C. H. N. Veenhof, E. M. Prakke, J. Vreeken, E. Bosch and J. van der Meer (Central Laboratory of the Netherlands Red Cross Blood Transfusion Service and Dept. of Internal Medicine, Binnengasthuis, Amsterdam, The Netherlands): **Thrombinaemia and Haematological Changes Induced in Dogs by the Artificial Kidney. (244)**

The aim of the investigation was 1) to trace the chronological sequence of coagulation events and haematological changes induced by the artificial kidney and the reaction of the living organism; and 2) to study the influence of various drugs.

Group A, non-treated: in the venous blood factor V activity and fibrinopeptide A, generated in vitro, reached maximal values at 15 min. At 10–15 min fibrinomonomers were detected. From 15 min onwards FDP appeared. Granulocyte and platelet counts reached very low values at 10–15 min. The concentration of serotonin (5HT) was maximal at 10–15 min.

Group B: heparin and coumarin prevented thrombin activity. However, they did not inhibit the initial fall of leucocytes and platelets. Release of 5HT did not occur when no thrombin activity was detected.

Group C, treated with Acetylic Salicylic Acid (ASA), sulfinpyrazon, dipyridamol in combination with ASA, polyphloretinphosphate: thrombin generation was postponed to a small degree. However, the initial loss of leucocytes and platelets was not diminished. The release of 5HT was reduced.

In all three groups the manifestations of thrombin activity were much less pronounced in the arterial line indicating a clearing mechanism in the body. The FDP values in the arterial blood were not different from those on the venous side. The initial decrease of leucocyte and platelet counts, especially in the arterial side suggests trapping in the body. Moreover, the arterial-venous difference in platelet counts indicates retention of platelets in the extracorporeal circuit. The drugs used prevented or diminished generation of thrombin. To influence the initial decrease in leucocyte and platelet counts attention should be directed more to the properties of the different elements of an artificial kidney than to the blood components.

E. Berglin, H.-A. Hansson, A.-C. Teger-Nilsson and G. William-Olsson (Dept. of Thoracic Surgery, Dept. of Medicine II, Dept. of Clinical Chemistry, and Dept. of Pathology, Sahlgren's Hospital, S-413 45 Gothenburg, Sweden): **Anticoagulation During Six Hours of Extracorporeal Perfusion. Comparison between Heparinization and Defibrinogenation. (245)**

Four dogs were given heparin and four other dogs were defibrinogenated with Defibrase®. The dogs were then perfused for six hours with a membrane oxygenator. Capillary bleeding tendency was measured with a standardized skin-flap technique. Platelet accumulation in the lungs and on the oxygenator membranes was examined with ^{51}Cr-labelled platelets and with scanning electron microscopy. Fibrin deposits on the oxygenator membranes were examined with immunoelectrophoresis after plasmic degradation. Pump flow, gas transfer across the oxygenator membrane and coagulation data were followed.

Capillary bleeding from the skin-flap was more pronounced in the dogs treated with heparin than in the defibrinogenated dogs. The ^{51}Cr-labelled platelets accumulated in the lungs and on the membranes of both groups, but more pronounced in the heparinized animals. Scanning electron microscopy confirmed the findings for oxygenator membranes. Both groups of animals had fibrin deposits on the membranes with wide individual variations. There was no difference between the two groups concerning gas exchange across the oxygenation membranes. The pump flow was higher in the defibrinogenated dogs (mean flow 38–64 ml/min and kg bw) than in the heparinized ones (mean flow 22–40 ml/min and kg bw).

Anticoagulation with Defibrase® might be an alternative to heparin during prolonged extracorporeal perfusion.