Aspiration as good as stent retrievers for removing large-vessel clots in stroke patients

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ADAPT (A Direct Aspiration First-Pass Technique), a technique pioneered at the Medical University of South Carolina (MUSC), is non-inferior to stent retrievers for mechanical thrombectomy in stroke patients with large-vessel clots, according to the preliminary results of the head-to-head COMPASS Trial. The results were presented in the main event plenary session at the International Stroke Conference (ICS) in Los Angeles on January 25, 2018.

Stent retrievers, the current standard of care for mechanical thrombectomy in patients with acute ischemic stroke, are cage-like devices that are used to "engage" and then remove the clot. In contrast, ADAPT, which was developed by neuroendovascular surgeons M. Imran Chaudry, M.D., Alejandro M. Spiotta, M.D., Aquilla S. Turk, D.O., and Raymond D. Turner, M.D., uses a large-diameter aspiration catheter (ACE68, Penumbra) to attempt to remove the clot in its entirety.

"The COMPASS trial provides Level 1 evidence that, in a head-to-head comparison, aspiration is at least as good as stent retrievers and, certainly to me, the way to start doing a thrombectomy procedure," said Turk, the trial's principal investigator. "You simply drive a catheter to the face of the clot, you attempt aspiration and, if it doesn't work, then at that point you can add a stent retriever and have as good a result as with stent retrievers alone."

The trial was conducted at MUSC, where Turk is the director of the neurointerventional surgery section in the Departments of Radiology and

Neurosurgery. Collaborators on the trial include J Mocco M.D., MS, vice chair of neurosurgery and director of the Cerebrovascular Center at the Icahn School of Medicine at Mount Sinai, New York, who presented the preliminary results at the ICS, and Adnan Siddiqui, M.D., Ph.D., professor of neurosurgery, Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo, Buffalo, NY.

The COMPASS trial enrolled 270 patients into a prospective, randomized, open-label, blinded outcome assessment and core lab-adjudicated trial to assess the clinical outcome of the patient—i.e., how functional they were after treatment with either ADAPT using a large-diameter aspiration catheter (ACE68, Penumbra, Inc.) or a stent retriever as the first-line approach. To compare clinical outcomes, researchers used the modified Rankin scale for neurologic activity (mRS), a standard measurement of the degree of disability or dependence in the daily activities of people who have suffered a stroke. The scale runs from 0 (no symptoms at all) to 6 (dead).

The data showed that the ADAPT technique was non-inferior to stent retrievers for treatment of large-vessel occlusions, with 52 percent of patients treated with ADAPT achieving the primary endpoint of functional independence (mRS 0-2) at 90 days compared with 49 percent of patients treated with stent retrievers.

Revascularization speed demonstrated a non-significant trend in favor of aspiration with a 10-minute numeric advantage in achieving reperfusion success (p=0.0194).

The quality of revascularization was comparable between the therapies, with the final rate of revascularization success (TICI 2b) being 92 percent for ADAPT and 89 percent for stent retrievers (p=0.54). Moreover, the percentage of patients achieving full reperfusion (TICI 3) was 38 percent for the ADAPT arm and 29 percent for the stent

retriever arm (p=0.15).

Secondary safety endpoints presented, including embolization in new territory and symptomatic intracranial hemorrhage, were not statistically different between the two arms.

The COMPASS Trial reaffirmed the results of two previous multicenter randomized controlled trials—Penumbra's 3-D Trial and the independent ASTER (Adapt versus STEnt Retriever) Trial—demonstrating improvements in procedure and technique while maintaining a strong safety profile and 90-day clinical outcomes. COMPASS is the first of the three randomized trials to study ADAPT using the ACE68 aspiration catheter.

The simplicity of the technique suggests that it should reduce procedure times and costs. Turk will present the full results of the trial, including procedural and cost-effectiveness data, at the European Stroke Organisation Conference meeting in Gothenburg, Sweden in May 2018.

Provided by Medical University of South Carolina

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