Cardiopulmonary bypass and heparin-induced thrombocytopenia: Pitfalls of anticoagulation with danaparoid

To the Editor:

We read with interest the report by Ariano and associates¹ describing the failure of danaparoid anticoagulation for cardiopulmonary bypass (CPB). We² previously reported the case of a patient with heparin-induced thrombocytopenia who required aortic valve replacement and in whom we attempted to use ancrod, a defibrinogenating agent, as an

alternative to unfractionated heparin. This was initially unsuccessful as clot was seen in the surgical field before commencement of CPB. In our case, off-pump surgery was not an option. We therefore used a synergistic dose of danaparoid (7500 IU). This resulted in the cessation of clotting and enabled safe CPB. Platelets and cryoprecipitate were given after CPB, and postoperative bleeding was not troublesome. A common factor in both these cases was the perioperative use of aprotinin.

We suggested in our case that levels of other adhesive acute-phase proteins (fibronectin, von Willebrand factor) may have been elevated enough to allow a functional clot matrix to form despite adequate lowering of fibrinogen levels by ancrod or, alternatively, that plasmin inhibition by aprotinin may have protected clottable ancrod-generated fibrinogen products from further breakdown and clearance.

Our case and that of Ariano and associates suggest that care should be exercised when using alternatives to unfractionated heparin in combination with aprotinin. When off-pump surgery is not feasible, we believe that a combination of danaparoid and ancrod may allow safe CPB. Clearly, more research into how to manage this difficult group of patients is justified.

Robin Kanagasabay, FRCS, MRCP

M. Jonathan Unsworth-White, FRCS

Gillian Farnsworth, FRCA

Elizabeth J. Haxby, FRCA

Edward E. J. Smith, FRCS

Department of Cardiothoracic Surgery

St George's Hospital

London SW17 0QT, United Kingdom

REFERENCES

1. Ariano RE, Bhattacharya SK, Moon M, Brownell LG. Failure of danaparoid anticoagulation for cardiopulmonary bypass. *J Thorac Cardiovasc Surg* 2000;119:167-8.
2. Kanagasabay RR, Unsworth-White MJ, Robinson G, Bevan D, Farnsworth G, Haxby EJ, et al. Cardiopulmonary bypass with danaparoid sodium and ancrod in heparin-induced thrombocytopenia. *Ann Thorac Surg* 1998;66:567-9.

[Comment declined]

12/8/108285

doi:10.1067/mtc.2000.108285