from CRYSTAL AF presentation at the International Stroke Conference

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

"Heart Diseases and Stroke Statistics 2014 Update: A report from the American Heart Association." Circulation . Published online 12/13/13.

ABCD^2

Risk Factor	Points	Score
Age		
≥ 60 years	1	
Blood pressure		
Systolic BP ≥ 140 mm Hg *OR* Diastolic BP ≥ 90 mm Hg	1	
Clinical features of TIA (*choose one*)		
Unilateral weakness with or without speech impairment *OR*	2	
Speech impairment without unilateral weakness	1	
Duration		
TIA duration ≥ 60 minutes	2	
TIA duration 10-59 minutes	1	
Diabetes	1	
***Total ABCD*^{2} score**	0-7	

[1] Johnston SC, Rothwell PM, Huynh-Huynh MN, Giles MF, Elkins JS, Sidney S, "Validation and refinement of scores to predict very early stroke risk after transient ischemic attack," *Lancet*, 369:283-292, 2007.

ABCD² Score	2-day Stroke Risk
0-3	1.0%
4-5	4.1%
6-7	8.1%

[1] Johnston SC, Rothwell PM, Huynh-Huynh MN, Giles MF, Elkins JS, Sidney S, "Validation and refinement of scores to predict very early stroke risk after transient ischemic attack," *Lancet*, 369:283-292, 2007.

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

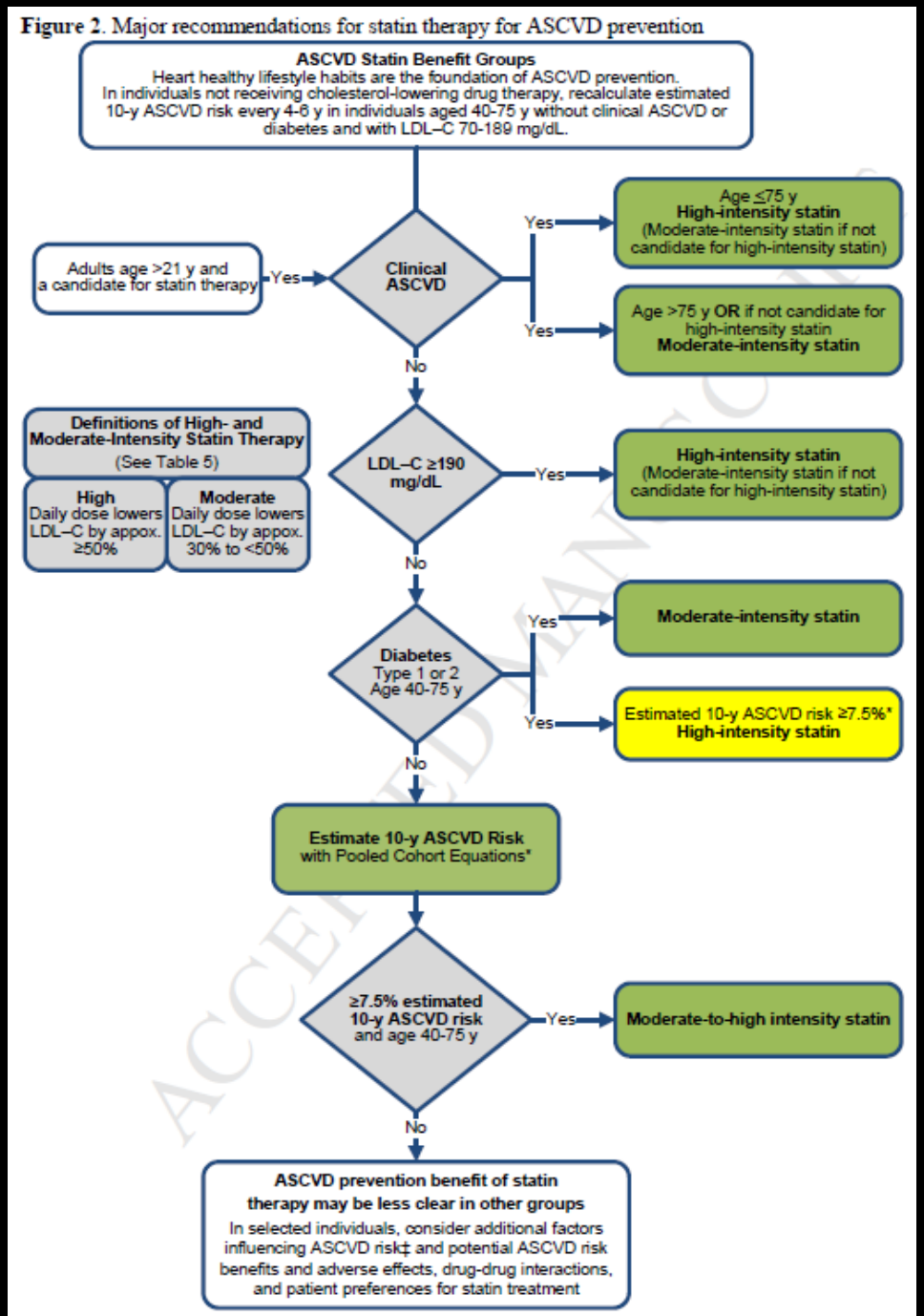
- Hypertension:
  - Goal is *normotension*
  - Use meds to get there when needed
    - Probably thiazide and ACE inhibitor are most beneficial
- Diabetes
  - Goal A1c <7

