Thrombolytics have much broader indications than mechanical thrombectomy in stroke

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Declaration of Interest

Nothing to declare
Of course!!!
Paradigm Shift

IV Thrombolysis for Ischemic Stroke

• Rather than identifying stroke patients who are thrombolysis candidates, instead consider every patient a candidate unless contraindicated.

Stroke subtypes

- Atherothrombotic: 25-30%
- Cardioembolic: 25%
- Lacunar: 15-20%
- Infrequent: 5-10%
- Cryptogenic: 20%
Patients should receive endovascular therapy with a stent retriever if they meet all the following criteria (Class I; Level of Evidence A). (New recommendation):

- a. Prestroke 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. Causative occlusion of the ICA 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
Large vessel occlusion in acute stroke

PROACT: 43.8% M1-M2 occ

≈30-40%
Sex (male) 1436 (51.7%)
Age (mean +/- SD) 72.1 +/- 15.3
Pre-stroke mRS (median (IQR)) 0 (0-2)
RACE (median (IQR)) 4 (2-6)
NIHSS (median (IQR)) 9 (4-18)
OTDT (mean +/- SD) 117 +/- 80
ASPECTS (median (IQR)) 10 (8-10)
Treatment (All, ischemic):
- EVT 444 (16%, 25.2%)
- IVT 763 (27.5%, 43.3%)

M. Requena, MD. Poster presentation. ISC 2018
2015 American Heart Association/American Stroke Association Focused Update of the 2013 Guidelines for the Early Management of Patients With Acute Ischemic Stroke Regarding Endovascular Treatment

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

Although the benefits are uncertain, the use of endovascular therapy with stent retrievers may be reasonable for carefully selected patients with acute ischemic stroke in whom treatment can be initiated (groin puncture) within 6 hours of symptom onset and who have causative occlusion of the M2 or M3 portion of the MCAs, anterior cerebral arteries, vertebral arteries, basilar artery, or posterior cerebral arteries (Class IIb; Level of Evidence C). (New recommendation)
Paradigm Shift
IV Thrombolysis for Ischemic Stroke

- Rather than identifying stroke patients who may be thrombolysis candidates, instead consider every stroke patient a candidate unless contraindicated

### ACC/AHA

**Cautions/Relative Contraindications:**

- History of chronic, severe, poorly controlled hypertension
- Severe uncontrolled hypertension of presentation (systolic blood pressure [SBP] > 180 mm Hg or diastolic blood pressure [DBP] > 110 mm Hg)
- Traumatic or prolonged (>10 minutes) cardiopulmonary resuscitation (CPR) or major surgery within 3 weeks
- Recent (within 2-4 weeks) internal bleeding
- Noncompressible vascular punctures
- Pregnancy
- Active peptic ulcer
- Current use of anticoagulants with high international normalized ratio (INR); the higher the INR, the higher the risk of bleeding
- For streptokinase or anistreplase: prior exposure (more than 5 days ago) or prior allergic reaction to these agents

### ESC

**Relative Contraindications:**

- Transient ischemic attack in preceding 6 months
- Oral anticoagulant therapy
- Pregnancy or within 1 week post-partum
- Non-compressible punctures
- Traumatic resuscitation
- Refractory hypertension (SBP > 180 mm Hg)
- Advanced liver disease
- Infective endocarditis
- Active peptic ulcer
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A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

In carefully selected patients with anterior circulation occlusion who have contraindications to intravenous r-tPA, endovascular therapy with stent retrievers completed within 6 hours of stroke onset is reasonable (Class IIa; Level of Evidence C). Inadequate data are available at this time to determine the clinical efficacy of endovascular therapy with stent retrievers for those patients whose contraindications are time based or not time based (e.g., prior stroke, serious head trauma, hemorrhagic coagulopathy, or receiving anticoagulant medications). (New recommendation)
Endovascular therapy with stent retrievers may be reasonable for some patients <18 years of age with acute ischemic stroke who have demonstrated large-vessel occlusion in whom treatment can be initiated (groin puncture) within 6 hours of symptom onset, but the benefits are not established in this age group (Class IIb; Level of Evidence C). (New recommendation)

Although its benefits are uncertain, the use of endovascular therapy with stent retrievers may be reasonable for patients with acute ischemic stroke in whom treatment can be initiated (groin puncture) within 6 hours of symptom onset and who have prestroke mRS score >1, ASPECTS <6, or NIHSS score <6 and causative occlusion of the ICA or proximal MCA (M1) (Class IIb; Level of Evidence B-R). Additional randomized trial data are needed. (New recommendation)
Hypodensity >1/3 MCA territory
Conclusions—The ½ MCA method was more reliable in detecting significant EIC on CT brain within 6 hours of stroke onset in routine clinical practice, whereas ASPECTS was able to detect significant EIC in a higher proportion of these early scans. (*Stroke*, 2003;34:1194-1196.)

ESO: ASPECTS <7 no tPA (<3h ??)
In conclusion...
1. Patients eligible for intravenous r-tPA should receive intravenous r-tPA even if endovascular treatments are being considered (*Class I; Level of Evidence A*). (Unchanged from the 2013 guideline)

9. 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. (*Class III; Level of Evidence B-R*). (New recommendation)
Stroke

Ischemic Stroke

Reperfusion candidates