Hybrid Aortic Arch Procedures Appear Promising

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SAN FRANCISCO — Disease of the aortic arch can now be treated by combining open surgical procedures with endovascular repair—a hybrid technique that offers a less invasive option for the patient. But the novelty of such techniques raises questions about procedural indications and outcomes.

In an attempt to come up with benchmarks for this evolving approach, Dr. George J. Koullias and Dr. G.H. Wheatley performed a meta-analysis of the published literature to date regarding hybrid repair of aortic arch. They reviewed a total of 718 retrospective studies and case reports of hybrid arch procedures that were listed in PubMed through May 2008.

Excluded from their analysis were reports involving only left common carotid to left subclavian artery bypass; landing of the covered portion of the stent-graft in zones 2-4; and arch repairs using extrathoracic approaches, said Dr. Koullias at the annual meeting of the Society of Thoracic Surgeons.

A total of 55 studies, comprising 28 retrospective studies and 27 case reports, was identified. These included 582 patients (412 men and 170 women). Based on sample size criteria, a final total of 15 studies with 463 patients (320 men and 143 women) was included in the meta-analysis. The 40 remaining studies included up to 119 patients (92 men and 27 women) and comprised case reports and small retrospective studies (fewer than 11 patients per study). These were analyzed descriptively, according to Dr. Koullias, who is with a cardiac surgery practice in Peoria, Ill., and Dr. Wheatley, of a cardia group practice in Phoenix.

Meta-analysis end points were perioperative mortality, 30-day mortality, permanent and temporary stroke rate, permanent and temporary paraplegia rate, and endoleak rate.

On the meta-analysis of the 463 patients undergoing hybrid arch procedures, the overall perioperative mortality was 6.4% and the 30-day mortality was 8.3%. The overall endoleak rate was 9.2%, the permanent and temporary stroke rate was 4.4%, and the permanent and temporary paraplegia rate was 3.9%, with an average follow-up of about 19 months.

The 463 patients were divided into two groups: one consisting of 324 patients who had their procedure done on cardiopulmonary bypass (CPB), and a second group of 139 patients who had their procedure off CPB. Secondary meta-analysis between those two patient groups showed no statistically significant differences in any of the end points.

These operative results for the hybrid procedures compare favorably with standard operative repair, according to the investigators. However, they indicated that there was a need for long-term follow-up and additional study.

The investigators had nothing to disclose with regard to this study.