FREE COMMUNICATIONS VIII

Coagulation: Factor VIII—Von Willebrand Protein, Structural Aspects

vW_{Ag} II: A NEW VON WILLEBRAND'S DISEASE ANTIGEN. R.R. Montgomery and T.S. Zimmerman. Scripps Clinic and Research Foundation, La Jolla, California, U.S.A.

Factor VIII-related antigen (vW_{Ag} I) is a protein of high molecular weight which co-purifies with Factor VIII procoagulant activity and von Willebrand Factor under a variety of conditions. It is decreased or absent in most cases of von Willebrand's disease (vWD). We now report the existence of a second antigen (vW_{Ag} II) which is absent from the plasma of individuals (3/3) with severe vWD but present in normal amounts in the plasmas of individuals (8/8) with moderate or variant vWD. vW_{Ag} II is present in normal platelets and is released from them during clotting. However, it is also present in platelet-free plasma from normal individuals which has been collected in a variety of protease inhibitors including benzamidine, heparin, Trasylol, PMSF and soybean trypsin inhibitor suggesting that it circulates in plasma *in vivo*. The plasma from a patient with intravascular coagulation was found to have increased vW_{Ag} II.

vW_{Ag} II is detected by antisera raised against void volume fractions of American Red Cross Factor VIII concentrates subjected to agarose gel chromatography. Antisera raised against highly purified vW_{Ag} I do not detect vW_{Ag} II. Crossed immunoelectrophoretic analysis shows vW_{Ag} II to have a more anodic mobility than vW_{Ag} I. vW_{Ag} II exhibits no immunologic cross-reactivity with intact vW_{Ag} I nor with vW_{Ag} I fragments produced by plasmin, α -chymotrypsin, trypsin or elastase. Though the absence of both antigens from the plasma of individuals with severe vWD suggests a biologic linkage, immunologic evidence for the origin of these two species from a common precursor has not been demonstrated.

VON WILLEBRAND ACTIVITY AND ELECTROPHORETIC MOBILITY OF PLATELET FACTOR VIII RELATED ANTIGEN IN PATIENTS WITH VON WILLEBRAND'S DISEASE. Y. Sultan, J. Lamazière and P. Maisonneuve. Laboratoire d'Hémostase, Hôpital Saint-Louis, Paris, France.

We have previously shown that patients with severe Von Willebrand's disease (VWD), mainly homozygotes had no factor VIII related antigen (F VIIIIR) in their platelets as well as no Von Willebrand activity (F VIIIR) as measured by the ristocetin cofactor assay. In all other patients with less severe form of the disease platelet F VIIIIR was detectable. In normal controls electrophoretic mobility of platelet F VIIIIR was found to be identical to the mobility of plasma VIIIR either on the total platelet lysate or after isolation on sepharose 4B columns.

In the present study F VIIIR and the electrophoretic mobility of F VIIIIR were compared in platelet extracts and the plasma of a number of patients. Seven of the ten patients tested were genetic variants of VWD with very low ratio of F VIIIR suggesting a non functional protein with an increased electrophoretic mobility: one group of patients showed abnormalities of platelet F VIIIIR identical to those found in the plasma. However another group showed a high ratio of F VIIIR suggesting a more active protein than the one in patient's plasma although the platelet F VIIIIR had an increased electrophoretic mobility. These results are the first example of a F VIIIIR with abnormal electrophoretic mobility associated to high F VIIIR activity. The loss of F VIIIR in the patient's plasma would be a secondary process occurring after F VIIIIR is released in the circulation.