Secondary Stroke Prevention

- Lipids… things are getting interesting!

Stone NJ, Robinson J, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation. 2013 Nov 12. [Epub ahead of print]

- ASCVD: Atherosclerotic cardiovascular disease
  - Coronary heart disease
  - Stroke
  - Peripheral arterial disease
  - PRESUMED to be of atherosclerotic origin



So what should I give them?

Atorva	Fluva	Lova	Prava	Rosuva	Simva	% LDL Decrease
	40 mg	20 mg	20 mg		*10 mg*	30%
10 mg	80 mg	40 or 80 mg	40 mg		20 mg	38%
20 mg		80 mg	*80 mg*	*5 mg*	40 mg	41%
40 mg				10 mg	80 mg	47%
80 mg				20 mg		55%
				40 mg		63%

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

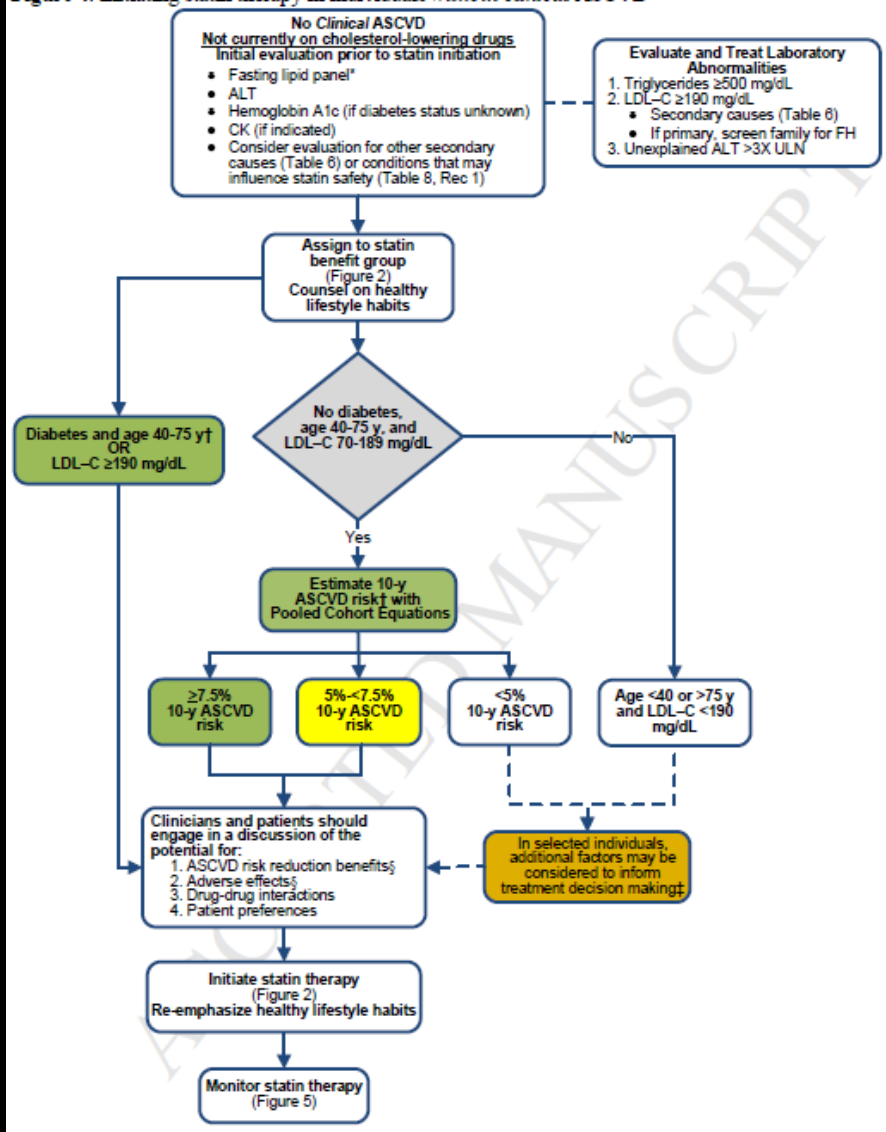
What should I do if the TIA is cryptogenic?

