Poster Board P6-091

0281 SOLUBLE FIBRIN IN PLASMA AT 37°C EXISTS AS DES-A FIBRIN IN MONOMERIC FORM

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We intended to find out in which state fibrin exists in plasma at 37°C. In order to generate fibrin, small amounts of thrombin were added to human plasma containing ^{125}I-fibrinogen. Thereafter, thrombin was quenched with hirudin and ^{131}I-fibrinogen added to observe possible ^{125}I-fibrin-^{131}I-fibrinogen complex formation. Gel filtration of this mixture on sepharose columns equilibrated with plasma revealed 2 peaks. At 20°C but not at 37°C, peak A eluted in front of the fibrinogen peak contained fibrin-fibrinogen complexes. If isolated fractions of peak A eluted at 20°C were rechromatographed at 37°C, the material was mainly eluted in peak B (= fibrinogen peak). If isolated fractions of peak B eluted at 3 were rechromatographed at 20°C, part of the ^{125}I-radioactivity representing fibrin was eluted in peak A. As purified des-AB fibrin is eluted in polymeric form at 37°C and as purified des-A fibrin is eluted only in monomeric form at 37°C, we conclude from our experiments that fibrin generating in plasma at 37°C exists in monomeric form. Furthermore, the experiments demonstrate that des-A fibrin does not form complexes with fibrinogen or other proteins at 37°C. (Supported by the DFG).

Natural Antithrombins other than Antithrombin III

Level 4 – Red Side

Free Poster Session 11.30 – 12.45

P4-116 0282 A HITHERTO UNDESCRIBED NATURALLY OCCURRING PLASMA ANTAGONIST OF ACTIVATED FACTOR X INHIBITOR (ANTITHROMBIN III)

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Circumstantial evidence suggested that normal human plasma contained a substance regulating the neutralization of F.Xa by F.Xa inhibitor(XaI),(Yin et.al.,Adv.Exper. Med.& Biol.,52:239,1975,Plenum Press,N.Y.).

This plasma component has now been isolated and partially purified in our laboratory,and tentatively designated as "Anti-XaI".

In experiments employing purified components,when Anti-XaI was incubated at 37°C with F.Xa,XaI and heparin for two minutes at pH7.5,the amount of F.Xa inhibited was inversely proportional to the Anti-XaI concentration.But,when the F.Xa was replaced by thrombin in the incubation mixture,the neutralization of thrombin clotting activity was undisturbed.Anti-XaI was found to be neither PF3 nor PF4.

These and other data strongly suggest that the "Antithrombin III pathway" is more complex than currently believed to be.In circulating blood an equilibrium state must exist between Anti-XaI and XaI.Under certain conditions when the Anti-XaI activity is predominant the rate of F.Xa neutralization by XaI then becomes slower than the activation of prothrombin to thrombin by F.Xa.