



**Update on Ischemic Stroke**  
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**AGENDA**

- 1** Demographics
- 2** TIME IS BRIAN: Update on IVtPA and Thrombectomy
- 3** Guideline Recommendations
- 4** Clinical Trials

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**Why is Acute Stroke Treatment Important?**

- 1** 690,000 adults experience an ischemic stroke every year
- 2** Annual recurrence risk on average is 3-4% !!HISTORIC LOW!!
- 3** Fifth cause of death in the United States
- 4** Number one cause of longterm disability in the United States

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**What can we do for Acute Stroke?**  
**TIME IS BRAIN!!!**



It has been demonstrated that every 30-minute delay in acute reperfusion leads to a 10% relative reduction in the likelihood of a good outcome.  
Khatri P, et al. Neurology 2009;73(13):1066Y1072.

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**Now With the Thromectomy Data, Who Should Get tPA?**

tPA should continued to be given to everyone who is eligible for it within 4.5 hours of their last seen normal regardless if they are eligible for thrombectomy.

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**Who should receive a thrombectomy?**

CLASS 1, LEVEL OF EVIDENCE A FOR THROMECTOMIES:  
Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria

- (a) prestroke mRS score 0 to 1,
- (b) acute ischemic stroke receiving intravenous r-tPA within 4.5 hours of onset

according to guideline of professional medical societies,

- (c) causative occlusion of the internal carotid artery or proximal MCA (M1),
- (d) age  $\geq$ 18 years,
- (e) NIHSS score of  $\geq$ 6,
- (f) ASPECTS of  $\geq$ 6, and
- (g) treatment can be initiated (groin puncture) within 6 hours of symptom onset

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**Post-tPA Care: Reducing the risk of Adverse Events & Recurrent Strokes**

- Using order sets decreases error rates and improves post-tPA stroke care.
- Order sets tend to be based on the most recent guidelines for post-tPA care and secondary stroke prevention.

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**Update on Guidelines for Post-tPA Ischemic Stroke Care**

**Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association**

Edward C. Jauch, Jeffrey L. Saver, Harold P. Adams, Jr, Askiel Bruno, J.J. (Buddy) Connors, Bart M. Demerschak, Pooja Khatri, Paul W. McMillan, Jr, Adam I. Qureshi, Kenneth Rosenfield, Phillip A. Scott, Debbie R. Summers, David Z. Wang, Max Wintermark and Howard Yonas

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**Update on Guidelines for Post-tPA Ischemic Stroke Care**

**What it says in the guidelines and why it is important.**

**Table 12. Treatment of Acute Ischemic Stroke: Intravenous Administration of rTPA**

Measure blood pressure and perform neurological assessments every 15 minutes during and after IV rTPA infusion for 2 hours, then every 30 minutes for 6 hours, then hourly until 24 hours after IV rTPA treatment.

1. Cardiac monitoring is recommended to screen for atrial fibrillation and other potentially serious cardiac arrhythmias that would necessitate emergency cardiac interventions. Cardiac monitoring should be performed for at least the first 24 hours (Class I, Level of Evidence B). (Revised from the previous guideline<sup>12</sup>)

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### Update on Guidelines for Post-tPA Ischemic Stroke Care

**What it says in the guidelines and why it is important**

tions.<sup>13,27</sup> In patients who are able to maintain oxygenation while lying flat, the supine position may offer advantages in cerebral perfusion.<sup>72,73</sup>

Thus, in nonhypoxic patients able to tolerate lying flat, a supine position is recommended. Patients at risk for airway obstruction or aspiration and those with suspected elevated ICP<sup>74</sup> should have the head of the bed elevated 15° to 30°.

No recommendation in the guidelines as to how long a patient should be NPO. Most post-tPA adverse events occur within 12 hours (Abstract presented at the ISC 2014 from KP NCAL). Therefore if a patient was to bleed, it could potentially increase the risk of aspiration.

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### Update on Guidelines for Post-tPA Ischemic Stroke Care

**What it says in the guidelines and why it is important**

...sustaining nutrition is important because dehydration or malnutrition may slow recovery.<sup>40,58</sup> Dehydration is a potential cause of DVT after stroke. Impairments of swallowing are

6. The administration of aspirin (or other antiplatelet agents) as an adjunctive therapy within 24 hours of intravenous fibrinolysis is not recommended (Class III; Level of Evidence C). (Revised from the previous guideline<sup>41</sup>)

Zinkstok et al compared tPA + aspirin vs. tPA alone and showed an excess of symptomatic ICH in the ASA + tPA arm : (4.3% vs 1.6%).

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### Update on Guidelines for Post-tPA Ischemic Stroke Care

**What we write in our note:**

Blood Pressure:  
SBP between <180 and DBP < 105

If SBP > 180 or DBP > 105, use labetalol 10 mg IV q15min, with max 150 mg/24 hrs. If more than two doses needed, then start a nicardipine/clevidipine drip.

**What it says in the guidelines and why it is important**

**Table 9. Potential Approaches to Arterial Hypertension in Acute Ischemic Stroke Patients Who Are Candidates for Acute Reperfusion Therapy**

Management of BP during and after rPA or other acute reperfusion therapy to maintain BP at or below 180/105 mmHg

Monitor BP every 15 minutes for 2 hours from the start of rPA therapy, then every 30 minutes for 6 hours, and then every hour for 16 hours

If systolic BP >180–230 mmHg or diastolic BP >105–120 mmHg:

Labetalol 10 mg IV followed by continuous IV infusion 2–8 mg/min; or  
Nicardipine 5 mg/h IV, titrate up to desired effect by 2.5 mg/h every 5–15 minutes, maximum 15 mg/h

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### Update on Guidelines for Secondary Stroke Prevention: Blood Pressure

**What it says in the guidelines and why it is important:**

3. Goals for target BP level or reduction from pretreatment baseline are uncertain and should be individualized, but it is reasonable to achieve a systolic pressure <140 mmHg and a diastolic pressure <90 mmHg (Class IIa; Level of Evidence B). For patients with a recent lacunar stroke, it might be reasonable to target an SBP of <130 mmHg (Class IIb; Level of Evidence B). (Revised recommendation)

5. The optimal drug regimen to achieve the recommended level of reductions is uncertain because direct comparisons between regimens are limited. The available data indicate that diuretics or the combination of diuretics and an angiotensin-converting enzyme inhibitor is useful (Class I; Level of Evidence A).

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### Update on Guidelines for Secondary Stroke Prevention: Statins

**What it says in the guidelines and why it is important:**

1. Statin therapy with intensive lipid-lowering effects is recommended to reduce risk of stroke and cardiovascular events among patients with ischemic stroke or TIA presumed to be of atherosclerotic origin and an LDL-C level  $\geq 100$  mg/dL with or without evidence for other clinical ASCVD (Class I; Level of Evidence B). (Revised recommendation)

2. Statin therapy with intensive lipid-lowering effects is recommended to reduce risk of stroke and cardiovascular events among patients with ischemic stroke or TIA presumed to be of atherosclerotic origin, an LDL-C level <100 mg/dL, and no evidence for other clinical ASCVD (Class I; Level of Evidence C). (New recommendation)

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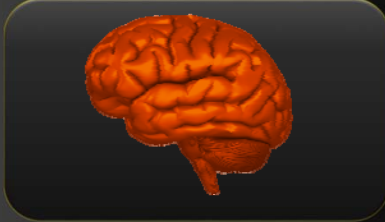
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### Questions?



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