Size and time impact outcomes when mechanical clot removal used for large core strokes

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Mechanical clot removal has been shown to be safe and effective in stroke patients with minimal damaged brain tissue. Ideal patient selection may also someday hold promise for strokes damaging large areas of brain tissue, according to late breaking science presented at the American Stroke Association's International Stroke Conference 2019.

"Outcomes in stroke patients treated with thrombectomy (mechanical clot removal) is affected by the size of the stroke—the larger the stroke, the worse the outcome," said lead author Amrou Sarraj, M.D., associate professor of neurology at McGovern Medical School at The University of Texas Health Science Center at Houston.

In addition, longer time lapses between onset and treatment lowered good outcomes, with researchers noting much lower likelihood of benefit beyond 12 hours of stroke onset.

Currently, patients who a have large core stroke—large area of tissue damage—are routinely excluded from thrombectomy treatment. In this study, researchers evaluated such patients' outcomes after mechanical clot removal.

Of 2,453 patients treated with mechanical clot removal, 221 had large core strokes. Thirty-five percent of those with large core strokes achieved functional independence three months after stroke, which was considered a good outcome.

However, the rate of good outcomes decreased and complications such as brain bleeds and death increased as the size of the stroke increased and the time to treatment increased.

Sarraj noted that while the safety outcomes (brain bleed up to 4 percent and deaths up to 12 percent) were reasonable in patients with strokes less than 100 mL volume, those complications were significantly higher in strokes that exceeded 100 mL in volume, with brain bleed in up to 75 percent of patients and deaths in up to 50 percent of patients.

Sarraj said advanced imaging to determine stroke size could extend thrombectomy treatment to more patients. Most upcoming stroke studies of this population use simple CT imaging of the brain to determine patient eligibility. This study evaluated patients with CT imaging and advanced imaging with contrast (perfusion imaging).

"The addition of perfusion imaging may help identify the best candidates who can benefit the most by thrombectomy procedure, which we implemented in the design of upcoming SELECT 2 trial," Sarraj said.

Evidence from future randomized trials will help confirm these results to expand treatment eligibility and potentially help improve outcomes in many stroke patients, Sarraj added.

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