

# Clot-removal devices now recommended for some stroke patients

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Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

For the first time, the American Heart Association/American Stroke Association recommends using a stent retrieval device to remove blood clots in select stroke patients who have clots obstructing the large arteries supplying blood to the brain, according to a new focused update published in the American Heart Association journal *Stroke*.

The optimal initial treatment for a clot-caused (ischemic) [stroke](#) remains intravenous delivery of the clot-busting medication tissue plasminogen activator (tPA). When given within a few hours after [stroke symptoms](#), tPA can dissolve the clot and reestablish blood flow to the brain, limiting stroke disability.

"What we've learned in the last eight months, from six new [clinical trials](#), is that some people will benefit from additional treatment with a stent retrieval device if a clot continues to obstruct one of the big vessels after tPA is given," said William J. Powers, M.D., lead author of the focused update and H. Houston Merritt distinguished professor and chair of the department of neurology at the University of North Carolina at Chapel Hill.

The focused update on endovascular treatment of [acute ischemic stroke](#) analyzes results from randomized clinical trials published since 2013, when the last treatment guidelines were issued.

The clot-removal procedure involves puncturing an artery in the groin and threading a thin wire tube up into the brain until it reaches the blocked vessel in one of the large arteries. At the site of the blockage, the tube with a wire mesh called a stent retriever at its end is pushed into the clot and the mesh is expanded so it grabs the clot, which is removed as the tube is pulled out.

"This additional treatment is more difficult than tPA, which can be given by most doctors in the emergency room," Powers said.

"Clot removal with a stent retriever requires a specialized center, such as Comprehensive Stroke Centers, or other healthcare facilities with specially trained people including some Primary Stroke Centers. This treatment has to be done within six hours of the onset of stroke, so in some areas it can be tricky to get you to an appropriate hospital in time."

The focused update recommends that [stroke patients](#) have their clots removed with a stent retriever if they:

- have no significant disability prior to the current stroke
- received tPA within 4.5 hours of symptom onset
- have a clot blocking a large artery supplying blood to the brain
- are at least 18 years old
- had an acute, severe stroke
- have imaging showing more than half of the brain on the side of the stroke is not permanently damaged
- can have the procedure start within six hours after symptom onset

The evidence backing this new recommendation received the highest rating based on the scientific evidence reviewed, and suggests the benefits substantially outweigh the potential risks in these patients.

"Evidence-based guidelines are based on clinical trials, which tell you that if you have a patient with the same characteristics of those in the trials, on average they will do much better with the treatment than if you treat them another way," Powers said.

The focused update states that the use of stent retrievers is indicated in preference to other mechanical thrombectomy devices, but notes that the use of mechanical thrombectomy devices other than stent retrievers may be reasonable in some circumstances based on a physician's clinical judgment.

Both tPA and clot-retrieval procedures work better the sooner they are administered. Therefore, it's important to remember the acronym F.A.S.T. and seek immediate help if you notice anyone with the following symptoms:

- Face drooping or numbness on one side.
- Arm weakness with inability to hold both arms overhead.
- Speech slurring or inability to repeat simple sentence.

Time to call 911.

Provided by American Heart Association

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