colleagues provides valuable evidence that benefit may be accentuated in patients with ischemic cardiomyopathy. The benefits of PCI naturally prevail over gained lifetime in frail patients, a limited life expectancy, or otherwise limited goals of care. The more challenging task remains to convey the average long-term benefits of a big surgery to an otherwise functional individual to whom the actual outcome remains unknown. The human tendency to assimilate positive information and rationalize away negative information is well established and plays a vital role in these decision processes.[10] The specific challenge is perhaps best met with a team of multiple specialties providers.

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See Article page 1022.

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Commentary: Coronary revascularization in patients with left ventricular systolic dysfunction

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CENTRAL MESSAGE

Use a multidisciplinary approach to choose between coronary artery bypass grafting and percutaneous coronary intervention for coronary artery disease with reduced left ventricular ejection fraction.

In this issue of the *Journal*, Bianco and colleagues[1] present compelling evidence that coronary artery bypass grafting (CABG) offers improved long-term survival, decreased risk of readmission, increased freedom from combined major adverse cardiac and cerebrovascular events, and decreased need for revascularization when compared with percutaneous coronary intervention (PCI). The authors are

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to be commended for a large, well-designed propensity-matched analysis that adds to mounting evidence in favor of CABG as the preferred strategy for revascularization in patients with multivessel or left main coronary artery disease and decreased left ventricular ejection fraction. The findings of this study support the conclusions from the SYNTAX (Synergy between PCI with Taxus and Cardiac Surgery trial) trial that complex coronary disease is better served with CABG,[2,3] as well as the STITCH (Surgical Treatment for Ischemic Heart Failure) trial demonstrating that CABG in patients with reduced ejection fraction has improved survival.[3] However, the devil is in the details, and caution must be exercised when applying these findings to the treatment plan for any individual patient with left main or multivessel coronary artery disease and a decreased left ventricular ejection fraction. This complexity is reflected in the findings of the study by Bianco and colleagues.

While the CABG and PCI groups are well matched after propensity scoring (Figure E2), they were drawn from dramatically distinct groups (Figure E1). Specifically, before propensity matching, more than 50% of the CABG group had a propensity score of 0.95-1, and the vast majority of the patients had a propensity score of >0.5. Notably, less than 5% of the PCI group had a propensity score of 0.95-1 (Figure E1). While valid propensity matching provides 2 statistically comparable groups, the reader must recognize that the pattern of clinical practice suggested by the histogram before propensity matching reflects the guideline recommendations that more complex patients are better served with CABG. Perhaps this is why less-complex patients were typically shuttled toward PCI and more-complex patients were directed toward CABG. Also, in actual clinical practice, other factors such as diffuse coronary artery disease, complex coronary targets, frailty, the judgment of the interventional cardiologist, technical abilities of the cardiologist or cardiac surgeon, and patient preference also determine the treatment strategy. Awareness of these factors is important to the application of this study to clinical practice.

The present study also demonstrates that in low- to moderate-risk patients, as are reflected in the propensity matched cohorts, CABG is superior to PCI. This patient cohort is well served by a long-term perspective. While this finding translates to a strength of the study, the fact that more than 50% of patients receiving CABG were excluded from the analysis after propensity matching is a warning to the cardiac surgeon to not be overly cavalier. While the weight of the evidence supports CABG, some patients may be better suited to PCI.[4-6] This is a difficult patient population that requires thoughtful analysis of all data before revascularization, and the challenge for the team caring for these patients will be optimally met with a multidisciplinary approach, thereby parsing out which patients will realize the long-term benefit of CABG and which patients are better served by PCI or even medical therapy alone.

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