REFERENCES


To the Editor:

I would like to thank Dr. Murray for his comments on our article, "Temporary Coronary Artery Perfusion Catheter During Minimally Invasive Coronary Surgery."

As was stated in our original article (February 1998), the main focus of our study was on the use of a temporary catheter to prevent ischemic problems during off-pump minimally invasive direct coronary artery bypass (MIDCAB) surgery. This was presented as an alternative to the preconditioning technique. The catheter has continued to be very effective in this regard, and there continues to be no evidence of trauma to the coronary artery caused by the catheter.

The surgeries presented to illustrate the use of the catheter were incidentally our first MIDCAB patients and were operated on before we had a stabilizing platform. A distinction must be made on MIDCAB surgical outcomes before and after the introduction of the stabilizing platform. When performing MIDCAB surgery in 1996, there was a considerable amount of movement of the target coronary artery during anastomosis, which made the procedure technically demanding. Since 1997, we have used the Estech platform (Estech; Danville, CA) and the US Surgical Platform (United States Surgical Corporation; Norwalk, CT). As a result, the anastomosis is technically much easier to perform, and our patency rates are now 95%.

Dr. Murray has chosen to focus his attention on two of our first 20 patients who subsequently had a blocked left internal mammary graft. Both these patients were smokers who had diabetes and had previous angioplasty attempts. Patient 11, in addition, had a history of alcoholism and hypertension and had previous coronary bypass surgery. Using the Parsonnet system, his preoperative evaluation produced a score of 14, which would have, in turn, put him at quite high risk for regular coronary bypass surgery on the order of 13%. I think MIDCAB surgery is a reasonable option for this type of patient. It is probably not reasonable to dismiss contemporary MIDCAB surgery on the basis of these two outcomes, particularly since the patients were operated on before the stabilizing platform was available.

I have to take issue with Dr. Murray on another key point. Avoidance of cardiopulmonary bypass is not a "short-term achievement." Cardiopulmonary bypass is associated with a number of serious complications. These include fluid shifts in the body, depression of the patient’s immune system, and postoperative bleeding from activation of the blood clotting system as it passes over the artificial surfaces to the heart-lung machine. Hypotension associated with heart-lung machine operation also may cause renal failure and ischemia of the brain. Going on bypass and manipulating the ascending aorta may cause devastating cerebral damage, and there has been increased concern by an informed public about strokes and neurological deficits associated with the heart-lung machine. A headline in the San Francisco Chronicle read, "Heart Bypass Surgery Can Harm Brain, Study Says: Twenty-Five Thousand a Year May Be Affected." Thus, an increasing number of astute patients fully understand the ramifications of their choice to undergo MIDCAB surgery, possible stroke vs possible need for graft revision. A graft can be revised, whereas a stroke or renal failure from cardiopulmonary bypass and aortic manipulation cannot be corrected later.

All cardiac surgeons are striving for the same end: the best results in coronary revascularization with the least number of complications. Since the advent of angioplasty, surgeons are presented with an increasingly difficult residual patient population. MIDCAB surgery provides an alternative to the use of cardiopulmonary bypass and aortic manipulation. It has come a long way in the last few years and can safely be predicted to have an increasing role in the future. Current enabling technology, including the temporary perfusion cannula and the stabilizing platform, make MIDCAB surgery increasingly easier to perform. If Dr. Murray is concerned about the preservation of the left internal mammary artery, I would recommend he consider the technique that has been published recently where the left internal mammary artery is left in situ and a radial artery graft is brought down to the coronary artery. This may address some of his concerns.

I think Dr. Murray is being just a little over critical when he describes our early results as "discouraging." On the contrary, they were a record of the beginnings of our MIDCAB experience with an emphasis on the use of the coronary perfusion cannula before stabilizing platforms were available. Under these conditions, we had no operative mortality and a 90% graft patency. Of the two patients who had graft failure, patient 11 would have been a high risk for regular coronary bypass surgery. The patency rate we achieved compares not unfavorably to published international experience. In this textbook, Benetti reported 84% of his patients were angina-free; Subramanian reported a 91% patency rate at 36 h; Emery et al reported 92% patency at 6 weeks; and Califf et al reported 93.1% of his patients were asymptomatic at 8 months.

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