AES-, ESCA-, FIBRINOGEN ADSORPTION AND BIOLUMINESCENCE STUDIES OF GLUTARDIALDEHYDE-STABILIZED HEPARIN SURFACES. Rolf Larsson, Jan Christer Eriksson, Hans Lagergren, Per Olsson and Åke Rosengren. Surg. Research Laboratory, Karolinska sjukhuset, Dept. of Physical Chemistry, The Royal Inst. of Technology and Aminkemi AB, Stockholm, Sweden.

The chemical constitution of glutardialdehyde-stabilized cetylamine hydrochloride heparin (CAHG) surfaces was investigated with AES (Auger Electron Spectroscopy) and ESCA (Electron Spectroscopy for Chemical Analysis) before and after plasma exposure.

In comparison with a pure heparin film, the CAHG-surface contains a substantial amount of water-insoluble Schiff's bases and its heparin surface concentration is about a factor of ten lower.

On exposure to plasma or blood, proteins are heavily adsorbed onto the CAHG-surface. In contrast to the protein adsorbate on a polyethylene surface, which contains 200 nanograms of fibrinogen/cm² surface area, the protein adsorbate on CAHG includes no functional fibrinogen. The surface-bound fibrinogen has been measured by radio-immunoassay of fibrino-peptide A split off when the surface is treated with thrombin or Defibrase.

The adhesion of ATP-containing cellular material on the surfaces after exposure to blood has been explored with the aid of bioluminescence. These studies show that platelets and some other blood cells adhere to polyethylene surfaces, whereas adsorption of cells does not occur on CAHG-surfaces.

It is concluded that the adsence of fibrinogen and cellular material on the CAHG-surface is associated with its non-thrombogenic properties.

PROPHYLAXIS OF THROMBOEMBOLIC COMPLICATIONS IN HIP SURGERY - A CONTROLLED TRIAL WITH LOW DOSE HEPARIN AND DEXTRAN 70. D. Bergqvist, H.O. Efsing, T. Hallbäck and T. Hedlund, Departments of General and Orthopaedic Surgery and Diagnostic Radiology, Skövde, Sweden

The prophylactic effect of low dose heparin on postoperative thrombosis in general surgery is well established. Dextran 70 has been shown to reduce the frequency of fatal pulmonary embolism. The effect of these prophylactic methods in hip surgery is debated. The aim of this study was to compare dextran 70, low dose heparin and no treatment in post-traumatic and elective hip surgery. The groups were separately randomized to either prophylaxis. In patients with hip fracture (75 patients) thrombosis was diagnosed with ¹²⁵I-fibrinogen test. The same diagnostic method was used after elective hip arthroplasty according to Brunswik (96 patients). In the latter group screening for pulmonary embolism was made one week postoperatively with perfusion scintigraphy (Tc-labelled macroaggregated albumin) and x-ray; the diagnosis being based on the combination of a perfusion defect and normal x-ray. The frequency of thrombosis in patients with hip fracture was 67 % in the control group, 67 % in the low dose heparin group and 40 % in the dextran 70 group. The corresponding frequencies for patients undergoing elective hip surgery were 50, 26 and 55 %. Pulmonary embolism was seen in 38, 24 and 24 % respectively (one fatal embolism in the control group). From this study it can be concluded that only dextran 70 lowers the frequency of thrombosis after hip fracture. Low dose heparin diminishes the frequency of thrombosis in elective hip surgery whereas the two prophylactic methods are equally effective in prophylaxis of pulmonary embolism.

A PROSPECTIVE TRIAL OF SULFINPYRAZONE AFTER PERIPHERAL VASCULAR SURGERY. J.A. Blakely and G. Pogoriler. Department of Clinical Hematology, Sunnybrook Hospital, Toronto, Canada.

169 patients were randomly allocated to Sulfinpyrazone or placebo after peripheral vascular surgical procedures. Randomization was stratified for surgeon and type of operation (endarterectomy, vein graft, or prosthesis) and aorto-iliac or femoral popliteal site. Treatment was begun with Sulfinpyrazone 200 mgs. t.i.d. or equivalent placebo. Platelet tests were performed at intervals and patients with active collagen aggregation were given increments to 1200 mgs. daily or equivalent placebo. Patients were followed for up to 3 years. Claudication distances, peripheral pulses, readmissions, and returns to surgeon were documented at intervals. Three endpoints were assessed without knowledge of treatment category; occlusion at operated site, occlusion in same leg, and all peripheral vascular events, as well as other episodes of vascular disease. 137 patients had femoral popliteal and 27 had aorto-iliac surgery. There was no evidence of benefit in either group with respect to any of the endpoints. There was 1 death in the treated group and 2 deaths in the control group. Suspect drug toxicity was similar in treatment and control groups (22 vs. 19) although more patients were withdrawn from the treatment group as a result (11 vs. 50, mostly because of rash, dyspepsia, and nausea).

This study suggests that Sulfinpyrazone does not prolong patency after peripheral vascular surgery.