SURGERY

Off-pump CABG surgery safe and effective in the elderly

Selected patients—especially those considered at high risk—seem to benefit more from off-pump CABG surgery than from conventional surgery performed with cardiopulmonary bypass. New research now shows that off-pump CABG surgery is not only a safe alternative to conventional CABG surgery in elderly patients, but also has increased benefit in terms of operative risk and complications. “Importantly, we found that the composite risk of major complications, including postoperative stroke, renal failure, prolonged ventilation, pneumonia, and myocardial infarction, was significantly less in patients undergoing off-pump CABG [than in those undergoing conventional CABG] even when adjusting for other confounding factors,” notes senior author Gorav Ailawadi.

The researchers studied 1,993 octogenarians who underwent either conventional CABG surgery with cardiopulmonary bypass ($n = 1,589$) or off-pump CABG surgery ($n = 404$)

between 2003 and 2008 in multiple centers in VA, USA. Patients undergoing off-pump CABG surgery were slightly older and had higher rates of preoperative stroke, NYHA class IV heart failure and atrial fibrillation than patients in the conventional CABG surgery group.

“...the composite risk of major complications ... was significantly less in patients undergoing off-pump CABG...”

Conventional CABG surgery resulted in more perioperative blood transfusions, postoperative atrial fibrillation, prolonged ventilation, and major complications than off-pump revascularization. However, despite these complications, operative mortality, costs, and length of hospital stay were similar in patients undergoing the two procedures. The majority of deaths in all patients were associated with cardiac (47.6%), pulmonary (17.1%), and neurological (10.5%) causes. Finally,

compared with conventional CABG surgery, off-pump CABG surgery was associated with reduced risk of any postoperative (odds ratio 0.74, CI 0.59–0.93, $P = 0.01$) or major (odds ratio 0.68, CI 0.50–0.93, $P = 0.02$) complications.

“These findings may help identify a patient population that can benefit from off-pump CABG,” explains Ailawadi. The researchers now plan to determine the independent effect of several risk factors—elderly age, renal insufficiency, and cerebrovascular disease—in off-pump and conventional CABG surgery. Additionally, Ailawadi and co-workers will also investigate the effects of cardiopulmonary bypass on lung injury, “since the large effect [of the procedure] on composite morbidity was on prolonged ventilation”.

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