TABLE 1. Measurement of coronary flow reserve (CFR) in 20 patients after aortic valve replacement with either a Medtronic Advantage or a St Jude Medical (SJM) standard valve

Variable	Heart rate at rest (beats/min)	Coronary flow at rest (mL/min)	Heart rate with adenosine	Coronary flow with adenosine	CFR
Advantage	62 ± 10	24 ± 2.8	62 ± 10	41 ± 3.4	1.71 ± 0.3
SJM	62 ± 14	19 ± 5	60 ± 15	27 ± 5	1.42 ± 0.2
P value				.01	.2

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Is the single crossclamp technique superior?

To the Editor:

We read the article by Hammon and associates¹ with interest. We congratulate them on their excellent results and share their enthusiasm for using the single crossclamp technique. Since February 2004 we have used this technique consecutively in nearly 200 patients with no adverse neurologic sequelae. All-cause mortality in our small series is 0.5%. Despite this, we believe that the authors, having started with a good hypothesis, lost an opportunity for making a valid scientific statement, possibly because of an unintended bias.

First, the authors have called the single crossclamp technique an "ideal technique." In the rapidly evolving field of cardiac surgery, calling one particular technique "ideal" is problematic, particularly as there is no clear evidence on which to base this claim. A randomized controlled trial comparing this technique with off-pump "no touch" bilateral thoracic artery grafting would be a reasonable starting point. The inclusion of a nonrandomized selected group of off-pump patients in this study,

particularly including them in the statistical comparison, has eroded the scientific basis for the argument rather than strengthening it. We can understand the thinking involved in including this group, but sadly it raises more questions than answers.

Second, the authors have used a specially designed less traumatic clamp in the single crossclamp group, whereas the clamp used in the multiple crossclamp group was by their own admission more traumatic. When the study numbers are so small and the difference between the groups is narrow, such unintentional bias nullifies all achievements. Why they did not use the same type of clamp in both groups is difficult to understand and has not been discussed. Sadly, one could argue that the results are a representation of the differences in clamp type rather than technique.

Last, we were particularly disappointed in the lost opportunity of grading the visible atheroma on transesophageal echocardiograms and of discussing the neurologic outcome. It is accepted that the higher grade of atheroma has been clearly associated with increased risk of embolization.² There was a mention of crossover of some patients from the multiple clamp technique to the single clamp technique as a result of this finding. Was there a particular grade of atheroma that prompted the surgeons to change their practice? Was there a relation of atheroma grade to the few neurologic outcomes or, more important, was there no obvious relation, as this would support the argument to use the technique in everybody?

Our concern is that overly justified claims as to the advantages of one technique over another when not supported by clear supportive arguments in the article that follows could act as a deterrent to constructive and reasonable scientific discussions. We would have suggested to the authors and the editors to have added a question mark at the end of the title of the

paper. Rather than being the definitive answer to this question, this article still is only another contribution from this commendable group on the growing evidence in favor of an exciting technique. We would love to see a multicenter randomized trial looking at this technique in the future.

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Reply to the Editor:

We thank Drs Purohit and Zacharias very much for carefully reviewing our manuscript and making comments regarding the study design, techniques, and outcomes. We sincerely appreciate their comments related to agreeing with the single crossclamp method as a valid technique to improve results.

The authors were critical of our inclusion of a nonrandomized, selected group of off-pump patients in this study and including them in the statistical comparisons. We disagree that this weakened the conclusions from the study in that it supports the general idea that reduced aortic manipulation is a valuable technique to improve neurologic and neurocognitive outcomes.

When designing the study, we wanted to compare two techniques of intraoperative management of patients with coronary