

stimulus had indeed been delivered. Our data lead us to conclude that the benefits conferred by ischemic preconditioning before continuous normothermic blood cardioplegia, which results in aerobic cardioplegic arrest in most cases, are minimal and perhaps even detrimental, as reported by others.<sup>5</sup>

Otherwise, we agree with the comments that numerous confounding factors may skew the preconditioning effect and should be controlled for in both experimental and clinical studies. These include the use of opioid agonists, volatile anesthetics,<sup>6</sup>  $\alpha$ -adrenergic agonists, aprotinin, and cardiopulmonary bypass itself, which all may have preconditioning effects.<sup>7</sup>

Again we thank Lu, Ying, and Guo for their comments and the points they raise in the study of the endogenous cardioprotective mechanisms of the heart, which beg to be exploited in clinical cardiac surgery.

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### **Video-assisted thoracoscopic thymectomy: From the right or from the left?**

*To the Editor:*

Mack and colleagues<sup>1</sup> are to be congratulated on their excellent multiinstitutional study on video-assisted thora-

scopic (VAT) thymectomy, which we prefer to perform by the left-sided approach as we have previously described.<sup>2</sup> Although we believe that the thymus can be safely approached from either side for VAT techniques, we have chosen the left access for a number of reasons, including our experience with standard surgical transcervical and transsternal approaches.<sup>3,4</sup> First, the left side of the thymus gland is usually larger, extending down to the pericardiophrenic area, and is more frequently affected by neoplastic degeneration. Second, the innominate vein runs mainly in the left region of the anterosuperior mediastinum. Finally, the aortopulmonary window is a frequent site of ectopic thymic tissue, as pointed out by Jaretzki and Wolf.<sup>5</sup>

It is our impression that all mediastinal perithymic tissue, including fat in the aortopulmonary window, can be totally removed by the left-sided approach. We routinely perform this step in our procedures, considering it essential to achieving intentional extended thymectomy. Adjuvant pneumomediastinum can be considered a useful tool to facilitate all these surgical maneuvers, whatever the VAT approach. We agree that VAT thymectomy is a technically advanced procedure that is gaining acceptance by both patients and neurologists because of the less invasive access and excellent cosmetic results.<sup>1</sup> In accordance with the intermediate-term results of Mack and colleagues,<sup>1</sup> our preliminary experience based on 12 VAT thymectomies seems to suggest equivalent results to those provided by conventional surgical techniques.

However, the effectiveness of VAT thymectomy in myasthenia gravis still must be proved by means of a larger series of patients and a longer follow-up. For this purpose we are now completing a prospective multiinstitutional trial on VAT thymectomy performed by a sole left-sided approach.

May one really say that VAT thymectomy is preferable from the right side? Why not from the left? A multiinstitutional comparative study based on a homogeneous series of patients might answer the question before one should decide to insert the thoracoscope through the cervical incision, as properly suggested by Cooper.<sup>6</sup>

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*Reply to the Editor:*

My colleagues and I are pleased with the endorsement of the video-assisted thoroscopic (VAT) technique for thymectomy by Mineo, Pompeo, and Ambrogi. It is heartening to see preliminary confirmation of the safety and efficacy of the technique in another institution.

Regarding the issues raised in their letter, we also began the VAT approach for thymectomy from the left side because preoperative computed tomographic assessment indicated that the thymus gland was usually more prominent and larger on the left side. As a result of the experience of one of our colleagues (Anthony Yim), we gradually adopted the right-sided approach. Although it is a matter of surgical preference, we routinely have found the right-sided approach technically easier than the left-sided approach for a number of reasons.

1. From the left side, the recess medial to the superior vena cava and inferior to the innominate vein was the most difficult area to visualize and dissect. This portion of the procedure is more easily accomplished from the right side.

2. Identification of the innominate vein from the left side occasionally presented some difficulties. Initial identification of the superior vena cava from the right side allows easy identification of and dissection along the innominate vein from the right side.

3. For right-handed surgeons, performing a VAT operation beginning inferiorly and working cephalad is ergonomically simpler from the right side of the patient than from the left side.

4. A neck dissection is equally easy to accomplish from either side.

In the final analysis, however, we believe that the surgeon's preference should rule—whichever side he or she feels most comfortable on is the one that should be used. Although we rarely use carbon dioxide insufflation for most VAT procedures, we do think that VAT thymectomy is an instance in which the adjuvant pneumomediastinum facilitates visualization and dissection, especially when crossing to the opposite side and performing the dissection in the aortopulmonary window. It also facilitates identification and dissection of the superior horns of the gland in the cervical area. As mentioned in the manuscript and by Mineo, Pompeo, and Ambrogi, we totally agree that removal of all anterior mediastinal tissue is necessary to assure a complete thymectomy.

We congratulate Mineo, Pompeo, and Ambrogi on their experience with 12 cases. We believe that the technique, whether performed by the right- or left-sided approach, needs to be evaluated by longer follow-up in larger series first. We further believe that a multiinstitutional study to determine which side is more appropriate is a lesser issue that should be studied after efficacy of the procedure has been definitively proved by long-term fol-

low-up. In the 14 months since completion of our reported study, our results, although still intermediate, continue the early trends.

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### Treatment of heparin-induced thrombocytopenia

*To the Editor:*

In the November 1996 issue of the *Journal* (1996;112:1390-92), Ganjoo, Harloff, and Johnson reported the case of a patient with heparin-induced thrombocytopenia (HIT) treated by enoxaparin. They concluded that cardiac operations can be safely done with the use of a circuit coated with Carmeda Bioactive Surface (Medtronic, Anaheim, Calif.) in combination with low-molecular-weight heparin in patients with HIT. I would like to comment on this conclusion.

If thrombocytopenia develops as a result of heparin, the heparin infusion should be stopped immediately. It is, however, difficult to choose an alternative anticoagulant. Initial reports have described the use of low-molecular-weight heparin instead of unfractionated heparin.<sup>1</sup> Recently Warkentin,<sup>2</sup> Peters,<sup>3</sup> Magnani,<sup>4</sup> and their associates emphasized that low-molecular-weight heparin is not indicated for the treatment of patients with HIT because of extensive cross-reactivity (80% to 90%). Patients with HIT who were treated by the heparinoid danaparoid sodium (ORG 10172; Orgaran) had lower cross-reactivity (10%). However, before the heparinoid danaparoid sodium (ORG 10172) or eventually low-molecular-weight heparin is substituted for heparin, the plasma of the patients should be tested for cross-reactivity toward one or more of these agents (platelet aggregation or 14-serotonin release test). The alternative anticoagulant is safer if no cross-reactivity has been detected. If acute replacement of heparin is necessary, the best option is danaparoid sodium (ORG 10172). Other approaches to the treatment are not conclusive.

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