

Post-CABG Renal Injury Raises Mortality Risk

BY DOUG BRUNK

SAN DIEGO — Acute kidney injury after coronary artery bypass grafting is significantly associated with long-term mortality, even after adjustment for potential confounders, results from a large Swedish study showed.

"At follow-up of CABG, whether it's by the cardiologist or the family practitioner, we should be aware of acute kidney injury," Dr. Martin J. Holzmann said in an interview during a poster session at the annual meeting of the American Society of Nephrology.

VITALS

Major Finding: Post-CABG acute kidney injury was significantly linked with long-term mortality.

Data Source: Swedish study of 6,447 patients.

Disclosures: None reported.

The cause of the association is unclear, "but it means something in the long run for these patients. It may have to do with their coexisting medical conditions. I think we should treat them more aggressively when it comes to lipids and blood pressure," said Dr. Holzmann of Karolinska University Hospital, Stockholm.

He and his associates evaluated the impact of acute kidney injury in 6,447 patients who underwent a first isolated CABG procedure between 2005 and 2008, had preoperative and postoperative serum creatinine levels drawn, and were alive 60 days after the procedure.

The patients' mean age was 65 years. The researchers used postoperative increases in serum creatinine levels measured 48 hours after surgery to categorize the patients according to the RIFLE criteria, which classifies renal disease as risk, injury, failure, loss,

or end-stage renal disease. A total of 290 patients (4.5%) were in the risk category for acute renal failure, 103 (1.6%) were in the injury category, and 22 (0.3%) were in the failure category.

During a median follow-up of 7.3 years, 1,297 patients died (20%).

After adjustment for age, gender, preoperative estimated glomerular filtration rate, left ventricular function, diabetes mellitus, extracorporeal circulation, body mass index, and unstable angina, the hazard ratio for mortality increased with each progressive RIFLE category: 1.34 (risk category), 1.63

(injury category), and 1.70 (failure category).

At hospital discharge, more patients who did not have acute kidney injury were treated with beta-blockers and statins (87% and 67%, respectively), compared with their counterparts who had acute kidney injury (79% and 61%, respectively).

However, ACE inhibitors were more frequently prescribed among those who had acute kidney injury (38%), compared with those who did not (32%).

This is "a surprising finding," Dr. Holzmann said, adding that it is "difficult to draw conclusions from it."

CABG Outcomes Found Worse With Off-Pump Procedures

BY MARY ANN MOON

A variety of outcomes were poorer with off-pump than with on-pump coronary artery bypass graft in a prospective, randomized trial comparing the procedures.

Short-term and 1-year mortality, as well as rates of major complications, MI, revascularization procedures, and graft patency, were worse with the off-pump approach. Rates of neuropsychological sequelae were not significantly different.

"Our trial did not show any overall advantage to the use of the off-pump" coronary artery bypass graft (CABG), said A. Laurie Shroyer, Ph.D., of Northport (N.Y.) Veterans Affairs Medical Center, and associates in the Randomized On/Off Bypass (ROOBY) trial.

The study involved 2,203 patients undergoing elective or urgent CABG between 2002 and 2008 at 18 VA medical centers. Most (over 99%) were white men who were current or former smokers and had at least one comorbid condition; over 40% had diabetes. A majority had three-vessel coronary artery disease and normal left ventricular function, the authors wrote.

The patients were randomly assigned to on-pump (1,099 patients) or off-pump (1,104 patients) surgery while waiting in the preoperative holding area.

The primary short-term end point was a composite of death or major complications such as reoperation, new mechanical support, cardiac arrest, coma, stroke, or renal failure requiring dialysis within 30 days. The primary long-term end point was death from any cause, nonfatal MI, or repeat revascularization within 1 year.

The short-term composite outcome was not significantly different between the two groups, affecting 7.0% of the off-pump group and 5.6% of the on-pump group. In contrast, the long-term composite outcome was significantly higher in the off-pump group (9.9%) than in the on-pump group (7.4%).

A subsequent sensitivity analysis of the data "showed even stronger advantages for on-pump procedures," the investigators said (N. Engl. J. Med. 2009;361:1827-37).

The rate of graft patency at 1 year was significantly lower for the off-pump group (82.6%)

than the on-pump group (87.8%). Significantly more patients in the off-pump group (36.5%) had at least 1 occluded graft than in the on-pump group (28.7%).

