Poster Board P6-081

0891 ACQUIRED ANTITHROMBIN III (AT III) - DEFICIENCY IN SEPTICAEMIA

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AT III was measured in 34 patients with clinical and bacteriological evidence of septicaemia using a heparin cofactor assay. Based on the results of positive blood cultures gram-negative septicaemia (G^-S) was diagnosed in 10 (group 1) and gram positive septicaemia (G^+S) in 9 patients (group 2). From the remaining 15 patients (group 3) blood cultures before onset of antibiotic therapy were not obtained and gave negative results throughout the observation period. Based on bacterial cultures from other sites than venous blood or bacteriological examnination of spinal fluid G^-S was assumed in 13 and G^+S in 2 patients.
In all but one patient of group 1 and one of group 2 AT III activities were decreased below 2 SD of normal controls (n=91, x=99.6%, SD=8.4%) already at the time of the first coagulation screening (patients: n=34, $\bar{x}$=58.4, SD=16.5). Analysis of variance showed no significant difference between the mean values of the three groups at the 5 per cent (%) level. The minimal AT III activities during the course of the disease were below the normal range in all patients studied (n=34, $\bar{x}$ =51.2, SD=13.6).
Thus AT III deficiency appears to be a constant and early finding in G^-S and G^+S, causing insufficient inhibition of blood coagulation, and hereby may contribute to irreversible tissue damage caused by microthrombi in septic shock. This deficiency may be an important factor in the failure of heparin therapy to reduce mortality from septic shock.

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0892 XaI (ANTITHROMBIN III) ACTIVITY IN RELATION TO POSTOPERATIVE DEEP VEIN THROMBOSIS (DVT)

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65 patients (21 controls, 20 low-dose heparin, 24 dextran) undergoing hip or elective general surgery were tested for XaI activity with a Differential XaI Assay. The test uses activated F X as substrate for determining the biological activity of XaI in two test systems. 1) Comprehensive test measures the ability of undiluted plasma to neutralize Xa in presence of circulating accelerators or antagonists of XaI. 2) Specific test quantitates total XaI activity in a highly diluted plasma system. For screening of DVT, ^{125}I-fibrinogen and/or thermography was used. Classification into minor and major DVT was made. Mean preoperative XaI was 8-10% lower in patients who developed postoperative DVT (both tests). Hip fracture patients had significantly lower initial values than patients undergoing elective surgery (comprehensive test). Postoperatively, XaI activity in patients with minor or no DVT remained constant. In patients with major DVT, XaI activity was significantly lower (20-45% in comprehensive and 15-30% in specific test) on operation and first two postoperative days and then returned to preoperative levels. Patients who developed DVT showed the same pattern of XaI despite prophylaxis. Of 14 major DVT, 10 were diagnosed when XaI activity had normalized. This indicates that a decrease in XaI activity immediately after trauma, can identify patients disposed to develop major thromboembolic complications.

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0893 THE RATIO OF FUNCTIONAL: IMMUNOLOGIC ANTITHROMBIN III AS AN INDEX OF ANTITHROMBIN CONSUMPTION.

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In certain clinical conditions poor correlation between functional and immunologic antithrombin III (ATIII) may be an index of ATIII consumption. Plasma ATIII was measured in 50 controls and in 50 patients with acute pancreatitis (a) functionally using a chromogenic substrate assay and (b) immunologically using an immunodiffusion method. In the controls the functional ATIII range was 82-115% of the standard and the range of immunologic ATIII was 25-36 mg%. Functional and immunologic ATIII levels were significantly correlated in the controls and the range of the ratio of functional: immunologic ATIII was 3.08-3.66. 23 of the patients had a functional: immunologic ATIII ratio below 3.08 suggesting a relative loss of ATIII functional activity. In 7 of these 23 the functional ATIII level was reduced below the control range but in the other 16 functional ATIII was either high or within the control range and loss of functional activity was apparent only when functional and immunologic assays were compared. ATIII is an acute phase reactant. In certain clinical conditions (e.g. acute pancreatitis) consumption of ATIII may be overlooked if both functional and immunologic assays are not performed in parallel.