Haemostasis in Diabetes Mellitus

Level 4 – Green Side

Free Poster Session 11.30 – 12.45

Poster Board P4-122

0908 REVERSIBLE INHIBITION OF EUGLOBULIN FIBRINOLYTIC ACTIVITY IN DIABETES MELLITUS (DM

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Fibrinolytic activity (FA) in blood was measured by incubating (37°C for 18h.) the euglobulin fraction on unheated fibrin plates. In 60% of 88 adults with DM, no lysis (0mm^2) was observed. These determinations were repeated after one year's storage (-20°C) of plasma at which time, normal FA (113[56-189]mm^2) was found suggesting the presence of a labile inhibitor. Euglobulin precipitates with no FA were washed with H_2O prior to their dissolution in Tris buffer (pH7.4). Significant FA appeared (118[81-156]mm^2) in 13 out of 15 fresh samples from patients with DM indicating that the inhibitor was soluble in H_2O. The addition of chondroitin sulfate (CS) to plasma (1mg/ml) prior to euglobulin precipitation also restored FA (120[80-225]mm^2) in these samples. Addition of CS to the euglobulin fraction itself had no effect on FA. When CS was added to normal plasma little change in euglobulin FA occurred. It is concluded that in patients with DM, the apparent inhibition of FA was due to the presence of a labile plasma factor rather than the absence of plasminogen activator. This inhibition was reversed by CS suggesting that the factor may be one of the lipoproteins known to be elevated in some patients with DM. These findings indicate that a low FA in the euglobulin fraction may be due to the presence of a fibrinolytic inhibitor rather than to the absence of plasminogen activator. This new interpretation of the euglobulin lysis test appears to be particularly applicable to patients with DM.

P4-123 **0909** EFFECT OF METABOLIC CONTROL WITH INSULIN ON PLASMA VON WILLEBRAND FACTOR ACTIVITY, GROWTH HORMONE, AND PLATELET AGGREGATION IN DIABETES MELLITUS

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Elevated plasma von Willebrand factor activity (ristocetin method: VIIIR:WF) and high plasma growth hormone (GH) levels occur in diabetes mellitus. Hypersensitivity of platelets to aggregating agents is also seen. We have therefore studied the effect of short-term diabetic control with insulin on plasma VIIIR:WF, GH, and platelet aggregation.

Tight metabolic control with insulin was instituted for two weeks in five insulin dependent diabetic patients after a period of inadequate diabetic control. Overnight sleep studies were performed before and after the period of closely monitored insulin administration, and frequent determinations of plasma glucose, VIIIR:WF, and GH levels were done during sleep. Platelet aggregation thresholds to ADP, epinephrine, and arachidonic acid were measured before and after tight control.

We found that: (1) elevated plasma VIIIR:WF levels in diabetics persist during overnight sleep, but were not altered by wide swings in GH levels; (2) short-term careful diabetic control with insulin lowered plasma VIIIR:WF levels towards normal in the majority of subjects tested; and (3) increased sensitivity of platelets to aggregating agents appeared during tight insulin therapy in those subjects studied.