Summary of

**Thrombectomy for Stroke at 6 to 16 Hours with Selection by Perfusion Imaging**

NEJM med 378;8. February 22, 2018, Albers GW.

**BACKGROUND**

- Thrombectomy is currently recommended for eligible patients with stroke who are treated within 6 hours after the onset of symptoms.

**METHODS**

- Multicenter (38 centers), randomized, open-label trial, with blinded outcome assessment, of thrombectomy in patients 6 to 16 hours after they were last known to be well and who had remaining ischemic brain tissue that was not yet infarcted.
- Patients with proximal middle-cerebral-artery or internal-carotid-artery occlusion, an initial infarct size of less than 70 ml, and a ratio of the volume of ischemic tissue on perfusion imaging to infarct volume of 1.8 or more were randomly assigned to endovascular therapy (thrombectomy) plus standard medical therapy (endovascular-therapy group) or standard medical therapy alone (medical-therapy group).
- The primary outcome was the ordinal score on the modified Rankin scale (range, 0 to 6, with higher scores indicating greater disability) at day 90.

**INCLUSION**

- 18-90yo
- NIHSS>/=6
- Pts were enrolled if they met clinical and imaging eligibility requirements and could undergo initiation of endovascular therapy between 6 and 16 hrs after the time that they had last been known to be well.
- Must have initial infarct volume (ischemic core) <70ml, a ratio of volume of ischemic tissue to initial infarct volume of 1.8 or more, and an absolute volume of potentially reversible ischemia (penumbra) of 15 ml or more.
- Estimates of the volume of the ischemic core and penumbral regions from CT perfusion or MRI diffusion and per-fusion scans
- Pts were required to have an occlusion of the cervical or intracranial internal carotid artery or the proximal middle cerebral artery on CT angiography (CTA) or magnetic resonance angiography (MRA).

**EXCLUSION**

- Pregnancy
- Pre-existing or terminal illness
- tPA given>4.5hrs after onset
- Seizure preventing NIHSS determination
- Glucose<50 or >400
- Pllatelets<50k or INR>3
- Sustained HTN SBP>185 or Diastolic>110 not treatable with meds

**RESULTS**

- The trial was conducted at 38 U.S. centers and terminated early for efficacy after 182 patients had undergone randomization (92 to the endovascular-therapy group and 90 to the medical-therapy group).

- Endovascular therapy plus medical therapy, as compared with medical therapy alone, was associated with a favorable shift in the distribution of functional outcomes on the modified Rankin scale at 90 days (odds ratio, 2.77; P<0.001) and a higher percentage of patients who were functionally independent, defined as a score on the modified Rankin scale of 0 to 2 (45% vs. 17%, P<0.001).
- The 90-day mortality rate was 14% in the endovascular-therapy group and 26% in the medical-therapy group (P = 0.05), and there was no significant between-group difference in the frequency of symptomatic intracranial hemorrhage (7% and 4%, respectively; P = 0.75) or of serious adverse events (43% and 53%, respectively; P = 0.18).

**SAFETY OUTCOMES**

- Mortality at 90 days was 14% in the endovascular-therapy group and 26% in the medical-therapy group (P = 0.05). The rate of symptomatic intra-cranial hemorrhage did not differ significantly between the two groups (7% and 4%, respec-tively; P = 0.75).
- Five patients with symptomatic intracranial hemorrhages in the endovascular-therapy group died, as compared with two with symptomatic intracranial hemorrhages in the medical-therapy group.
- Parenchymal hematoma type 2 (dense blood clot exceeding 30% of the infarct volume with substantial space-occupying effect) occurred in 9% of the patients in the endovascular-therapy group and 3% of those in the medical-therapy group (P = 0.21).
- Thrombectomy-related complications occurred in two patients: a vessel perforation resulting in subarach-noid hemorrhage that was associated with a 3-point increase in the NIHSS score (90-day score on the modified Rankin scale, 5), and device-related vasospasm that did not lead to neurologic worsening.
- Serious adverse effects were reported in 43% of the patients in the endo-vascular-therapy group and 53% of those in the medical-therapy group (P = 0.18)

**CONCLUSIONS**

- Endovascular thrombectomy for ischemic stroke 6 to 16 hours after a patient was last known to be well plus standard medical therapy resulted in better functional outcomes than standard medical therapy alone **among patients with proximal middle-cerebral-artery or internal-carotid-artery occlusion** and a region of tissue that was ischemic but not yet infarcted. (Funded by the National Institute of Neu-rological Disorders and Stroke;