Change of paradigm or change of heart?

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In their article in this issue of the *Journal*, “High-risk Cardiac Surgery as an Alternative to Transplant or Mechanical Support in Patients With End-Stage Heart Failure,” Kawajiri and colleagues¹ address a clinical scenario that has now become a relatively common dilemma in coronary care units throughout the world. The typical patient is 68 years old with New York Heart Association class IIIB to IV symptoms, severe multivessel coronary artery disease, a dilated ventricle, moderate mitral regurgitation, and atrial fibrillation. Cardiomyopathy with an ejection fraction of around 15%, chronic renal insufficiency with a creatinine level of around 1.5 mg/dL, and chronic obstructive pulmonary disease are typically involved, along with questionable viability and target quality. Most surgeons would agree that this patient would be best served with an operation—ideally performed by a colleague during their own week of vacation. Things become a bit more complicated when one begins to consider just what type of surgery one should perform.

Advanced heart failure therapies have made tremendous strides during the past 15 years, and there is a temptation in a scenario like this to move directly to a left ventricular assist device (LVAD) strategy because of the well-known adage that mortality and ejection fraction tend to shake hands at around 15% in the setting of conventional surgery. Indeed, a review of the 30-day mortality in the Randomized Olmesartan And Diabetes MicroAlbuminuria Prevention (ROADMAP) trial for LVAD therapy compares very favorably at 1%² with the Surgical Treatment for Ischemic Heart Failure (STICH) trial rate of 4% after coronary artery bypass grafting.³ Nevertheless, meaningful long-term comparisons are confounded by the fact that patients enrolled in LVAD trials are uniformly dissimilar to those enrolled in conventional surgery studies, with minimal data available for patients with LVAD support beyond 2 years. Kawajiri and colleagues¹ have very effectively parsed out many of these confounders in a way that allows for a better understanding of the long-term outcomes of these patients according to transplant eligibility and type of therapy rendered.

By selecting out patients with a maximum oxygen uptake less than 14 mL/kg/min and ejection fraction less than 20%,

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Central Message

For carefully selected patients, conventional surgery may offer a reasonable alternative to left ventricular assist device support or transplant.

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Kawajiri and colleagues¹ have identified a patient population that would present significant risks for conventional surgery while at the same time qualifying for consideration of advanced heart failure therapies. An intriguing observation is the fact that isolated coronary artery bypass grafting procedures were associated with a reasonable 2.3% in-hospital mortality, whereas those who underwent concomitant procedures had a 14.3% mortality. These findings seem to support a number of other studies that advocate for a “less is more” approach to these challenging patients.^{4,5} An obvious limitation of this study is the bias introduced by the fact that patients had already been selected for conventional surgery at the time of inclusion. In addition, the patient population is also somewhat heterogeneous in terms of heart failure etiology (although predominantly ischemic), which limits the applicability of the results. Nevertheless, these data provide an excellent framework and an additional dimension for selection conference discussions surrounding these complex patients. Clearly, this represents an area that is fertile for further study, particularly as the evolution of LVAD technology continues to move the goalposts with respect to improved long-term outcomes.

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