

Carotid artery stenting shown to be cost-effective alternative to endarterectomy

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Researchers determined that carotid artery stenting (CAS) with embolic protection is an economically attractive alternative to endarterectomy (END) for patients at increased surgical risk. The study, based on data from the Stenting and Angioplasty with Protection in Patients at High Risk for Endarterectomy (SAPPHIRE) trial, found that initial procedural cost was higher with CAS, but post-procedure hospital stay was shorter which significantly offset associated costs compared to END. Details of the study—the first to evaluate the long-term cost-effectiveness of CAS versus END in stroke and heart attack prevention—are published in the March issue of *Catheterization and Cardiovascular Interventions*, a peer-reviewed journal of The Society for Cardiovascular Angiography and Interventions (SCAI).

According to the Centers for Disease Control and Prevention (CDC), stroke is the third leading cause of death and the leading cause of serious long-term disability in the U.S. The CDC estimates that stroke cost the U.S. roughly \$74 billion in healthcare services, medications, and lost productivity in 2010. Prior studies established carotid END as the standard of care for prevention of stroke in patients with [carotid artery stenosis](#). However, the Food and Drug Administration (FDA) Circulatory System Devices Advisory Panel recently recommended expanding availability of CAS to patients with carotid artery disease at standard risk for surgical complications. The FDA recommendation and subsequent practice guidelines sponsored by 14 organizations, including SCAI, underscore the safety and efficacy of CAS as an option for patients needing revascularization.

In the current study, David Cohen, MD, and colleagues from St. Luke's Mid America Heart and Vascular Institute in Kansas City, Mo., evaluated the cost-effectiveness of CAS versus END using SAPHIRE trial data. The SAPHIRE trial included 310 patients with accepted indication for END but at high risk for complication who were then randomized and underwent CAS (n=159) or END (n=151). Researchers prospectively assessed clinical outcomes, resource use, costs and quality of life for all participants over a one-year period following the procedures.

"Our findings show that CAS with embolic protection offers a cost-effective alternative treatment option for patients with carotid artery atherosclerosis who are at high risk of adverse events with END," noted Dr. Cohen. Study results showed initial procedural costs were significantly higher for stenting (\$7,000) than for END (\$3,000). However, post-procedure hospital stay was one day shorter for CAS which reduced associated costs, resulting in initial costs for stenting being only \$559 per patient higher than for END. Follow-up costs after discharge and total one-year costs did not differ between the two procedures.

Researchers also found after the first year, the rates of death, heart attack, major stroke and repeat carotid revascularization were lower with CAS compared with END (7% vs. 13%; 3% vs. 8%; 0.6% vs. 4%; 0.6% vs. 4%). Follow-up medical costs were \$810 higher for stenting. "CAS appears to be a highly cost-effective option for high surgical risk patients," concluded Dr. Cohen. "Results should not be generalized to patients at low surgical risk, however. Further studies are needed to assess efficacy and cost-effectiveness of CAS in this patient population."

More information: "Costs and Cost-Effectiveness of Carotid Stenting versus Endarterectomy for Patients at Increased Surgical Risk: Results From the SAPHIRE Trial." Elizabeth Mahoney, Dan Greenberg, Tara

Lavelle, Ronna Berezin, K. Ishak, J. Caro, Jay Yadav, William Gray, Mark Wholey and David Cohen. Catheterization and Cardiovascular Interventions; Published Online: February 22, 2011 ([DOI: 10.1002/ccd.22869](https://doi.org/10.1002/ccd.22869)); Print Issue Date: March 2011.

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