

PATTERN OF PLASMA BETA-THROMBOGLOBULIN, PLATELET FACTOR 4 AND FACTOR VIII COMPLEX IN MONITORING HAEMOLYTIC UREMIC SYNDROME IN CHILDREN. M.M. Cossu, V. Tantalò, M.L. Paracchini, P. Mondonico, E. Rossi, A. Claris-Appiani, F. Tentori, A. Edefonti. Blood Transfusion Service, Istituti Clinici di Perfezionamento, Milano. *Department of Pediatrics (II) of the Milano University, Italy.

Seven children, 2-5 years old, with HUS, were investigated sequentially for plasma BTG, PF4, FVIII complex. Plasma BTG is reported both as plasma concentration and as BTG/Platelets/ μ l ratio. Recent data suggest that BTG and PF4 enhance microangiopathic involvement of HUS, by inhibition of prostacyclin availability from vessel walls (BTG) and by binding of sulphated GAGs on the endothelial cells (PF4). High values of FVIII R: Ag/FVIII:C ratio are an index of endothelial damage. Six children were treated with plasma and antiaggregating agents and one child was treated only with antiaggregating agents. A close relationship between FVIII R: Ag/FVIII:C ratio and BTG and PF4 levels was found. These laboratory findings were in agreement with the clinical course: high values of FVIII R: Ag/FVIII:C ratio, of BTG and PF4 levels were found in the acute phase of the disease and normal values during remission. All patients had a favourable course of the disease and have now normal renal function. We think that plasma infusion may normalize the platelets/vessel wall interaction.

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INDUCTION OF CIRCULATING PLATELET AGGREGATES BY RELEASE OF ENDOGENOUS 5-HYDROXYTRYPTAMINE IN THE RAT. F. De Clerck and L. Van Gorp. Laboratory of Haematology, Janssen Pharmaceutica Research Laboratories, Beerse, Belgium.

The intravenous injection of the mast cell degranulator compound 48/80 in rats resulted in the formation of platelet aggregates (index $0.36 \pm S.E.M. 0.03$) and in a reduced blood coagulability as measured thromboelastographically. E.M. examinations revealed aggregates of shape changed platelets without degranulation. Radioimmunoassay showed absence of thromboxane B2 formation. In combination with antihistaminics, the serotonin-antagonist R 41 468 at the low dose of 0.16 mg/kg completely blocked platelet activation. Cyproheptadine, dipyridamole, VK 774 were also inhibitory. Pyrilamine, acenocoumarin, aspirin, suprofen, propranolol, lidoflazine, flunarizine, Trasylol and phentolamine were ineffective. These data support the concept that 5-hydroxytryptamine contributes to platelet activation *in vivo*.

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FIBRINOPEPTIDE A AND BETA-THROMBOGLOBULIN CONCENTRATIONS IN VENOUS AND ARTERIAL DISORDERS. H. van Hulsteijn, R.M. Bertina and E. Briët. Thrombosis and Haemostasis Research Unit University Hospital Leiden, The Netherlands.

The purpose of this study was to assess the relative importance of thrombin generation and platelet activation in venous and arterial disorders. To this end Fibrinopeptide A (FPA) was used as an index of thrombin generation and Beta-thromboglobulin (BTG) as an index of platelet activation. FPA and BTG were determined by specific radioimmunoassays.

In 80 controls (age 19-70, mean 41 yrs) mean FPA concentration was 0.72 ± 0.47 (ng/ml \pm SD) and mean BTG concentration 28.2 ± 10.1 (ng/ml \pm SD).

In 51 patients with the symptoms of deep vein thrombosis (DVT) or pulmonary embolism (PE), in which these disorders were confirmed by phlebography and/or Doppler ultrasound or perfusion lungscanning, mean FPA and BTG concentrations were clearly elevated compared to mean FPA and BTG concentrations in controls and in 25 patients with the symptoms of DVT or PE in which these disorders could be excluded by the above named techniques. Heparin and phenprocoumon lowered FPA concentrations into the normal range, while the BTG concentrations remained elevated.

In 20 patients with intermittent claudication, in which peripheral vascular disease (PVD) was confirmed by Doppler ultrasound mean FPA concentration did not differ from that in controls, while the mean BTG concentration was obviously elevated. This picture did not change after 2 months of phenprocoumon therapy.

In 33 patients with angina pectoris in which coronary artery disease (CAD) was demonstrated by arteriography mean FPA concentration did not differ from that in 7 patients with angina pectoris in which no coronary lesions were present and in controls contrary to the mean BTG concentration, which was clearly elevated. Results in patients on phenprocoumon or acenocoumarol therapy were not different from those without oral anticoagulant treatment.

So far the experimental results indicate that in venous disorders (DVT or PE) fibrin formation plays a more important role than in arterial disorders (PVD or CAD).

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THE EPIDEMIOLOGY OF PLATELET AGGREGATION. T.W. Meade, S.G. Thompson, M.V. Vickers. MRC Epidemiology and Medical Care Unit, Northwick Park Hospital, Harrow, England.

Platelet aggregation has been studied in over 600 participants in the prospective Northwick Park Heart Study of ischaemic heart disease (IHD). Platelet-rich-plasma platelet counts are standardized to a value of 250×10^9 /pl. The aggregating agents are ADP and adrenaline, in a full range of dilutions. Aggregation is detected by change in optical density. Dose-response curves and statistical parameters are calculated by computer. Although it will be some time before prospective data on platelet aggregation are available, some general epidemiological characteristics have been established. The most informative parameter is the ADP-ED₅₀, i.e. the concentration of ADP at which aggregation occurs at half its maximum velocity. A low ADP-ED₅₀ indicates easily aggregable platelets. An unexpected but highly significant finding is of a lower ADP-ED₅₀ in women than men. Platelets become more aggregable (i.e. ADP-ED₅₀ falls) with advancing age. There are no very striking associations between ADP-ED₅₀ and smoking habit, alcohol consumption or obesity. There is a significant negative correlation between ADP-ED₅₀ and plasma fibrinogen level - the higher the fibrinogen the more aggregable the platelets. There are no clear associations with factors II, VII, VIII or X, or with blood cholesterol or blood pressure. Some, though not all, of the epidemiological characteristics of ADP-ED₅₀ are in line with current views about the role of platelets in IHD. The inverse relationship between fibrinogen and ADP-ED₅₀ is a reminder that platelet function *in vivo* may be only partly determined by the intrinsic properties of the platelets themselves.