TECAB Plus PCI Shows Promise: Early Studies

BY MARK S. LESNEY

SAN FRANCISCO — A hybrid technique using beating-heart total endoscopic coronary artery bypass and newer stents that are associated with a lower incidence of restenosis has shown promise in early investigations.

Internal thoracic artery grafts plus percutaneous coronary intervention provided a less-invasive means of complete revascularization, compared with standard surgery, according to a study presented at the annual meeting of the Society of Thoracic Surgeons.

A total of 315 beating-heart total endoscopic coronary artery bypass (TECAB) operations were performed from July 2004 until June 2008 by Dr. Sudhir P. Srivastava and colleagues at the University of Chicago. Planned adjunctive PCI was performed in 70 of these patients. A total of 170 internal thoracic artery grafts were performed, and beating-heart TECAB was aided by the daVinci S robotic system and an endowrist stabilizer.

Adjunctive PCI was done before TECAB in 11 patients, simultaneously in 5 patients, and after TECAB in 54 patients. A total of 83 stents (81 drug eluting, 2 bare metal) were placed in 79 coronary arteries. In 57 patients, 92 grafts were studied with conventional angiography, and 15 grafts in 13 patients were studied using CT angiography.

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Robotic cardiac surgery has evolved to allow for less-invasive techniques that can achieve comparable, if not superior, results, says Dr. Sudhir P. Srivastava.

One patient died of unknown causes after being discharged, and a second patient died of aspiration in a nursing home. Only one patient had a cardiovascular adverse event following PCI. No myocardial infarction or reintervention in the PCI target coronary artery occurred. The 92 grafts studied using conventional angiography showed FitzGibbon A, B, and O scores of 90, 1, and 1, respectively.

All 68 surviving patients have remained free of major adverse cardiac events; thus, the procedure resulted in 100% clinical freedom from target revascularization failure, according to Dr. Srivastava.

"Today, robotic cardiac surgery has evolved to a point where less-invasive techniques could be offered to patients to achieve comparable, if not superior, results with faster functional recovery.

"Hybrid coronary revascularization with beating-heart TECAB offers an option of complete revascularization in complex multivessel coronary artery disease with use of [internal thoracic artery] grafts that have proven superior long-term results and newer stents. Angiography of bypass grafts during planned PCI allows for qualitative graft patency assessment.

"The collaborative efforts between cardiac surgeons and cardiologists in hybrid operating suites may become the future of less-invasive options to treat coronary artery disease," Dr. Srivastava said in an interview.

Dr. Srivastava, who now practices in Atlanta, disclosed that he is a consultant to Intuitive Surgical Inc., Medtronic Inc., and Cardica, and that he is on the advisory board of Medical CV Inc. ■

Weigh Risks of Aortic Valve Replacement With CABG

BY SHERRY BOSCHERT

SAN FRANCISCO — Aortic valve replacement at the time of coronary artery bypass surgery in patients with mild aortic stenosis did not affect operative mortality or long-term survival rates, a retrospective study of 316 patients found.

Among 107 patients who underwent coronary artery bypass graft (CABG) alone and 209 patients who also had a prophylactic aortic valve replacement, 4% died during surgery. Survival rates over a mean 5-year follow-up were similar between groups—about 60%, Dr. Basar Sareyyupoglu and associates reported in a prize-winning poster at the annual meeting of the Society of Thoracic Surgeons.

Although aortic valve replacement is generally favored for CABG patients with moderate aortic valve stenosis, the benefit has been less clear for those with mild aortic valve stenosis, defined as a mean gradient greater than 15 mm Hg and less than 30 mm Hg.

Among patients who underwent CABG alone, the likelihood of needing aortic valve replacement was low (approximately 10%) in the first 5 years but increased to approximately 50% by year 7 and slightly more than 50% by years 8-10.

The decision to intervene on the valve at the time of CABG depends critically on the incremental operative risk imposed by prophylactic aortic valve replacement and on the number of years a patient is expected to live after the surgery, said Dr. Sareyyupoglu of the Mayo Clinic, Rochester, Minn.

Older patients and those whose aortic valves were replaced at the time of CABG were less likely to need a subsequent replacement. Although aortic valve replacement did not affect later mortality rates, multivariate analyses showed that factors such as comorbid illnesses, small body surface area, low ejection fraction, heart failure, and a preoperative permanent pacemaker significantly increased the odds of death during follow-up.

Before surgery, patients in the CABG plus aortic valve replacement group differed significantly from the CABG-only group in several respects. They were less likely to have a history of MI, and more likely to have a bicuspid aortic valve and mild/moderate aortic regurgitation. In addition, they had a higher mean gradient of stenosis, a smaller aortic valve area, and lower ejection fraction, cardiac output, and cardiac index.

Perioperatively, patients in the CABG plus aortic valve replacement group needed significantly longer cross-clamp time and cardiopulmonary bypass time and had a higher risk of retrograde cardioplegia than did their CABG-only counterparts. They received fewer bypass grafts but were more likely to have associated procedures or to need tamponade or blood products.

Average hospital stays were 12 days for the CABG plus aortic valve replacement group and 9 days for the CABG-only group. ■

Jury Is Still Out on Combined CEA/CABG vs. Staged Approach

BY BRUCE JANCIN

TUCSON, ARIZ. — The perioperative stroke risk with combined carotid endarterectomy/coronary artery bypass graft surgery proved greater than with carotid endarterectomy alone in patients with comorbid coronary disease in a retrospective case-control study.

On the other hand, combining carotid endarterectomy (CEA) with CABG did not increase the perioperative stroke risk beyond that of CABG alone in patients with concomitant carotid and coronary disease, Dr. Amanda M. Dick reported at the annual meeting of the Southern Association for Vascular Surgery.

This study argues for case by case decision making, since there is no randomized trial and no level-1 evidence.

DR. DICK

A prospective, randomized trial would best determine whether patients with both carotid and coronary disease would benefit from combined or separate staged repairs. Given that no such trial has been done and no level 1 evidence exists, results of this new study argue for case by case decision making, said Dr. Dick of the Medical University of South Carolina, Charleston.

She reviewed the university's vascular and cardiothoracic surgery registries for 1995-2006, identifying 114 patients who had combined CEA/CABG. She matched them to 342 CEA-only patients based on risk factors for 30-day rates of stroke, MI, and cardiovascular mortality. She also identified 342 CABG-only controls with known carotid disease matched to the combined CEA/CABG patients on the basis of risk factors for perioperative stroke and cardiovascular morbidity and mortality.

The primary study end point was the 30-day perioperative stroke rate. It was 4% in the combined CEA/CABG patients, significantly higher than the 0.6% rate in the matched CEA-only patients but similar to the 3% rate in CABG-only patients.

The 30-day cardiovascular morbidity and mortality rate in the combined surgery group was 4%, significantly higher than the 0.6% rate in CEA-only patients but similar to the 6% rate with CABG-only. No perioperative MIs occurred in the study groups.

Dr. Charles West Jr. of Louisiana State University, Shreveport, a study discussant, cautioned that a retrospective case-control study design such as this can inadvertently end up comparing groups who are dissimilar in terms of total atherosclerotic burden.

However, audience member Dr. Robert W. Feldtman congratulated Dr. Dick on what he said was "a landmark paper that people will refer to for a long time."

Dr. Feldtman of Scott and White Memorial Hospital and Clinic, Temple, Tex., was impressed by the investigators' ability to retroactively mine large, prospectively collected databases to come up with reasonable matched comparisons. In this way they were able to address a controversy not amenable to a large, randomized prospective trial. ■