- Treat!

What if the patient has atrial fibrillation?

- Look at other risk factors!

Figure 4. Initiating statin therapy in individuals *without clinical* ASCVD



*Fasting lipid panel preferred. In a nonfasting individual, a nonfasting non-HDL–C >220 mg/dL may indicate genetic hypercholesterolemia that requires further evaluation or a secondary etiology. If nonfasting triglycerides are >500 mg/dL, a fasting lipid panel is required.

†The Pooled Cohort Equations can be used to estimate 10-year ASCVD risk in individuals with and without diabetes.

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

Wang Y. et al. Clopidogrel with Aspirin in Acute Minor Stroke or Transient Ischemic Attack. NEJM 2013; 369:11-19.

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

Chimowitz MI. Stenting versus Aggressive Medical Therapy for Intracranial Stenosis. NEJM 2011;365:993-1003.

The trial stops…Early.

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

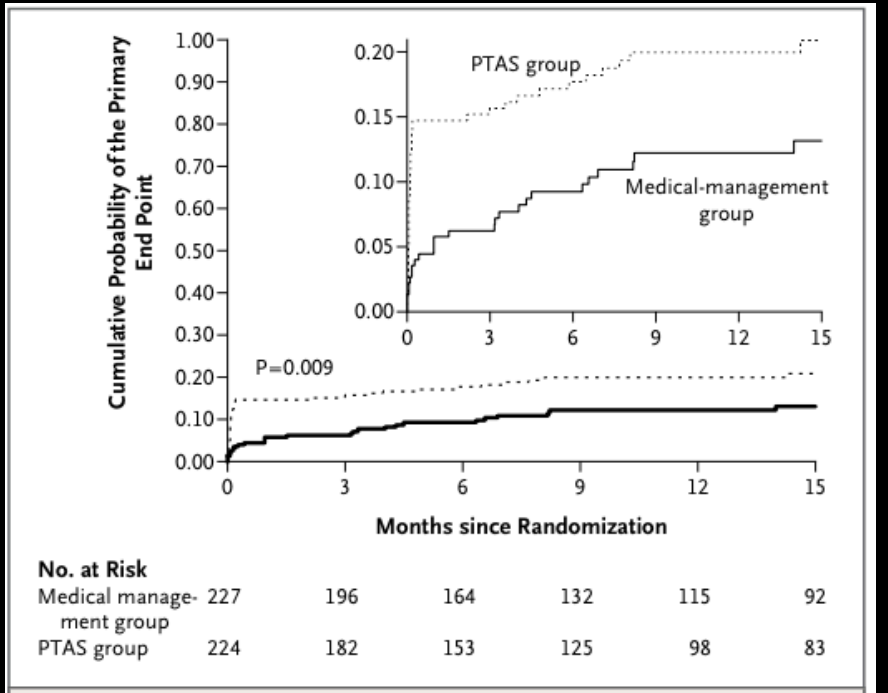


Figure 1. Kaplan–Meier Curves for the Cumulative Probability of the Primary End Point, According to Treatment Assignment.

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?