Medical Xpress

Lower dose of newer clot-buster may be appropriate for some stroke patients

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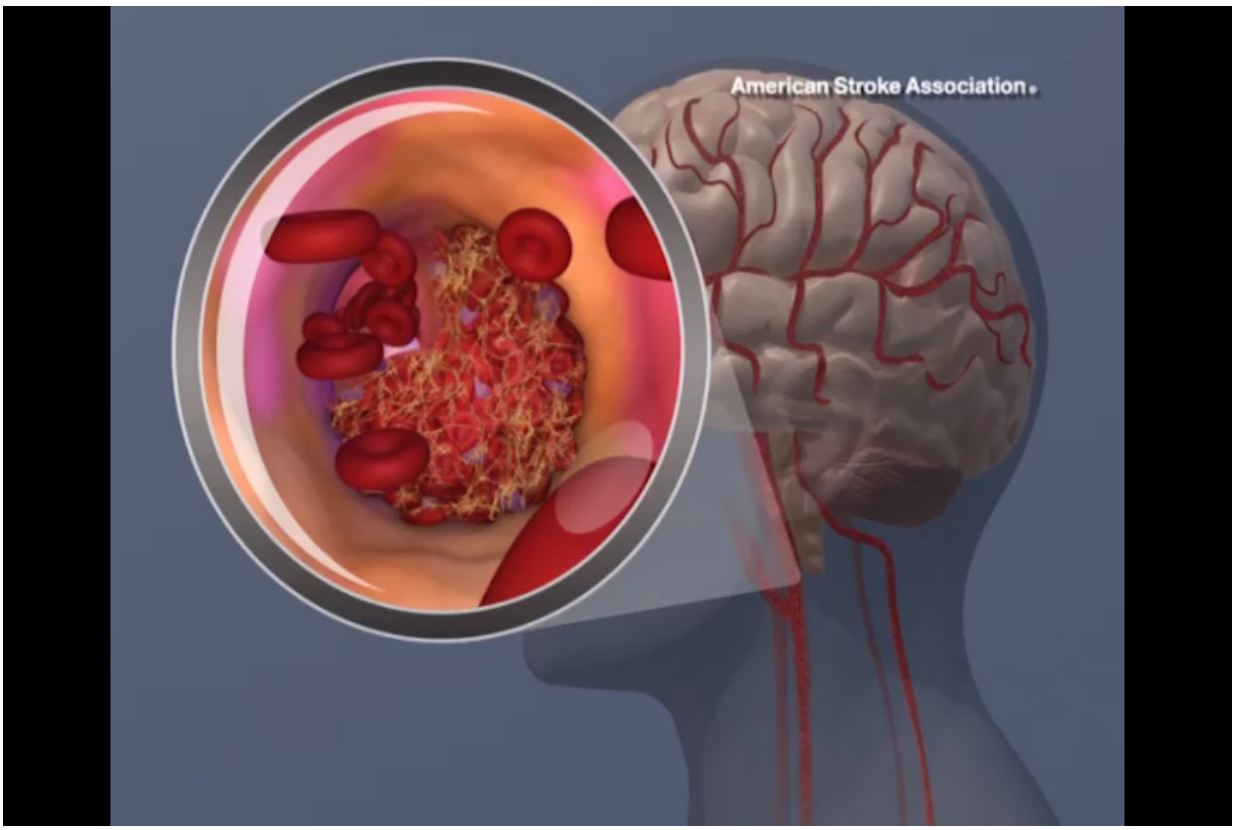

A blood clot forming in the carotid artery. Credit: American Heart Association

New research confirms that the lower 0.25mg/kg dose of the clot-busting agent tenecteplase is appropriate for eligible stroke patients and can reduce the need for mechanical clot removal, according to late breaking

science presented today at the American Stroke Association's International Stroke Conference 2020.

The clot-busting medication alteplase was approved by the U.S. Food and Drug Administration (FDA) 25 years ago for treating clot-caused stroke (ischemic stroke) within 3 hours of symptom onset and AHA guidelines recommend alteplase up to 4.5 hours after stroke onset. Alteplase is administered as an IV drip over an hour. Alternatively, tenecteplase, a genetically modified variant of alteplase, is more convenient because it is administered as a single injection directly into the vein and restored blood flow to the brain better than alteplase in a previous trial. Two different doses of tenecteplase have been used in previous trials, and AHA guidelines include recommendations for both doses. Tenecteplase use for ischemic stroke is currently not approved by the FDA.

Researchers say that, in addition, tenecteplase may be especially beneficial for patients who need to be transferred from the hospital where they initially present to a specialized stroke center for mechanical clot removal treatment- also known as a endovascular thrombectomy, a minimally-invasive procedure in which a small tube is inserted into the arteries of the brain to remove the clot causing the stroke.

Researchers investigated whether a dose of 0.25mg/kg or 0.40mg/kg of tenecteplase prior to mechanical clot removal is optimal for stroke patients.

Three hundred ischemic stroke patients with large vessel occlusion within 4.5 hours of onset were randomized to the two doses of tenecteplase. Researchers found:

- the clot was largely dissolved prior to mechanical removal in 19.3% of patients with both groups;

- there were no differences in functional outcome; and
- symptomatic intracranial hemorrhage occurred in numerically fewer patients treated with the smaller dose (1.3%) compared to the larger dose (4.7%), although the difference was largely due to thrombectomy-related wire perforations.

"The two doses behaved very similarly overall, and there was no advantage to increasing the dose beyond 0.25mg/kg in this study," said Bruce Campbell, M.B.B.S., B.Med.Sc., Ph.D., head of stroke at the Royal Melbourne Hospital and professorial fellow at the University of Melbourne in Parkville, Australia. "These results provide reassurance that there is a window of safety if the weight-based dose is inadvertently overestimated."

"In addition, about 34% of patients treated in rural centers had substantially improved blood flow by the time they arrived at a hospital capable of performing mechanical clot removal," Campbell said. "This treatment could be particularly important for them."

Provided by American Heart Association

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