

Literature Briefs

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Briefs were submitted by Drs. R. B. Boettner, A. Boutros, D. R. Buechel, R. B. Clark, D. Duncalf, F. C. McPartland, D. H. Morrow, R. C. Morton, J. W. Pender, A. D. Randall, L. J. Saidman, and C. J. Wilkinson. Briefs appearing elsewhere in this issue are part of this column.

Circulation

LOW-MOLECULAR-WEIGHT DEXTRAN *In-vivo* and *in-vitro* studies with low-molecular-weight dextran disclosed a delay of onset of coagulation and a decrease of the maximum clot firmness in the thrombelastogram. These effects lasted more than three hours and were independent of a mere dilution effect of the dextran infusion. Thrombin time and recalcification time *in vitro* were shortened in concentrations up to 16 mg./ml. and prolonged with higher concentrations. Clot retraction was impaired. Fibrinogen was precipitated by dextran. The activities of factors V and VIII, and to a lesser degree VII, as well as prothrombin, showed a decrease. The degree of decline was quite variable, however, so that no statistically significant interpretation could be made. It is assumed that the changes are essentially due to impairment of platelet factor III and an alteration in the fibrinogen-fibrin relation. In addition, the mere dilution of the recipient's blood by the infusion of dextran caused a decrease in the number of platelets and concentration of fibrinogen. These studies show that low-molecular-weight dextran, like regular dextran, has an effect on the coagulation processes. The agent should not be administered to patients with hemorrhagic disorders. (Welinger, K. H.: *The Effects of Low-molecular-weight Dextran on Blood Coagulation*, *Klin. Wschr.* 45: 1031 (Oct.) 1967.)

THROMBIN FORMATION *In vitro* experiments show that collagen fragments are a much better initiator of platelet aggregation than thrombin-free fibrin. Similarly, suspensions of collagen injected intraarterially lower *in vivo* platelet counts much more than similarly-prepared thrombin. Fragments of collagen or fibrin, introduced into silicone-coated, plastic arterio-venous shunts, produce thrombi of equal size, however. Collagen-initiated thrombi had many more erythrocytes than those initiated by fibrin. Newly-formed fibrin on all thrombi in shunts suggests that platelet adherence here was initiated significantly by the release of thrombin at the site of disturbed blood flow. (Hovig, T., and others: *Platelet Adherence to Fibrin and Collagen*, *J. Lab. Clin. Med.* 71: 29 (Jan.) 1968.)

FLUID ALTERATION Postperfusion edema, weight gain, tetany and cardiac arrhythmia prompted a study of the circulatory blood volume, tissue composition, and electrolytes following large-volume hemodilution with Ringer's lactate. During bypass in the dog, the only significant change was a marked increase in serum water; in man, not only did the serum water increase but total CO_2 , K^+ , Ca^{++} , and Mg^{++} decreased significantly. Tissue H_2O , Na^+ , Cl^- , and K^+ were unaltered. Following oxygenator reinfusion, the serum H_2O was further increased, with decreased K^+ , Ca^{++} and Mg^{++} persisting. In the tissues, H_2O was increased significantly, as was the Cl^- and Na^+ . Although extracellular water was increased and intracellular water was decreased, the postoperative blood volume was near the control value, with an increased plasma volume and decreased erythrocyte mass. (Neville, W. E., and Talso, P. J.: *Postperfusion Compartmental Fluid Alterations*, *Surgery* 63: 220 (Jan.) 1968.)