Be less invasive: Please, turn right!

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Central Message

Minimally invasive aortic valve surgery through minithoracotomy is associated with excellent postoperative outcomes.

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Minimally invasive aortic valve replacement (MIAVR) has shown excellent outcomes in terms of mortality, morbidities, and patient satisfaction while providing faster recovery, shorter hospital stay, and fewer rehabilitation resources.¹ Ministernotomy is the most common MIAVR approach; nevertheless, right minithoracotomy (RT) is gaining consensus among surgeons because some studies have shown it to be a safe approach, providing a low rate of postoperative complications and good midterm survival.²⁻⁴ Consequently, RT is now increasingly performed, and for some surgeons, it represents the gold standard treatment for approaching a patient with an aortic valve disease. In this issue of the *Journal*, Lamelas and colleagues⁵ add evidence that MIAVR through RT is safe and associated with low complication rates, even in old patients and in those undergoing concomitant valve surgery procedures. The overall mortality and stroke rate were 1.3% and 0.8% in the isolated MIAVR group and 3.2% and 1.1% in the concomitant MIAVR group, respectively. The results are outstanding, and this study represents the largest case series of patients undergoing combined procedures through a minimally invasive approach involving mitral, tricuspid, and aortic surgery. However, these results are limited by a single surgeon experience, and no information has been reported on which essential steps are required to start with a MIAVR program associated with concomitant procedures. A cumulative sum analysis would have been useful to understand the problems associated with the learning curve. As we experienced, the concomitant MIAVR surgery represents a merge of experience for minimally invasive aortic and mitral valve surgery through RT.

Minimally invasive cardiac surgery is appropriate for few patients, but to demonstrate that, more data are required from other cardiac centers. To facilitate a minimally invasive program, we strongly support the use of computed tomography scans. Computed tomography images may assist the surgeon in planning surgical operations and avoiding unexpected situations, such as difficult exposure or porcelain aorta, which may increase the risk of sternotomy conversion or neurologic complications. In this regard,

neurologic events have been considered a drawback of MIAVR, a potential complication of femoral artery retrograde perfusion. In this study, the overall stroke rate for patients aged more than 80 years receiving femoral arterial cannulation was 1.1%, approximately double when compared with younger patients. In selected cases, computed tomography scans could identify patients at risk for neurologic events. In this situation, we usually prefer direct aortic cannulation, which is more physiologic than the retrograde perfusion. We have previously demonstrated that antegrade perfusion is associated with an important reduction in neurologic events.⁶

MIAVR is often associated with prolonged operative times, a potential drawback of this technique, and might have negative effects on old and fragile patients. Unfortunately, Lamelas and colleagues⁵ do not report the operative times, and we are not able to draw any conclusion. Nevertheless, the introduction of sutureless valves has dramatically reduced the procedural times, facilitating the minimally invasive approach.⁷ The association of MIAVR and sutureless valves may be a valid alternative to the new growing transcatheter aortic valve implantation technology in high-risk “operable” patients.⁸

Finally, there is some concern when performing aortic surgery through an RT approach. Compared with a ministernotomy approach, RT is definitively more demanding to control bleeding. Furthermore, the RT approach limits selective antegrade cerebral perfusion, which has been shown to be more physiologic than retrograde perfusion and associated with better neurologic outcomes.⁹

Lamelas and colleagues⁵ have confirmed the safety of the RT technique in patients undergoing isolated and concomitant aortic valve replacement. This surgical procedure is associated with low postoperative mortality and morbidities, but it is the result of a single surgeon experience and more studies are required to confirm these data. While we are waiting for more surgeons to perform MIAVR through the RT approach, please be less invasive, be “mini” and turn right!

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