



Embargoed for Release: Thursday, February 28, 2013, at 12:01 a.m. CT

STS Press Release

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Less Invasive Procedure Shows Promise in Treatment of Thoracic Aortic Aneurysms

TEVAR found to be more effective than open repair in certain patients

Chicago – Treating aneurysms of the thoracic and abdominal aorta using a less invasive endovascular approach, where a stent is placed in the aorta through a small incision, appears to have better outcomes among certain patients when compared with more invasive traditional repair, according to a study published in the March 2013 issue of *The Annals of Thoracic Surgery*.

Bradley G. Leshnowar, MD, Joseph E. Bavaria, MD, and colleagues from the University of Pennsylvania in Philadelphia compared outcomes in 89 patients who underwent either thoracic endovascular aortic repair (TEVAR) or open treatment for a dissecting thoraco-abdominal aortic aneurysm.

The researchers found that in the open group, comprising mainly younger patients with larger aneurysms, operative mortality was 10.3%, incidence of pulmonary failure was 13.8%, renal failure was 10.3%, and paraplegia (functional impairment of the lower extremities) was 12.1%. Conversely, there was no operative mortality among the TEVAR group or cases of pulmonary failure, renal failure, or paraplegia.

“While the open approach is still the gold standard and continues to show definitive results, our study demonstrates that TEVAR is a good option among certain patient populations, and it should be considered when patients enter their surgeon’s office,” said Dr. Bavaria.

A thoraco-abdominal aortic aneurysm is bulging and weakness in the wall of the aorta, secondary to an aortic dissection, as the aorta extends from the chest into the abdomen. The type of thoraco-abdominal aortic aneurysm involved in this study was the CD3 (DeBakey type III chronic aortic dissection) aneurysm, which typically originates in the descending aorta and often occurs in elderly patients with atherosclerosis (hardening of the arteries) and hypertension. The DeBakey system is an anatomical description of aortic dissections (tears) that categorizes the dissection based on the location and extent of the tear. This study is the first to compare outcomes from concurrent open and endovascular treatment of this type of complex aneurysm.

Key Points

- Early results show that TEVAR yielded lower operative morbidity and mortality compared with open treatment among patients with dissecting thoraco-abdominal aneurysms.
- TEVAR should be considered a treatment option for certain selected patients.
- Cardiothoracic surgeons and their patients need to discuss both approaches before making a treatment decision.

The decision to use open repair or TEVAR on patients in the study was based upon individual patient anatomy and comorbidities, and was recommended by each individual surgeon.

“Traditionally, patients with CD3 aneurysms require open surgical aortic replacement through large, painful incisions and are at risk for significant postoperative morbidity. The data from this study supports the use of endovascular therapy which is highly effective in treating these aneurysms, particularly when the dissection is limited to the thoracic aorta,” said Dr. Leshnower.

He encouraged an open dialog between cardiothoracic surgeons and patients presenting with thoraco-abdominal aortic aneurysms, “The results of this study show that surgeons should discuss both open approach and TEVAR with their patients prior to surgery.”

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Editor’s Note: Bradley G. Leshnower, MD is now with the Emory University School of Medicine in Atlanta.

For a copy of the study, contact Cassie Brasseur at 312-202-5865 or cbrasseur@sts.org.

Founded in 1964, STS is a not-for-profit organization representing more than 6,600 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society’s mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality care through education, research and advocacy.

The Annals of Thoracic Surgery is the official journal of STS and the Southern Thoracic Surgical Association.