0276
10:00 h

PREVENTION OF DEEP VEIN THROMBOSIS (DVT) IN ABDOMINAL SURGERY. A PROSPECTIVE COMPARISON BETWEEN SODIUM PENTOSAN POLYSULPHATE AND DEXTRAN 70. D. Bergqvist and H. Ljungnér. Department of Surgery, University of Lund, Malmö General Hospital, Malmö, Sweden.

A prospective comparison has been made between PZ 68, sodium pentosan polysulphate, and dextran 70 as prophylactic agents against DVT after abdominal surgery. 109 patients above 50 years of age were randomly allocated to one of the two groups. The analysis after exclusions is based on 86 patients. PZ 68 was injected 75 mg s.c. twice daily for one week and dextran 70 was infused 500 ml peroperatively, 500 ml immediately postoperatively and 500 ml on the first postoperative day. Diagnosis of DVT was made with the 125-I-fibrinogen test with phlebographic verification. In patients with positive fibrinogen test perfusion and ventilation pulmonary scintigraphy was also made. The frequency of DVT was 19,2 % in the dextran group and 2,9 % in the PZ 68 group ($p < 0.05$). Two scintigraphic emboli were seen in the dextran group, none in the PZ 68 group. Peroperative haemorrhage and transfusion requirement did not differ. The frequency of postoperative complications and the 30 day mortality (one patient in the dextran group) was the same in the two groups.

It is concluded that sodium pentosan polysulphate is significantly better than dextran as a prophylatic agent against postoperative DVT is general abdominal surgery.

0277
10:15 h

INTERMITTENT CALF COMPRESSION: A RANDOMIZED TRIAL IN ELECTIVE HIP REPLACEMENT. A. Gallus and T. Darby, Departments of Haematology and Surgery, Flinders Medical Centre, Adelaide, South Australia.

We have evaluated venous thrombosis prevention with intermittent calf compression in 78 patients aged over 50 years having elective hip replacement. 38 patients were randomly allotted to intermittent calf compression with a "BOC-Roberts Venous Flow Stimulator", begun at the start of surgery and continued for 7 days, while 40 patients had no prophylaxis. Age, weight, length of surgery, and other risk factors were similar in the two groups. All patients had ascending venography of the operated leg on the seventh day, or bilateral venography if routine ^{125}I fibrinogen leg-scanning and impedance plethysmography suggested thrombosis on the unoperated side.

Venography showed thrombosis in 12/38 patients treated with intermittent calf compression (32%) and 21/40 untreated patients (53%). The difference is not statistically significant, but further analysis showed some interesting treatment effects: (a) calf vein thrombosis was found in 13% of treated and 35% of untreated patients ($p < 0.05$), (b) femoral or popliteal vein thrombosis developed in 24% of treated and 38% of untreated patients, while isolated femoral vein thrombosis (without calf vein thrombosis) developed in 18% of treated and untreated patients, but (c) the femoral vein thrombi were smaller in treated patients - 8% of treated and 30% of untreated patients had femoral vein thrombi with an estimated length above 5 cm ($p < 0.05$).

This suggests that intermittent calf compression prevents calf vein thrombosis and prevents extension of femoral vein thrombi after elective hip replacement, although it cannot prevent the initiation of femoral vein thrombi which is presumably due largely to local vein trauma. This limited effect may be clinically valuable, allowing delay in starting anticoagulant prophylaxis until this is safe.

0278
10:30 h

AN ASSESSMENT OF SUBCUTANEOUS ANCROD IN PREVENTION OF DEEP VEIN THROMBOSIS AFTER SURGERY FOR HIP REPLACEMENT. J.J.F. Belch, D. Meek, G.D.O. Lowe, M.M. Drummond, A.F. Campbell, C.D. Forbes and C.R.M. Prentice. Departments of Medicine, Radiology and Orthopaedic Surgery, Royal Infirmary, Glasgow, Scotland.

There is a high incidence of deep vein thrombosis (DVT) and pulmonary embolism (PTE) amongst patients undergoing surgery for hip replacement. We have assessed the use of ancrod (Arvin), a defibrinating enzyme in the prophylaxis of DVT. In a randomised double-blind controlled trial 35 patients received daily subcutaneous injections of ancrod after operation for hip replacement and 38 patients received saline injections. DVT was detected by bilateral ascending venography (68 patients) or post-mortem (1 patient) 7-19 days after surgery. The frequency of major femoral DVT ($>$ 5 cm long) was significantly reduced from 18 thrombi in the limbs of the placebo group to 5 in the ancrod group ($p < 0.05$). Major bilateral femoral DVT were similarly reduced from 7 to 1 patients by treatment with ancrod. The overall frequency of all thrombi, including calf DVT, was however not significantly different between the groups. 5 patients had evidence of PTE (3 placebo, 2 ancrod). 6 patients within the ancrod group had evidence of increased wound bleeding, compared with one placebo patient, but in only one patient was this considered severe enough to require cessation of ancrod injections. As the majority of PTE perhaps arise from large femoral thrombi it would seem that ancrod prophylaxis, by reducing thrombus size, could aid the reduction of PTE in this group of patients.

0279
10:45 h

A RANDOMIZED CLINICAL TRIAL OF TITRATED DOSE SUBCUTANEOUS HEPARIN VERSUS WARFARIN IN THE LONG-TERM TREATMENT OF PATIENTS WITH VENOUS THROMBOSIS. R. Hull, T. Delmore, C. Carter, J. Hirsh, E. Genton, A.G.G. Turpie, D.L. Sackett, M. Gent. Department of Medicine and Epidemiology, McMaster University, Hamilton, Ontario, Canada.

We have reported previously that low-dose subcutaneous (sc) heparin is less effective than adjusted dose warfarin sodium in the long-term treatment of venous thrombosis as 9 of 35 patients (26%) receiving low dose sc heparin developed acute recurrent venous thromboembolism compared with none of 33 patients receiving warfarin ($p=0.001$). Seven patients on warfarin suffered bleeding compared with none on low-dose sc heparin ($p < 0.005$). Using an identical study design, 101 patients with venographically confirmed acute deep vein thrombosis have entered a second trial reported here, comparing higher doses of sc heparin 12 hourly, titrated at the onset (by adjusting the mid interval PTT to 1½ to 2 times control), compared with adjusted dose warfarin (PT 1½ to 2 times control). All patients were treated with full doses of heparin for 14 days and then randomized to either treatment group for a 12 week course. The patients were followed in a special clinic and routinely screened with leg scanning and impedance plethysmography at 3 week intervals and on an emergency basis if they developed recurrent symptoms. During long-term treatment no patient on warfarin or titrated sc heparin developed recurrent venous thromboembolism. On follow-up, after discontinuation of long-term therapy, 4 patients randomized to warfarin and 4 patients randomized to titrated sc heparin developed recurrent deep vein thrombosis confirmed by objective testing. One of 51 patients on titrated sc heparin suffered bleeding compared with 9 of 50 patients on warfarin ($p < 0.02$). These results suggest that titrated sc heparin is as effective as warfarin for preventing recurrent venous thromboembolism and its use is associated with less bleeding than warfarin.