Doctor, I say yes to a good old coronary bypass operation and no to your new blood pump!

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Central Message

Coronary artery bypass grafting surgery remains a good treatment option to consider for selected patients with end-stage heart failure.

See Article page 517.

Patients with end-stage heart failure represent a growing concern, and the demand for new treatments remains high among the public. Even though new blood pumps and devices are now available, heart transplantation remains the most standardized approach with the best predictable results. Donor organ shortage reduces the availability of heart transplants, however, and transplantation will never become a definitive answer to this public health problem.

In this issue of the *Journal*, Kawajiri and colleagues¹ have reported on 133 patients evaluated for advanced therapy with left ventricular ejection fraction less than 20% and maximal oxygen uptake less than 14 mL/min/m², 122 (92%) of whom underwent conventional surgery, that is coronary artery bypass grafting surgery (CABG). In-hospital mortality averaged 12%, and 5-year survival was 72%. At 5 and 10 years after surgery, the survivals of transplant-eligible patients who underwent conventional

surgery (68/133, 51%) were identical to those of a cohort of heart transplant recipients, and the survivals of transplant-ineligible patients (65/133, 49%) were similar to those of a cohort of patients who received destination left ventricular assist device therapy.

Kawajiri and colleagues¹ assessed myocardial viability with magnetic resonance imaging or positron emission tomographic scanning to establish the potential for left ventricular recovery after CABG. In-hospital mortality for patients undergoing isolated CABG was 2.3%, and this increased to 14.3% for those undergoing CABG with

FIGURE 1. Positron emission tomographic scan images showing good myocardial viability despite low ejection fraction (<20%).

associated procedures (mitral valve [MV] repair or replacement and left ventricular reconstruction). From the Surgical Treatment for Ischemic Heart Failure Extended Study (STICHES) trial, Velazquez and associates² concluded that after 9.8 years of follow-up CABG was associated with more favorable results than medical therapy alone in patients with heart failure, left ventricular dysfunction, and coronary artery disease. The study of Kawajiri and colleagues¹ shows that high-risk CABG, although associated with a higher in-hospital mortality when combined with MV repair or replacement, results in 5- and 10-year survivals similar to those associated with heart transplantation and destination left ventricular assist device treatment.

In our mind, standard and isolated CABG surgery should be offered to patients with end-stage heart failure who show good target coronary arteries to bypass, ideally with two internal thoracic arteries, when significant myocardial viability is determined on positron emission tomographic scan (Figure 1). CABG associated with MV repair or replacement carries a higher in-hospital mortality, averaging 11% in the series of Kawajiri and colleagues.¹ Maltais and coworkers³ reported 30-day mortality averaging

7% in a series of patients undergoing CABG with MV repair or replacement for end-stage ischemic cardiomyopathy. Poor coronary targets and the absence of myocardial viability on noninvasive testing should incline these patients toward long-term left ventricular assist device therapy. Isolated or complex CABG surgery, including MV repair or replacement, should only be offered to patients with end-stage heart failure if it can be performed with low in-hospital mortality, probably lower than 7%.⁴

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