Are 2 procedures really better than 1 for patients undergoing coronary artery bypass graft procedure?

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Patel and colleagues¹ report the results of hybrid coronary revascularization (HCR) procedure consisting of left internal thoracic artery (LITA) harvest facilitated with a robotic system, off-pump LITA to left anterior descending artery (LAD) anastomosis through an anterior minithoracotomy, and in most cases a second subsequent percutaneous coronary artery intervention procedure with stents deployed in the circumflex or right coronary artery in patients with double-vessel disease (including left main stenosis). Two hundred seven patients were compared with a group of patients who underwent traditionally performed coronary artery bypass grafting (CABG) surgery defined as LITA to LAD anastomosis plus saphenous vein graft, in most cases performed through standard sternotomy and off-pump techniques. Baseline characteristics were similar in both groups in a propensity-matched analysis.

Hospital mortality and 8-year patient survival was similar in both groups despite 2 patients in the HCR group who required immediate reoperation for LITA–LAD occlusion and 3 patients who underwent the traditional CABG approach where a saphenous vein graft was used to perform the LAD anastomosis. A greater number of patients undergoing traditional CABG procedure required blood transfusion and the patients undergoing HCR enjoyed shorter hospital stays.

Although the authors concluded that HCR has similar clinical results and utilizes fewer perioperative resources, we should take a closer look at the data. Patients of both groups were young (average age, 65 years), one-third were women, and half had diabetes with a normal ejection fraction. Forty-eight of 207 patients (23%) required 89 minutes of on-pump time and 63 minutes of aortic crossclamp time to complete the 2 coronary anastomoses in the traditional group, which is longer than expected. Moreover, women had a much higher risk of mortality throughout the study period (hazard ratio, 2.47; 95% confidence interval, 1.02–5.6) within the HCR group.

Patent bilateral internal thoracic artery grafts 20 years after CABG surgery.

Central Message

Hybrid coronary artery revascularization is an interesting new approach that falls short of complete arterial grafting with bilateral internal thoracic artery grafts.

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It is obvious that the proposed hybrid approach offers several advantages to patients; namely, a minimally invasive technique with shorter surgical incisions, less thoracic trauma with potentially less pain, fewer blood transfusions, and shorter hospital stay with similar medium-term survival. It also appears that these benefits come with significant costs, the use of saphenous vein graft instead of arterial grafts, higher risk of mortality in women, the additional risk of 2 procedures instead of 1, and the long-term need for dual antiplatelet therapy in an early postoperative setting.

We have 3 main objections to this approach. First, most patients could have benefited from complete arterial revascularization, including double ITA grafts.² Second, women are at higher risk of death within the HCR group. Third, the addition of procedure-related risks should be justified based on hard evidence of benefits, not on similar medium-term survival. Otherwise, 1 intervention during a single hospital stay is better than 2 for patients undergoing CABG.

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