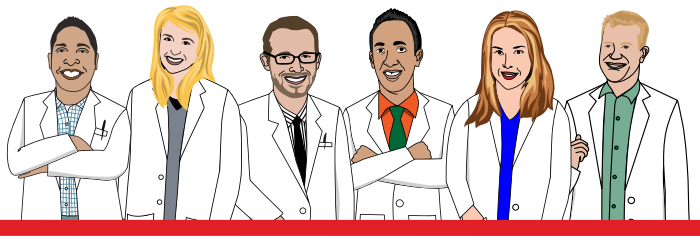
Emergency Medical Abstracts



Abstract Editor: Michael Menchine MD

Endovascular thrombectomy with or without intravenous alteplase in acute stroke

Yang P, Zhang Y, Zhang L, et al. N Engl J Med. 2020;382(21):1981-1993.

SUMMARY:

- Tissue plasminogen activator (TPA, or alteplase) as a treatment for stroke has a marginal effect on outcomes but has been the mainstay of approved acute therapy for the past 15 years. Endovascular therapy (EVT) for acute stroke with persistent large vessel occlusion and favorable imaging findings has emerged as an acute treatment option that appears to actually save lives. An important remaining question is how much TPA, if any, should be given if a patient is an EVT candidate.
- TPA may dissolve the clot before the EVT, thus making the procedure less risky, and may prevent any clot debris that breaks off during EVT from causing further stroke. However, TPA causes brain bleeds and does not save lives. An article a few months ago showed that reduced-dose tenecteplase is not inferior to a normal dose, thus prompting the question of whether any thrombolytic agent is necessary for EVT candidates.
- This is the first randomized trial directly investigating this question. This is a Chinese, government-sponsored RCT trial of alteplase + EVT vs placebo + EVT for patients with large vessel occlusion within 4.5 hours of symptom onset (in the U.S., these patients would be given TPA).
- The study was conducted at 41 centers throughout China (all academic). Patients were randomized 1:1. The primary outcome was the modified Rankin score at 90 days. Secondary outcomes included death and successful reperfusion before EVT. The study was conducted from February 2018 to July 2019.
- A total of 656 patients were enrolled. The median age was 69, and the median NIH Stroke Scale was 17 (very high).
- The outcomes indicated that the common odds ratio, a measure of favorable modified Rankin score, was 1.07, thus favoring the EVT-alone group. However, the CI did cross 1, so the results were statistically similar. EVT was not noninferior to the combined therapy. Death occurred in 17.7% of the EVT-alone group vs 18.8% in the combined-therapy group (no significant difference). Brain hemorrhage occurred in 37.6% in the EVT-alone group vs 42.3% in the combined-therapy group (no significant difference).
- Throughout multiple additional secondary endpoints, the study shows that EVT alone is at least as good as EVT + alteplase.
- The study has several limitations, most prominently that Asian people have somewhat different stroke pathology than non-Asian people: specifically, Asian people often have intracranial atherosclerotic disease, which is relatively rare in non-Asian people. Therefore, the results many not yet be generalizable to broader populations. This study was also conducted at high-functioning academic stroke centers, and the time difference between TPA administration and EVT was minimal; however, this minimal time difference may not be the case in community hospitals, where additional hours-long delays in EVT may unmask some potential benefit of TPA.
- For now, the recommendations remain the same: give TPA if within 4.5 hours, and start the EVT. Other ongoing trials are examining these recommendations in non-Asian populations and in other clinical settings, so recommendations may change in the near future.

PMID: 32374959

EDITOR'S COMMENTARY: **This first-in-kind RCT of EVT alone or combined EVT + alteplase for patients with large vessel occlusion within 4.5 hours of stroke onset demonstrates that EVT alone is not inferior to the combined therapy, and there are some hints that it may actually be safer. Be aware that recommendations have not changed according to this single trial. For now, continue usual care, but be aware that the data are pointing toward lower or no thrombolytics for stroke patients with large vessel occlusion.**