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Commentary: Keep your friends close

Jack H. Boyd, MD

More than \$100 million and 10 years of work went into a study evaluating the goals behind myocardial revascularization, to improve prognosis and quality of life, in patients with stable ischemic heart disease.¹ Subsequent articles in the lay press surrounding its presentation and publication were generally in line with a *New York Times* piece on the topic, “Surgery for Blocked Arteries Is Often Unwarranted, Researchers Find.”² This headline and the many similar ones, although inaccurate and misleading, indicate a strong need for those who practice coronary artery bypass grafting to understand this trial.

The International Study of Comparative Health Effectiveness with Medical and Invasive Approaches (ISCHEMIA) was created to determine the effect of adding cardiac catheterization and revascularization, when feasible (invasive strategy), to medical therapy (conservative strategy) in patients with stable ischemic heart disease and moderate or severe ischemia. The study did not detect a difference between the initial approaches in the primary outcome, the risk of ischemic cardiovascular events (a composite of death from cardiovascular causes, myocardial infarction, or hospitalization for unstable angina, heart failure, or resuscitated cardiac arrest) at a little over 3 years.³ Importantly, revascularization strategies were not compared, although there is intention to perform this analysis.

Furthermore, the findings of the ISCHEMIA study do not apply to patients with acute coronary syndromes, clinically significant left main coronary artery disease, low ejection fraction, class III or IV heart failure, or those who are

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CENTRAL MESSAGE

The ISCHEMIA trial did not demonstrate a difference in risk of ischemic cardiovascular outcomes based on the initial evaluation strategy. It did not conclude revascularization is inappropriate.

very symptomatic despite maximally tolerated medical therapy. These groups of patients comprise approximately two-thirds of patients who currently undergo coronary artery bypass grafting (CABG).⁴

In their manuscript, “Implications of the ICHEMIA Trial on the Practice of Surgical Myocardial Revascularization,” Ruel and colleagues⁵ condense the last 50 years of landmark research regarding myocardial revascularization. Tracing the history and results of the most prominent studies surrounding the topic, they lead us to the present with the appropriate knowledge and context to interpret the ISCHEMIA trial and its potential impact on the surgical community.

The authors note several critical elements to ensure the ongoing excellent outcomes offered by surgical myocardial revascularization and to maintain surgical leadership in the treatment of coronary artery disease: a thorough understanding of the indications for CABG, inclusion of preventative cardiologists in decision making for the patient, optimal medical therapy for patients who undergo CABG, and the involvement of surgeons in the design, conduct, and analysis of myocardial revascularization trials. They also bring to light key components requiring exploration to maximize the knowledge distillable from ISCHEMIA: the need for longer-term follow-up (planned) and the likely underuse of CABG as a revascularization strategy.⁵

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In regard to the need for longer term follow-up, a much greater rate of early myocardial infarction (MI) was noted in the initial invasive-approach group. The group that was treated conservatively at the start incurred a greater rate of late MIs. Both Ruel and colleagues and the ISCHEMIA trialists regard the early periprocedural MIs as generally less important clinically and the late, nonprocedural, as more clinically significant.

In the ongoing efforts to optimally treat patients with coronary artery disease, it is important to keep the short-term costs and long-term benefits in the proper perspective and to not be overly swayed by a catchy headline or promise of an easy way out. Few understand this better than a coronary surgeon.

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Commentary: The ISCHEMIA trial: Throwing the baby out with the bathwater?

Joshua C. Grimm, MD,^a and Arman Kilic, MD^b

Multiple trials have explored various strategies for treating coronary artery disease (CAD). It is imperative that cardiac surgeons remain active participants in the design, enrollment and, ultimately, the interpretation of these studies, as their impact is often wide reaching and, thus, control of the narrative is essential. We commend Ruel and colleagues for providing a comprehensive analysis of the ISCHEMIA trial.^{1,2}

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CENTRAL MESSAGE

The ISCHEMIA trial examined a randomized cohort of patients with stable, ischemic heart disease. The authors provide a foundation from which to contextualize this study and its shortcomings.

In ISCHEMIA, patients with stable CAD and moderate or severe ischemia on noninvasive testing were randomized to an initial conservative (optimal medical therapy [OMT]) or invasive (angiography followed by percutaneous coronary intervention [PCI] or coronary artery bypass grafting [CABG]) strategy. At intermediate follow-up of 3.2 years, there was no difference in adverse cardiovascular events or all-cause mortality between the 2 arms.¹ Ruel were appropriately critical in their assessment of the distribution