Literature Briefs

Myron B. Laver, M.D., Editor

Coagulation

MONITORING HEPARIN THERAPY
Activated partial thromboplastin time (APTT) monitoring of continuous intravenous heparin therapy has been studied prospectively in 234 patients. The incidence of recurrent thromboembolism or bleeding was determined by an investigator unaware of the values of APTT. An intravenous bolus of 5,000 units aqueous sodium heparin was followed by continuous intravenous infusion of 24,000 units/24 hours, adjusted to keep APTT between 1.5 and 2.5 times the control value. Of 164 patients treated for thromboembolism, five had recurrences. All five had APTT's greater than 1.5 times control for at least 48 hours prior to recurrence. Bleeding occurred in 3 per cent of all patients and in 13.4 per cent of patients treated after operation. Bleeding could not be related to heparin dose or to the duration of APTT. All of five bleeding patients who needed transfusion were surgical patients; five of 15 patients who received heparin after hip surgery bled sufficiently to need transfusion. (Basu, D., and others: A Prospective Study of the Value of Monitoring Heparin Treatment with the Activated Partial Thromboplastin Time. N. Engl. J. Med. 287: 324, 1972.)

ABSTRACTOR'S COMMENT: Properly done, the Lee-White clotting time is a most convenient monitor for heparin therapy in the operating room (see also Ellison et al., Anesthesiology 35: 621, 1971); the APTT is a test best reserved for the laboratory (i.e., not usually performed by house staff). It has an excellent end-point and is clearly superior for long-term monitoring.

Transfusion

AUTOLOGOUS TRANSFUSION Fifty adult surgical patients were randomly divided into two groups. Two units of blood (average volume 1,252 ml) were withdrawn into plastic bags containing ACD solution from each of 25 patients during the period between induction of anesthesia and the onset of cardiopulmonary bypass. Ringer's lactate solution, albumin, and/or blood were infused to maintain circulatory stability. No blood was drawn from 25 control patients. Cardiopulmonary bypass was maintained using a bubble oxygenator with a non-heme prime of 2,700 ml. The autologous blood was returned to the study group after bypass and after reversal of heparin effect of protamine. Both groups after bypass were given homologous blood or blood components as indicated by arterial, central venous, and left atrial pressures.

Results: The requirement for homologous blood and blood components from the induction of anesthesia to midnight of the first postoperative day was decreased by 860 ml or 25 per cent per patient in the study group (P < 0.01). This “saving” was achieved at a cost of one extra liter of Ringer's lactate solution given during blood withdrawal. The excess crystalloid did not incur a significantly greater positive fluid balance, as urinary output was greater in this group.

At the onset of bypass the mean hematocrits were 18 per cent in the study group and 21 per cent in the control group. On arrival in the intensive care unit, the hematocrit was more than 30 per cent in all cases. Closure time, length of operation, chest drainage, and clotting factors were not significantly different in the two groups.

The technique is a safe, convenient way to reduce homologous blood transfusion and to provide the clotting factors present in fresh whole blood when they are most needed. (Hallowell, J., and others: Transfusion of Fresh Autologous Blood in Open-heart Surgery. J. Thorac. Cardiovasc. Surg. 64: 941–948, 1972.)