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Commentary: Coronary artery bypass grafting surgery alone is not the only way!

Pierre-Emmanuel Noly, MD, PhD, and
Michel Carrier, MD, MBA

Nearly 70% of all heart failure cases can be attributed to underlying ischemic heart disease, and one-third of patients with coronary artery disease suffer from heart failure.¹ The prognosis of these patients is intimately related to many factors, including age, left ventricular ejection fraction (LVEF), number of diseased vessels, myocardial viability, associated mitral disease, quality and completeness of revascularization, and the quality and observance of medical treatment, among others. A few years ago, the STICH trial reported that patients with an LVEF <35% assigned to coronary artery bypass grafting (CABG) had lower rates of death from cardiovascular causes and rehospitalization for heart failure compared with those assigned to medical treatment.² The benefit of surgical revascularization was also demonstrated at 10 years, with lower rates of all-cause, cardiovascular, and heart failure hospitalizations.³ In addition, CABG provides a survival benefit compared with percutaneous coronary intervention in patients with reduced LVEF.⁴

In this issue of the *Journal*, Deo and colleagues⁵ used the Veterans Health Affairs database to analyze the outcomes of patients with heart failure and midrange ejection fraction (HFmrEF) (LVEF 40%-55%) secondary to stable coronary disease and who underwent isolated CABG surgery between 2010 and 2019. This subgroup of CABG patients constitutes 26% of the total CABG population, with 52% also treated for diabetes. As suggested by the authors and others, this proportion of patients likely will increase as the burden of heart failure grows worldwide.¹ Although

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CENTRAL MESSAGE

Long-term optimal medical treatment for patients with heart failure and moderate left ventricular dysfunction who underwent coronary artery bypass grafting is mandatory.

this interesting study has several limitations, it provides a good picture of our CABG patient population and raises some concerns in 3 major areas.

First, patients with HFmrEF displayed a higher risk of myocardial infarction, heart failure–related hospitalization, and lower survival rate compared with CABG patients with normal LVEF. The 5-year survival averaged 74% in the HFmrEF group, compared with 82% in patients with normal LVEF and 65% in patients with LVEF <40%, which is lower than previously reported in randomized trials.^{2,3,6,7} This reminds us of the discrepancy between “real world” data and data from randomized trials.

Second, 3 or more grafts were performed, and more than 1 arterial graft was used in only 6% of the patients. Third, and of great concern, only 30% of patients with reduced or midrange LVEF were discharged from the hospital with the appropriate medical treatment for heart failure.

How to improve the clinical results of this newly recognized subset of patients with heart failure and ischemic cardiomyopathy? Intuitively, we should aim to optimize or normalize, if possible, the LVEF by ensuring complete myocardial revascularization using the best coronary bypass grafts for long-term outcomes: arterial grafts. Bilateral internal mammary artery grafts and radial artery grafts should account for 30%-40% in these young patients, averaging 67 years of age at the time of surgery.

We also need to offer the optimal medical management for heart failure from the onset of postoperative care. Only one-third of patients with LVEF <40% and one-quarter of those with HFmrEF were treated with an ACE

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inhibitor or an angiotensin receptor blocker at the time of hospital discharge. Optimal medical management according to current clinical guidelines for the treatment of heart failure should be initiated or maintained throughout the long-term care of these patients.^{1,8,9} Patients with heart failure and ischemic heart disease undergoing CABG surgery with reduced LVEF deserve our best surgical techniques, as well as standardized and optimal medical long-term care. CABG surgery alone is not the only way here!

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Commentary: Is heart failure with moderately reduced ejection fraction a useful classification for cardiac surgery?

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J. Hunter Mehaffey, MD, MSc

In this issue of the *Journal*, Deo and colleagues¹ present an analysis of coronary artery bypass patients with heart failure and moderately reduced ejection fraction (HFmrEF). Recent years have seen increasing interest in the different phenotypes of heart failure, namely with preserved ejection fraction (HFpEF) versus reduced ejection fraction (HFrEF).

Robert B. Hawkins, MD, MSc, and J. Hunter Mehaffey, MD, MSc

CENTRAL MESSAGE

Patients with heart failure and moderately reduced ejection fraction (HFmrEF) have roughly similar short-term and long-term outcomes after coronary artery bypass grafting as those with heart failure and reduced ejection fraction (HFrEF). Whether HFmrEF is truly a separate pathophysiological entity from HFrEF for cardiac surgery remains unclear.

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