

KINETIC STUDIES OF SOLUBLE FIBRIN COMPLEXES IN VIVO. F. Schönbach, I. Mahn, and G. Müller-Berghaus. Dept. Medicine and Dept. Clin. Immunol. & Blood Transfusion, Justus-Liebig-Universität, Giessen, West-Germany.

Soluble fibrin complexes may occur in vivo in a variety of coagulation disorders. The aim of this investigation was to elucidate the in vivo behaviour of fibrin-fibrinogen complexes prepared in vitro in a ratio of 1 part fibrin to 20 parts fibrinogen. 12 rabbits (group A) were injected with soluble fibrin complexes containing homologous I-131-fibrin and I-125-fibrinogen. Another group of 12 rabbits served as control (group B) and received I-131-fibrin solubilized in urea and I-125-fibrinogen separately from each other. Studies were performed over a period of 6 days.

The mean distribution volume of fibrin as well as of fibrinogen did not significantly differ between both groups. The elimination characteristics of I-131-fibrin of the soluble fibrin complexes (group A) as well as of the solubilized fibrin (group B) were similar. The fibrinogen elimination did not differ significantly between the groups: a mean $T_{1/2}$ of 47.8 h in group A and a $T_{1/2}$ of 46.7 h in group B was calculated.

The experiments demonstrate that non-crosslinked soluble fibrin complexes distribute homogeneously in the circulation and dissociate into its subunits. Fibrin is eliminated from the circulating blood without influencing the normal catabolism of fibrinogen.

A STUDY OF THE ASPHYCTIC NEWBORN RHEUMATISM BY DETERMINATION OF SOLUBLE FIBRIN MONOMER COMPLEX (SFMC) AND PLASMIN INHIBITOR. S. SUSUKI (Department of Obstetrics & Gynecology, University of Hokkaido, Sapporo, JAPAN), H. GRAEFF, R. HAFTER (Iste Frauenklinik d. Universität München, West-Germany)

Blood samples from 80 healthy newborns and 19 asphyctic newborns were examined. SFMC and fibrinogen were precipitated from plasma with β -alanine.

Agarose gel filtration of redissolved precipitate resulted in separation of SFMC and fibrinogen. Other parameters such as TEG, Prothrombin time (PT), Partial thromboplastin time (PTT), and Plasmin-inhibitors (α_2 -macroglobulin, α_1 -antitrypsin, antithrombin III) were also determined. (Results)

- (1) The percent amount of SFMC of total fibrinogen content in asphyctic newborn increased $4.73 \pm 1.55\%$, while the remaining normal infants showed only $3.17 \pm 0.55\%$ ($P < 0.05$)
- (2) In neither PT nor PTT can a significant difference be seen, although asphyctic newborn showed the tendency of hypercoagulability in TEG.
- (3) α_1 -antitrypsin (92.8 ± 21.5) and antithrombin III (8.4 ± 2.3) levels were much lower in the group with asphyxia.

These results indicate that a low level of Plasmin-inhibitors act synergistically with a high activator value.

The low antithrombin III level in particular could be one of the reason for the development Hypercoagulability and DIC in asphyctic newborn infants.

CIRCULATING CROSSLINKED FIBRINOLIGOMERS. CLINICAL OBSERVATIONS AND TURNOVER STUDIES IN RABBITS. H. Graeff, R. von Hugo and R. Hafter. I. Frauenklinik d. Universität, München, Germany.

Blood samples from patients with coagulation disorders in obstetrics and with advanced carcinoma of the kidney were examined for the presence of cross-linked fibrin oligomers. Quantitative gel filtration of β -alanine precipitated plasma samples and chain characterization of isolated fibrin derivatives by SDS-PAA gel electrophoresis after reduction with mercaptoethanol were performed. Electrophoresis of immunoadsorbed material was additionally applied. In all cases of intravascular coagulation crosslinked fibrin oligomers in amounts of 8-25 per cent of the total fibrinogen content were observed. Severe cases revealed a molecular weight pattern of derivatives ranging from 5 million and more down to 45 000. X, Y, D, E and D-dimer were found in the β -alanine supernatant. In 5 patients with advanced renal carcinoma a cross-linked dimeric derivative was observed predominantly.

In vitro produced crosslinked 125 I-fibrin oligomers were injected into rabbits. Radioactivity was measured in gel filtrated fractions from β -alanine precipitated samples, and a half-life time of approximately 7 hours of the high molecular weight fraction averaging 5 million daltons was found.

It is concluded that circulating crosslinked fibrin oligomers which differ in regard to complex formation and half-life time to soluble fibrin monomer complexes may indicate intravascular coagulation.