REVASCAT Trial
Further Advancement in Endovascular Stroke Therapy

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The recent REVASCAT trial (Randomized Trial of Revascularization With Solitaire FR Device Versus Best Medical Therapy in the Treatment of Acute Stroke Due to Anterior Circulation Large Vessel Occlusion Presenting Within 8 Hours of Symptom Onset) is the latest of 5 published Prospective Randomized Open Blinded End-Point (PROBE)-designed trials of acute thrombectomy for acute, anterior circulation, large-vessel ischemic stroke serving to cap the era of equipoise for endovascular stroke therapy. The history of endovascular stroke therapy has recently been summarized. Following the null result of the Interventional Management of Stroke (IMS)-III trial published in 2013, the field transitioned to more effective removable stent (stentriever) device design and use of imaging selection (principally computed tomographic angiography with or without perfusion) rather than clinical examination. The recent 5 trials were designed around this evolution (a 6th trial has been stopped for efficacy reasons). The main conclusions of REVASCAT are as follows: (1) the trials provide further support for the efficacy of endovascular stroke therapy under 8 hours and (2) the results are likely generalizable to the whole population. REVASCAT was unique among the 5 published randomized controlled trials, in which there was specific exclusion of patients who demonstrated revascularization after IV tPA on neuroimaging. The protocol stipulated computed tomographic angiography or magnetic resonance angiography at 30 minutes after IV tPA for patients, specifically to identify the presence of revascularization. The consequence was an inevitable delay in the initiation of endovascular therapy as reflected in the increased time delay between stroke onset to IV tPA time (median [interquartile range], 117.5 [90–150] mins) and stroke onset to groin puncture time (median [interquartile range], 269 [201–340] mins) in the treatment group. REVASCAT did show, in spite of treatment delay, superior clinical outcomes in the treatment group, but this study did not measure whether this delay was harmful. Of the 5 published PROBE-designed trials of thrombectomy, only MR-CLEAN went onto planned completion, generating a domino effect where all other ongoing...
trials were terminated early for ethical reasons. The fact that all 4 published subsequent trials, including REVASCAT, were positive, despite not completing full enrollment, is strong indication that endovascular stroke therapy within the 8-hour time window is effective and trends toward reduced mortality. Future meta-analysis of all PROBE-designed trials has been planned, and REVASCAT will provide 206 precious observations to this analysis.

Regarding the generalizability of these results, it is significant to consider that only 8 or 206 patients evaluated during this trial in the 4 treating hospitals were not randomized. We do not know, however, how centers with less experience fare using these techniques because all 4 centers had to treat over 500 stroke patients with at least 60 patients treated endovascularly annually to be eligible for the trial. Also, only a minority of endovascular patients received GA (7%), likely favoring good outcomes. Because there is a wide variation in the use of GA, and because several lines of data associate GA with worsened outcomes, centers that continue to use GA routinely may not experience the 44% good outcome rate seen in REVASCAT.

Disclosures
Dr Smith received compensation from Covidien as member of the SWIFT-Prime DSMB and from Stryker Neurovascular for member on the DAWN DSMB. B. Yan received research grant from Johnson and Johnson and speaker honoraria from Stryker, Inc.

References

Key Words: angiography • endovascular • stents • stroke • thrombectomy
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*Stroke*. 2015;46:3012-3013; originally published online September 3, 2015; doi: 10.1161/STROKEAHA.115.010817

*Stroke* is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0039-2499. Online ISSN: 1524-4628

The online version of this article, along with updated information and services, is located on the World Wide Web at:

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