
Isotopic platelet survival time (FST), platelet count, adhesiveness, aggregation, PF4 release and coagulation parameters were examined in 23 patients with prosthetic heart valves (6 mitral, 10 aortic and 7 mitro- and Starr Edwards or Bjork valves) treated with or without sulochtidil.

The patients were distributed in 2 comparative groups: the treated group with 11 patients with VKA (nicoumalone) and sulochtidil (600 mg/day) and the control group with 12 patients with VKA alone. The biological parameters were performed before (the 10th postop. day) and 6 weeks after treatment with or without sulochtidil.

Before treatment were: FST shortened, platelet adhesiveness and aggregation normal and PF4 release, factors I, VII-C, VIII-R-Ag increased in both groups.

After treatment, FST returned to normal in the treated group, but remained unchanged or was more decreased in the control group. Platelet adhesiveness and aggregation were unchanged in both groups. PF4 release was reduced in the treated group and unchanged in the control group.

Plautelet count, factors I, VII-C, VIII-R-Ag returned to the preoperative values in both groups.

Two severe thromboembolic complications appeared in the control group, none in the treated group.

INHIBITION OF THE PLATELET FUNCTION BY THE EFFECT OF PLASMIN ON HUMAN FACTOR VIII. B. Castillo, E. Maragall, E. Martín, E. Arguelles and A. Ordinas. Facultad de Medicina, Hospital Clínico y Provincial, Barcelona, Spain.

Plasmin-treated human purified factor VIII prepared from normal and a fibrinogenemia plasmas inhibits the ADP-induced aggregation and the collagen-induced 14C serotonin release of normal and von Willebrand human platelet rich plasmas (PRP). These results reconfirm the fact that the inhibition of the human platelet function by the effect of plasmin on the plasminogen protein is mainly linked to the digested factor VIII but not to the fibrinogen, fact that we had previously proved when ADP-induced aggregation or serotonin release were inhibited by plasmin-treated normal human serum, but not by plasmin-treated von Willebrand plasma. The factor VIII breakdown products were revealed by crossed immunoelectrophoresis, seroag 48 chromatography and SDS polyacrylamide electrophoresis.

The defective ADP-induced aggregation that we have observed in PRP from patients between the 8th and the 24th hour of thrombolytic treatment, is only due to the proteolytic effect of plasmin on the plasminogen factor VIII and not to a direct action of the plasmin on the platelet membrane, since washed platelets from these patients aggregate normally by ADP with normal platelet poor plasma (PPP), and the collagen-induced 14C serotonin release is also correct.


The heparin thrombin clotting time (HTCT) of platelet poor plasma (PPP) measures non-specifically the total heparin neutralizing activity (HNA) of PPP. This HNA must include any platelet factor 4 (PF4) liberated in vivo from "activated" platelets. It is suggested that released PF4 is the main determinant of clinical abnormalities of the HTCT for the following reasons: (1) there is an inverse relationship between the intra-platelet PF4 determined by a clotting method and the HTCT (Thrombos. Haemostas., 34, 1449, 1970). (2) there is minimal activity in plasma from aplastic and I.T.P. (3) there is a mild excess of activity in groups of patients at risk of thrombosis and (4) most activity during thrombosis, operations, acute myocardial infarction and infections, in all of which conditions platelets presumably are involved and "activated". There is a significant inverse correlation between the HTCT and (5) the plasma "low activity PF4" of Niwa et al. and (6) the F thromboglobulin (radioimmunoassay).

In most healthy people this test is remarkably constant, suggesting a steady state. But there are marked inter-person differences which could indicate different degrees of platelet activation and different thrombotic risks. This test can be routinely carried out in 3 minutes in a hospital laboratory with consistent results over the years. It is already of great clinical use and importance. Since this test can now be normalized therapeutically the question of patient benefit can be raised.