Variant Forms of Factor VIII Procoagulant-Like Material in Haemophiliacs

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Plasmas from two cross-reactive material (CRM)-negative and two CRM-positive haemophiliacs are shown to contain a biologically inactive procoagulant-like protein which is analogous to the low molecular weight, active protein dissociated from the Factor VIII of normal individuals at high ionic strength. This low molecular weight protein (LMW) from the haemophiliacs elutes from column chromatography with a pattern similar to the normal, however, following polyacrylamide gel electrophoresis (PAGE) or isoelectric focusing (IEF), the protein bands, as demonstrated by Coomassie staining or reaction with antibody, show a striking picture of heterogeneity. Further biochemical characterization and comparison with normal LMW indicates that the haemophilic LMW protein has a wide variation in carbohydrate content ranging from approximately 12%, as is the case with the normal individual, to 39.5%. The data suggests, that like von Willebrand's disease, haemophilia may exist in variant forms with alterations in carbohydrate content responsible for differences in reactivity with antibody and possibly for lack of procoagulant activity.