FIGURE 1. Definitions of stenoses of proximal and distal anastomoses in a jump graft. Arrows indicate the direction of blood flow. A, Jump anastomosis with a stenosis in the proximal part, constituting a stenosis of the distal anastomosis of graft *a*. B, Jump anastomosis with a stenosis in the distal part, constituting a stenosis of the proximal anastomosis of graft *b*.

closed. Unless retrograde flow into the distal part of the graft can be observed when injecting contrast into another graft or native coronary artery, it is not possible to visualize the distal anastomosis. As we reported in our article,³ this was the case in a high proportion of the grafts with obstructed proximal anastomoses, possibly causing a number of grafts to be defined as occlusions of the proximal anastomosis even if the problem causing the graft failure was originally located at the distal end. We believe that this clarification confirms the conclusion from the original article that graft patency after off-pump surgery is inferior.³

We agree with Saha² in not recommending the future use of full heparinization for off-pump surgery because the higher risk of bleeding was not balanced by better graft patency. Whether it is time to call off the off-pump coronary artery bypass grafting party is probably not so clear. Despite inferior graft patency, in the Danish On-pump Versus Off-pump Randomization Study we found no difference between the groups in survival or in quality of life after 6 months,⁴ a trend toward fewer strokes in the off-pump group, and better cost-effectiveness in the off-pump group.⁵ Long-term follow-up may provide a better basis for decision.

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THORACIC AORTIC SURGERY IN EUROPE: DOES VOLUME MEAN NECESSARILY QUALITY?

To the Editor:

We read with great interest the report by Ariyaratnam and colleagues¹ regarding their experience with

emergency and elective thoracic aortic surgery during the last 12 years. Ariyaratnam and colleagues¹ reported in-hospital mortality figures of 23.7% and 12.8% in their dissection and nondissection groups, respectively, and concluded that regional centers do not have outcomes comparable to those of the supercenters that exist in the United States.

Certainly, the standard of care for the management of thoracic aortic disease (TAD) is a relevant topic. Recent guidelines have identified significant knowledge gaps with respect to the appropriate management and configuration of clinical services for aortic disease.^{2,3} These gaps result in high variability in the management of these patients, and presumably in variation in the quality of care and outcomes. On the one hand, in-hospital mortality appears to be strongly associated with both surgeon and hospital volumes; on the other hand, the correct operative management of patients with TAD is another factor that affects their hospitalization outcomes.²⁻⁴

In the series of Ariyaratnam and colleagues,¹ we noticed unusually high rates of intra-aortic balloon pump use in both the dissection (46%) and nondissection (50%) groups, despite low rates of poor preoperative ejection fraction (2.6% and 2.9%, respectively). The use of an intra-aortic balloon pump in patients with TAD, fragile tissues, and peripheral vascular disease could partially explain the hospitalization outcomes presented in the article of Ariyaratnam and colleagues.¹ As a matter of fact, peripheral vascular disease and hypertension were independent predictors for in-hospital mortality (odds ratios of 14.428 and 9.325, respectively), especially in the dissection group, possibly reflecting the negative effects of intra-aortic balloon pumps on these patients. In addition, Ariyaratnam and colleagues¹ adopted central cannulation or femoral artery cannulation for all patients,

including those affected by type A dissection. Deep hypothermic circulatory arrest to a rectal temperature of 17°C without specific cerebral perfusion protocol was also used. Although Ariyaratnam and colleagues,¹ did not provide any data on circulatory arrest length, and arch replacement occurred in just 2.9% of the cases, current data suggest that antegrade cerebral perfusion and mild-to-moderate systemic hypothermic circulatory arrest can be safely applied to complex thoracic aortic surgery, ameliorating postoperative outcomes.⁵

So although Ariyaratnam and colleagues¹ set out to demonstrate the need to adopt a US-style supercenter model for TAD, it appears that their analysis underestimates the effects of an optimized patient management on the hospitalization outcome, especially in regional centers.

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IMPROVING OUTCOMES IN EUROPE

Reply to the Editor:

I appreciate the opportunity to reply to the letter by Mariani and Mariscalco about our original article published in print in the October 2014 issue of the *Journal*.¹

The use of intra-aortic balloon pumps (IABPs) in aortic surgery is a controversial issue.² I agree with Mariani and Mariscalco that our IABP usage rate may seem unusually high at first. I would like, however, to make two points. First, the data that we presented was from a retrospective analysis of our database going back for some 14 years. During that period, our practice has changed considerably to reflect advances in evidence-based medicine. Thus

although our overall IABP usage rate approached 50% for both emergency and nonemergency thoracic aortic surgery, it was around 60% for the first 8 years but has been reduced to less than 25% during the last 5 years. The second point is that although IABP use was a significant factor in the univariate analysis of in-hospital mortality, it was not a significant factor in the multivariate analysis.

With regard to circulatory arrest time, for all those operations that precluded safe crossclamping before the innominate artery, the mean circulatory arrest time was 19.85 minutes (± 10.37 minutes). This also was not a significant predictor of outcome.

Supercenters, such as those in the United States, excel not only because of (as Mariani and Mariscalco rightly mention in their letter) the high volume of specialist surgery conducted but also because of a consistent delivery of care from diagnosis to follow-up in a multidisciplinary setting. This patient-specific approach includes intraoperative strategies.

There are, of course, obstacles in imitating our partners across the Atlantic, not least because training in the United States is different from that in the United Kingdom.³ For example, US thoracic aortic surgeons traditionally train in both vascular and cardiac surgery, whereas this is not necessarily required of UK-based cardiac surgeons. Such differences, however, should not detract from critically exploring which successful strategies used in more specialist centers across the world would improve patient care in our own population. That is, after all, how we evolve.

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