Editor's Note

Coronary Bypass Surgery after an Acute Myocardial Infarction: Will Delaying Surgery Decrease Cardiac Events?

In the 1960s, operating on a patient with acute myocardial infarction was unheard of unless the patient was dying of a ruptured papillary muscle or ventricular septal defect (VSD). In the 1970s, a few surgeons operated acutely on patients with myocardial infarction with the idea of preserving ischemic but viable myocardium. This operation never really caught on, although results

were quite good in many instances.

In the 1980s, a period associated with the aggressive use of coronary angioplasty, some patients were operated on early after an evolving myocardial infarction but that was not a common occurrence. In the 1990s more patients are undergoing cardiac surgery several days to a few weeks after an acute myocardial infarction if there is clear clinical indication to do so.

This editorial will not focus on patients with cardiogenic shock, ruptured papillary muscles, VSDs, free wall ruptures, or other catastrophes associated with myocardial infarction. Instead, I would like to focus on the patient with relatively uncomplicated myocardial infarction who has an indication for a revascularization procedure other than angioplasty. Typically, this is the patient who has four-, five-, or six-vessel coronary disease, with some degree of ventricular dysfunction and recurrent ischemia of a mild nature.

In 1990 and in the twenty-first century we are and will be sending patients with uncomplicated myocardial infarction home after four or five days hospitalization, perhaps sooner. This is in marked contrast to the six weeks of hospitalization followed by two or three months of inactivity for these same patients in the early 1960s.

In recent years, I have had several patients whom I thought needed cardiac surgery after recent uncomplicated myocardial infarction and was curious as to why these patients were not operated on within the first week after their events. The response, which I do not doubt, was that it is safer to operate on these patients later; but how much safer is it to wait three

to six weeks than it is to operate five to ten days after the infarction? Our housestaff and our fellow trainees wondered the same thing—therefore, I set about trying to ascertain what evidence there was that operating on patients early after an uncomplicated myocardial infarction was hazardous. I found two articles, both contemporary, that addressed this subject. The first, “Timing of Surgery After Acute Myocardial Infarction” by Svensson and colleagues, was published in 1996.¹ These investigators collected data on 338 patients undergoing operation for either evolving infarction or up to 21 days after infarction, mean 7.9 days. Mean age of the patients was 66.1 years. Seventy-six had emergency operations immediately after catheterization, 223 had urgent operations, and 39 operations were elective. Results indicated that in-hospital and 30-day survival rate was 95.6%. Multivariate, independent preoperative predictors of death were aortic valve regurgitation, chronic pulmonary disease, preoperative diuretic administration, preoperative balloon pump, preoperative inotropes, and a need for additional concomitant noncardiac surgery. *The time between infarction and operation was not an independent predictor.* Indications for surgery in these patients were postinfarction angina, critical coronary artery disease, and evidence of ischemia. These investigators were unable to show on multivariate analysis that age or left ventricular ejection fraction, extent of infarction, urgency of surgery, thrombolytic therapy, preoperative medications other than diuretics or inotropes and postoperative medications other than epinephrine were independent predictors of death. They concluded that if a patient is symptomatic after acute myocardial infarction, then early surgery in itself does not appear to be a risk factor. Rather, combined disease and preoperative hemodynamic status determine outcome after surgery.

A second article, “Risk Analysis of Coronary Bypass Surgery after Acute Myocardial Infarction” by Lee and colleagues, was published in 1997.² These investigators studied 1,181 consecutive patients who underwent isolated coronary bypass surgery, including 316 who underwent bypass surgery within 21 days of myocardial infarction. Mean age was 65 years. Overall in-hospital mortality rate was 5.1% (16 of 316), higher than the 2.5% (22 of 865) among patients undergoing bypass surgery without recent infarction. Mortality increased with severity of clinical preoperative status and was 1.2% in Group 1 (stable angina), 3.7% in Group 2 (un-

stable angina), 20.0% in Group 3 (patients requiring intra-aortic balloon counterpulsation), and 26.05% in Group 4 (severe postinfarction ischemia complicated by cardiogenic shock). Multivariate logistic regression analysis identified preoperative intra-aortic balloon counterpulsation, left ventricular dysfunction, and renal insufficiency as the only independent correlates of mortality. These investigators concluded that coronary bypass surgery can be safely performed in stable patients at any time after acute myocardial infarction with an operative mortality similar to elective surgery. They indicated that their experience suggests that an arbitrary period of stabilization beyond 24 hours does not appear to lower the operative risk.

Thus, in this time of medical cost containment, there is no apparent indication for prolonged stabilization attempts that

delay indicated coronary bypass surgery after an acute myocardial infarction.

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Reference

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