Off-Pump CABG Improves Outcomes in Women

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SAN DIEGO — Performing coronary artery bypass graft surgery off pump rather than on the heart-lung machine narrows the historic gender gap in operative mortality, stroke, MI, and other critical outcomes, Dr. John D. Puskas said at the annual meeting of the Society of Thoracic Surgeons.

His retrospective observational study, which involved 42,477 consecutive patients who underwent nonemergent CABG at 63 experienced North American centers in 2004-2005, earned the J. Maxwell Chamberlain Memorial Award for the meeting's top adult cardiac surgery study.

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The study, which utilized the Society of Thoracic Surgeons (STS) national cardiac database, demonstrated that the 16,245 off-pump coronary artery bypass (OPCAB) patients had significantly lower major morbidities and mortality than did the on-pump patients after adjustment for 32 potential confounding variables, including height, weight, body mass index, diabetes, and use of internal mammary artery grafts.

For 30 years, studies have shown that CABG outcomes are worse in women. This study was no exception: The nearly 12,000 female CABG patients had an unadjusted mortality fully twice that of the 1.4% figure in men. Women also had significantly higher rates of stroke (1.8% vs. 1.1%) and MI (1.5% vs. 1.1%).

After the extensive risk adjustment, OPCAB patients had a highly significant 17% reduction in mortality, compared with the on-pump population. OPCAB benefits were greater in women.

For example, the 24% relative risk reduction in mortality in OPCAB-treated women, compared with on-pump women, was twice the size of the risk reduction seen in OPCAB-treated as compared with on-pump men. Among on-pump patients, women had a 47% greater mortality risk than did men; among OPCAB patients, however, there was no significant gender disparity in mortality, explained Dr. Puskas, associate chief of cardiothoracic surgery at Emory University, Atlanta.

The unique strengths of this study were its great size, the unusually complete data in the STS archive, and the fact that information on emergent intraoperative conversions from OPCAB to on-pump surgery was included in the STS database starting in 2004.

As a result, the 2.2% of OPCAB patients who were urgently converted to on-pump bypass—with an associated very high operative mortality of 6.5%—were counted on the OPCAB side of the equation. This permitted the first-ever intent-to-treat analysis of OPCAB, providing the truest picture to date of the procedure's pluses and minuses, the surgeon said.

The discussion period made it clear that OPCAB remains a contentious issue among surgeons.

"Off-pump surgery has not become the standard of care. It is one of the choices that's currently available in coronary revascularization," said discussant Dr. Bruce W. Lytle, president of the American Association for Thoracic Surgery.

"We still are betwixt and between with regard to the use of off-pump surgery, as evidenced by the fact that the percentage of cases performed off pump in America appears to have settled out at 20%-25%," added Dr. Lytle, chair of the department of thoracic and cardiovascular surgery at the Cleveland Clinic.

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'We have been kicking this can down the road for the past 5 years.'

Dr. Cecil Wilson, on fixing the sustainable growth rate, p. 47

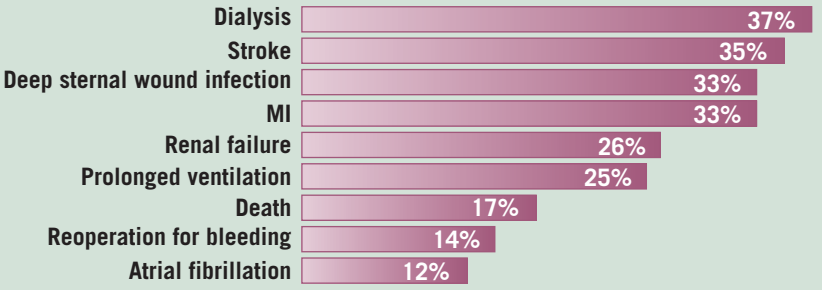
Dr. J. Scott Rankin questioned the clinical relevance of the benefits seen with OPCAB in this study. If stroke or MI occurs in about 1.5% of on-pump patients, and if OPCAB reduces that risk by one-third, that's only a 0.5% absolute difference, noted Dr. Rankin, a cardiothoracic surgeon who practices in Nashville.

"I would argue that's clinically relevant," replied Dr. Puskas. "I think if I could reduce by 30% the number of bereaved families I have to talk to after heart surgery, I would consider that an excellent thing."

In an interview, he called his study "a wake-up call" for cardiac surgeons. There are understandable reasons why 80% of CABGs still happen on-pump—the procedure is more familiar and technically easier, and few good OPCAB training programs now exist—but surgeons need to be thinking about how to move increasingly to OPCAB because the outcomes are better.

He added that OPCAB will provide superior results in all patient subgroups at high risk of morbidity and mortality with on-pump CABG. Besides women, this would include the very elderly, patients with extensive aortic atherosclerosis, and those with renal or pulmonary failure. ■

Relative Risk Reduction in Outcomes of Off-Pump vs. On-Pump CABG



Note: Based on a study of 42,477 patients who underwent nonemergent CABG.
Source: Dr. Puskas

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