

ACTIVITY AND CONCENTRATION OF ANTITHROMBIN III IN PLASMA AND SERUM. L. Róka and H. Bleyl, Justus Liebig-University, Dept. of Clinical Chemistry, Giessen, West-Germany.

The concentration and activity of antithrombin III contained in plasma and serum of a single individual were compared with each other. The concentration of antithrombin III was determined by means of the rocket technique according to Laurell, antithrombin activity was measured by thrombin neutralization, residual thrombin activity was quantified using the chromogenic substrate Chromozym TH. The patients' plasmas examined could be divided into different groups according to their antithrombin III specific activity. Most of the samples contained about 34 U/mg, the specific activities of two other groups were about 20 U/mg and 15 U/mg respectively. Only 3 samples contained more than 45 U/mg. In plasma samples with low specific antithrombin III activity the simultaneous occurrence of free antithrombin and an antithrombin-thrombin complex formed in vivo has been demonstrated by means of the two-dimensional immunoelectrophoresis with heparin added to the agarose-gel medium. (Sas et al., 1975). The antithrombin-thrombin complex could be separated from free antithrombin by adsorption to a heparin-agarose column and fractionated elution, using the different heparin affinity of complex-bound and free antithrombin.

IDENTIFICATION OF SOURCES OF INTER-LABORATORY VARIATION IN FACTOR VIII ASSAY. T.B.L. Kirkwood, C.R. Rizza, T.J. Snape, I. Rhymes and D.E.G. Austen, National Institute for Biological Standards and Control, London, and Oxford Haemophilia Centre, Oxford, U.K.

A repeated finding of national and international collaborative studies of standard Factor VIII preparations has been that systematic differences exist between laboratories in their measurement of the relative activities of the same pairs of Factor VIII preparations.

A workshop meeting was held at the Oxford Haemophilia Centre (England) during 23rd-26th November 1976 to investigate which of the possible sources of variation between laboratories were responsible. Participants from 16 British laboratories (9 one-stage, 7 two-stage) performed a total of 273 assays using three freeze-dried preparations of differing purity (a plasma, an intermediate and a high purity concentrate). The results of assays with each participant using their normal system established that, if the participants were a representative cross-section, approximately one-third of one-stage laboratories would show a systematic difference from the overall mean of at least 16%, with a similar figure for the two-stage laboratories of 9%. Various features of the assay systems were then modified in a controlled series of experiments. The results showed conclusively that i) differences between reagents accounted for most of the variation between laboratories and, ii) the two-stage assays were, on average, detecting relatively more activity in the more purified preparations than the one-stage assays. The results also suggested that the use of buffer as opposed to haemophilic plasma for the initial dilution of concentrates did not affect the assay results.

THE INFLUENCE OF ANTICOAGULANT TREATMENT ON BLOOD COAGULATION SYSTEM FINDINGS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION. A. Fletcher, N. Alkjaersig, M. Ghani and V. Tulevski, Washington University School of Medicine, St. Louis, Missouri, U.S.A.

Two hundred and twenty patients admitted to an acute coronary care unit were studied by serial plasma fibrinogen chromatography; 110 of these patients had documented acute myocardial infarction. Statistically significant increases in high molecular weight fibrin(ogen) complexes (HMWFC) were noted within 24 hours of disease onset and a further increase ($p < 0.001$) occurred within 48 hours in 43 patients who did not receive anticoagulant therapy. Plasma HMWFC usually returned to near normal values 12-20 days after disease onset.

Sixty-seven additional patients received conventionally administered anticoagulant therapy, 10 initial heparin only, 33 heparin plus warfarin and 24 warfarin alone. Plasma fibrinogen chromatographic findings in the anticoagulant treated patients did not differ significantly ($p > 0.1$) from those of the control untreated group over the first five days of illness. Minor differences were evident in the comparison of the 5-10 day findings in those receiving long-term warfarin therapy.

Our findings demonstrate that patients with acute myocardial infarction develop a coagulopathy secondary to increased fibrin deposition, presumably occurring at the infarct site. Since conventional anticoagulant therapy fails to control this phenomenon, the influence of fibrin deposition at the infarct site on disease outcome remains uncertain.