HIT who have required valve replacement. Bivalirudin's half-life of 25 minutes, the ability to monitor activated clotting time, and the lack of cross-reactivity with heparin antibodies were advantages that convinced my group to use it for these patients with HIT. The patients did well, requiring an average of 2 units of blood per patient.

My suspicion is that off-pump revascularization with bivalirudin rather than danaparoid would result in lower use of blood products. It is likely that even on-pump coronary artery bypass grafting with bivalirudin as the anticoagulant will result in lower blood product use in the HIT cohort.

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References

1. Carrier M, Robitaille D, Perrault LP, Pellerin M, Page P, Cartier R, et al. Heparin versus danaparoid in off-pump coronary bypass grafting: results of a prospective randomized clinical trial. *J Thorac Cardiovasc Surg.* 2003;125:325-9.
2. Vasquez JC, Vichiendilokkul A, Mahmood S, Baciewicz FA. Anticoagulation with bivalirudin during cardiopulmonary bypass in cardiac surgery. *Ann Thorac Surg.* 2002;74:2177-9. doi:10.1016/S0022-5223(03)01309-6

Reply to the Editor:

I thank Dr Baciewicz for his comments regarding our article and thank you for the opportunity to respond to him. We chose to compare low dose of the anti-Xa inhibitor danaparoid with standard heparin in off-pump coronary artery bypass grafting because of our significant clinical experience with the former drug. Although it is not superior to standard heparin, low-dose danaparoid offers a safe alternative for patients undergoing off-pump coronary artery bypass grafting when heparin is contraindicated.

My group and I have read with interest the reports on bivalirudin, but we remain concerned by the limited clinical data available. In fact, we found only two reports of cardiac surgical patients in the literature, with one of the patients showing a large blood drainage through the chest tubes.^{1,2}

Our current options for patients with heparin-induced thrombocytopenia are to use low-dose danaparoid and off-pump coronary artery bypass grafting or to wait for disappearance of the antiplatelet antibodies and use a standard protocol of heparin.

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References

1. Vasquez JC, Vichiendilokkul A, Mahmood S, Baciewicz FA. Anticoagulation with bivalirudin during cardiopulmonary bypass in cardiac surgery. *Ann Thorac Surg.* 2002;74:2177-9.
2. Davis Z, Anderson R, Short D, Garber D, Valgiusti A. Favorable outcome with bivalirudin anticoagulation during cardiopulmonary bypass. *Ann Thorac Surg.* 2003;75:264-5.

doi:10.1016/S0022-5223(03)01311-4

Apical versus basal partial ventriculectomy

To the Editor:

With regard to the recent study of Koyama and colleagues published in the *Journal of Thoracic and Cardiovascular Surgery*,¹ your readers should be aware that the authors have done no more than confirm the previous observations of Savage and colleagues,² namely, that reducing volume by constricting or resecting the apical half of the ventricular cone has no significant effect on ventricular pump function. Their findings also confirm extensive clinical studies³⁻⁶ showing that reduction of the radius of the ventricle in its upper two thirds improves pump function, provided that the ventricle had been markedly dilated prior to such an intervention. Thus, simply by using a figure-of-eight symmetrical technique of resection, Konertz and colleagues⁵ have achieved results that surpass the current success of cardiac transplantation.

Your readers should also note that the technique used by the Japanese group to induce cardiac failure¹ produced minimal alterations in left ventricular function. Thus, having reduced the radius of the left ventricle, the diameter in their experimental study was smaller than under control conditions. As is well established, how-

ever, any persistent therapeutic effect of reducing ventricular radius in the clinical situation is dependent in the degree of pre-existing ventricular dilation.³⁻⁶

Furthermore, due to the beta-blockade used as part of the experimental setup, the ensuing bradycardia will have prevented their hearts from compensating adequately for the confined stroke volume, as would have occurred under physiological conditions simply due to an increase in heart rate. It is irrelevant, therefore, to measure cardiac output under these experimental conditions. At all events, stroke volume increased by one quarter when the radius was reduced along the basal two thirds of the heart.

There are then several other problems with the description and interpretation of the Japanese group¹ that need to be drawn to the attention of your readers. It is incorrect to state that Batista advocated the apical region of the left ventricle as a primary area for resection. His primary intention was simply to reduce the radius of the dilated left ventricle. Furthermore, contrary to the conclusion drawn by the authors,¹ the experimental results show clearly that plication of the apical segment produces no positive therapeutic effect. Nor, contrary to the assertions made by Torrent-Guasp and his colleagues,^{7,8} does such plication have any major detrimental impact on global ventricular pump function. When considering the differences observed in left ventricular function after apical or subbasal reduction of radius in this study, we need to remember that it is the extensive circular muscular layer enclosing the upper two thirds of the left ventricular cone that is largely responsible for left ventricular ejection. By reducing its radius, working conditions for the left ventricle are improved, thus ameliorating its pump function. This positive effect, however, is mitigated by plication of the interpapillary segment as performed by the Japanese investigators, as this procedure plicates also the marginal arteries. As has been shown,⁹ the resulting ischemic damage extends well beyond the plicated segment. Indeed, such collateral damage may well have been more significant in those hearts that were plicated up to the base in the Japanese study as compared with those plicated only along the apical half. The positive effect of reducing left ventricular radius probably would have been more pronounced had a less traumatic