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ANTITHROMBIN III AND PLASMINOGEN: PREDICTORS FOR DEVELOPING GRAM-NEGATIVE SEPTICEMIA. H.R. Büller, C. Bolwerk, J. ten Cate, L.H. Kahlé, J. Roos and J.W. ten Cate. Department of Haematology, Division of Hemostasis, Surgical Intensive Care Unit, University Hospital "Wilhelmina Gasthuis", Amsterdam, The Netherlands.

Gram-negative septicemia presents a particular problem to intensive care units. Our earlier observations in surgical patients suggested a relationship between bacterial infections and decreased plasma antithrombin III activity. 174 patients have been prospectively investigated pre and 10 days postoperatively. The aim of this study was to relate postoperative septicemia, verified by positive bloodculture(s) and the hemostatic profile. Daily investigation of factor II, X, AT III, α_2 antiplasmin (α_2AP), plasminogen (PLG), leucocytes and bacterial cultures revealed the following findings: in patients (n=36) with positive bloodcultures (gram-negative bacteria), AT III and PLG were significantly lower a few days prior to outbreak of clinical septicemia. α_2AP behaviour was unaffected. Leucocyte counts provided no distinct information on developing septicemia. Therefore low AT III and PLG plasma levels in the p.o. phase are early indicators for developing septicemia. This finding is related to circulating endotoxins, estimated with a new sensitive chromogenic assay.

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HEMOSTATIC CHANGES AFTER PLASMA EXCHANGE THERAPY FOR FULMINANT HEPATIC FAILURE. N. Takata, S. Kusumi, K. Fujimura and A. Kuramoto. Dpt. of Med., Research Institute for Nuclear Medicine and Biology, Hiroshima Univ. Hiroshima, JAPAN

Although it is well known that fulminant hepatic failure (FHF)might be often complicated with disseminated intravascular coagulation (DIC), its bedside diagnosis and control are rather confused. Hemostatic change after replacement therapy might be helpful to distinguish wheather the abnormal clotting tests are owing to the defects of protein synthesis or to excessive consumption. A 38-year-old woman with relapse of acute myeloblastic leukemia and FHF(post-transfusion hepatitis, type of non-A,non-B) received 2 courses of plasma exchange therapy (4 and 3L) using Hemonetics M-30 with 6,000 U/day of heparin sodium continuous i.v. and died on 4th hospital day. Postmortem necropsy revealed massive hepatic necrosis and fibrin thrombi in kidneys. Before the beginning of plasma exchange, results of bedside tests were as follow;platelets 44×10^9/L(decreased from 240 within a week), PT over 90", aPTT 26", fibrinogen 120 mg/dl and serum FDP 10 mcg/ml. Serial observations of hemostatic parameters 1,4,8 and 12 hours after the end of exchange therapy disclosed that apparent half life time of each factors were remarkably shortened. For example, T 1/2 of factor I, II , VII , XI, antithrombin III (AT III) and alpha-2 plasmin inhibitor(AP) were 4, 14.5, 1.5, 4.7, 15 and 2.6 hours, respectively. In crossed immunoelectrophoresis of AT III and AP, patient plasma showed abnormal peaks of each protein which were considered to be enzyme-inhibitor complexes. Plasminogen was not detected before therapy(0 % by S-2251 and less than 5 % by Rocket IEP) in spite of AP remaining (16 % by S-2251, 25 % by Rocket IEP) and FDP was elevated to 80 mcg/ml at 4 hours after exchange.

These findings indicated that, in some case of FHF, FDP did not increase because of absence of plasminogen even if accompanied with DIC.

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THE ABSOLUTE REQUIREMENT OF PLATELETS DURING THE INDUCTION PHASE OF INTRAVASCULAR COAGULATION. Wm. R. Nelson. Department of Surgery, University of Toronto, Department of Emergency Services, Sunnybrook Medical Centre, Toronto, Canada.

This study was conducted to ascertain the role of platelets during the induction phase of intravascular coagulation.

E. Coli endotoxin(1mg/kg) (Difo Laboratories, Detroit) was infused into a 10 control and 6 treated dogs. The treated animals had received 4 to 6 daily intramuscular injections of 6 cc. of a goat anti-dog platelet serum until their peripheral platelet counts were less than 10,000 mm^3 at which time the experiment was conducted.

Control animals had a pre-infusion fibrinogen concentration of 237 mg/100 ml whereas the treated animals had 312 mg/100 ml. The fibrinogen concentration changed in response to the endotoxin according to the following table (numbers are percentage of pre-infusion, asterisks note $p \leq 0.05$).

Time (min)	0	1	2	4	8	15	30	60
Control	100	89	83	73	76	81	69	68
Treated	100	125	105*	106*	94*	101*	115*	109*

It has been suggested that platelets are not important in the etiology for intravascular coagulation. These investigators have focused upon the accumulation of emboli in the microcirculation and few have monitored the early alterations in coagulation factor concentrations. However in the canine model, the platelet is definitely a pivotal mediator of the coagulopathy experienced during early endotoxemia.

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SUBCUTANEOUS HEPARIN IN PREVENTION OF DISSEMINATED INTRAvascular COAGULATION IN PATIENTS WITH SERIOUS INFECTIONS. K.Zawilska, M.Komarnicki, P.Psuja, J.Sowier, S.Kawczynski, K.Wysocki. Department of Hematology, Academy of Medicine, Poznan, Poland.

In a series of 21 patients with serious Gram-negative and Gram-positive infections, 5 000u. heparin was administred subcutaneously 12-hourly with the aim of reducing the incidence of disseminated intravascular coagulation.

Before starting heparin therapy there were prolongation of partial thromboplastin time; moderately increased levels of fibrinogen degradation products (FDP); decreased antithrombin III (AT III) activity (measured with chromogenic substrates); and positive paracoagulation tests.

On heparin therapy FDP decreased and platelet count and AT III increased; and there were no clinical or laboratory signs of DIC. In those who died there were no postmortem signs of intravascular fibrin deposition.

19 of the 21 patients developed septic shock. These received standard therapy as well as subcutaneous heparin. 14 patients (66%) died. There were no complications with heparin therapy.

In serious infections prophylactic subcutaneous heparin is advisable as early as possible.