Among those with no occluded grafts, the primary 1-year composite outcome was lower in the on-pump group than in the off-pump (3.3% vs. 6.4%), because "there was less complete revascularization in the off-pump group," the researchers wrote.

A subset of 1,156 study subjects had completed a battery of neuropsychological tests at baseline and was retested at 1 year. Dysfunctions in attention, memory, and visuospatial skills were assessed.

Unexpectedly, there were no significant differences between the two treatment groups on these measures, and the changes in individual test scores either were minimal or showed improvement after surgery for both groups, Dr. Shroyer and colleagues said.

"A number of studies have suggested that cardiopulmonary bypass causes permanent neurologic dysfunction or decreases cognition and motor abilities. Our trial did not show a cognitive decline within 1 year after surgery in either group," they noted.

In an editorial comment, Dr. Eric David Peterson of Duke University Medical Center, Durham, N.C., said the ROOBY study was rigorously conducted, included a broad range of longitudinal clinical end points, and had adequate statistical power to justify its conclusions.

Nevertheless, these findings are "unlikely to end the debate about on-pump and off-pump CABG." Research has shown that the off-pump approach may be particularly suited to women, the elderly, and people with severe coexisting illnesses, "yet the ROOBY trial enrolled almost entirely men who were on average younger and healthier than typical candidates for CABG," Dr. Peterson said (N. Engl. J. Med. 2009;361:1897-9).

Critics also may question whether the technical experience of the surgeons and anesthesiologists was adequately adjusted for in the analysis. In more than half of these cases, the primary surgeon was a surgical resident, he noted.

Dr. Shroyer and Dr. Peterson reported no potential conflicts of interest.

NSAID 'Useless' for Postop Pericardial Effusions

BY BRUCE JANCIN

ORLANDO — Diclofenac, widely prescribed to reduce pericardial effusion volume and prevent tamponade following cardiac surgery, proved ineffective in a double-blind randomized trial.

"NSAID administration seems to be useless in this setting," said Dr. Philippe Meurin, who presented the findings of the Non-steroidal Anti-Inflammatory Treatment for Postoperative Pericardial Effusion (POPE) study at the annual scientific sessions of the American Heart Association.

The use of NSAIDs to treat postoperative persistent pericardial effusions is "an old habit" never previously examined in a clinical trial, he said. Studies indicate NSAIDs are prescribed in one-half to three-quarters of patients with persistent moderate to large pericardial effusions, said Dr. Meurin of the Cardiac Rehabilitation Center, Villeneuve Saint Denis, France.

Yet there are safety concerns. NSAID therapy is linked with a 1.5- to 2-fold increased risk of MI, a 3-fold increase in renal failure, and a 4-fold greater risk of GI bleeding. The risk of renal failure climbs to sixfold with concomitant ACE inhibitor therapy, and the GI bleeding risk jumps to eightfold with concomitant low-dose aspirin, he added.

POPE was a multicenter study involving 196 patients with grade 2 or greater pericardial effusion on day 15 after cardiac surgery who were randomized double-blind to 2 weeks of diclofenac at 50 mg b.i.d. or placebo. Grade 2 is a loculated pericardial effusion of at least 10-14 mm or a cir-

cumferential one of up to 9 mm on echocardiography. Patients with at least a grade 2 pericardial effusion constituted 3.6% of the more than 5,000 cardiac surgery patients who underwent postoperative screening echocardiography, underscoring that this potentially serious complication is uncommon.

The primary end point was change in mean effusion grade based on fluid volume assessed echocardiographically after 2 weeks of therapy. The diclofenac group had a mean 1.36-grade decrease, not significantly different from the 1.08-grade drop in controls.

Late tamponade requiring pericardial drainage occurred in 11.2% of the placebo group, similar to the 9.2% rate in the NSAID group.

Discussant Elliott M. Antman, professor of medicine at Harvard Medical School, Boston, said he felt "a mixture of disappointment and relief" at the POPE results.

He was disappointed because persistent pericardial effusion is a potentially serious problem for which it appears there is no good therapy. He was relieved because if POPE had shown efficacy for diclofenac it would have created a problem in light of the AHA's March 2007 scientific statement advising physicians that NSAIDs are not recommended in patients who have ischemic heart disease or are at risk for it.

The POPE study was funded primarily by the French Society of Cardiology. Dr. Meurin reported having no relevant financial relationships.