References


Authors' Reply

Sir,

We thank Mr. Fligelstone and Mr. Salaman for their concern about the risk of causing pulmonary embolism by compression ultrasonography. As they state themselves, the risk is based on theoretical grounds. In our series we have not seen any complication from compression ultrasonography. In other large series, the safety of compression ultrasonography has been well reported. In none of the series has an excess of pulmonary emboli using compression ultrasonography been described, so we can accept this method to be safe in the detection of acute proximal deep venous thrombosis.

As for the risk of Homan's sign, in a large series of 236 consecutive patients clinically suspected of deep venous thrombosis, we saw no pulmonary emboli following the performance of this clinical test. Statistical analysis revealed no significant association with deep venous thrombosis whatsoever. In our opinion, Homan's sign must be regarded as obsolete.

J. P. J. Wester and O. J. A. Th. Meuwissen
Nieuwegein, The Netherlands

Reference


Correspondence

Sir,

We read with interest the paper by Yusuf et al. concerning accelerated peripheral arterial thrombolysis using pulse-spray thrombolysis (PST). Another technique for accelerated thrombolysis has previously been described using 5 mg boluses of tissue plasminogen activator (tPA). As part of an ongoing study comparing this technique with conventional thrombolysis we have two patients who have undergone attempted lysis of the same lesion on different occasions using each technique.

The first patient was a 66-year-old man with a 2-year history of claudication at 300 metres that had worsened over the 2 weeks prior to consultation to 20 metres. A 15 cm occlusion of his left superficial femoral artery (SFA) was demonstrated on angiography. Thrombolysis was attempted using an intraarterial infusion of tPA running at 0.5 mg/h for 4 h. At the end of this time clearance of the thrombus had occurred and angioplasty of an underlying stenosis was performed. This resulted in initial improvement of symptoms and return of pedal pulses. However, over the next 3 weeks his symptoms returned and a further angiogram showed re-occlusion of the SFA. Thrombolysis was performed using four bolus injections of 5 mg of tPA. After 45 min the thrombus had been cleared and angioplasty of the stenosis was performed again. Three months later his claudication distance was 300 metres (similar to before the first acute episode).

The second patient was an 85-year-old man who had previously had a left above knee in situ femoropopliteal vein graft. He was admitted with a 6-hour history of sudden onset of rest pain in the left leg. Clinical examination was suggestive of a thrombosed graft which was confirmed on angiography. Thrombolysis was performed using three 5 mg boluses of tPA over 20 min followed by an infusion at 3.5 mg/h for 3.5h. Lysis was complete after this time and no underlying cause was demonstrated. He had a small haematoma that evening from a duodenal ulcer but settled without further intervention. One year later he presented with 11 days of rest pain. Clinical and radiological findings were similar to the first episode. Thrombolysis was performed using a tPA infusion of 1 mg/h for 8 hours and 0.5 mg/h for a further 5 h after which it was stopped because the patient had a small haematoma. Complete clearance was demonstrated on angiography. He later required emergency surgery with evacuation of a retroperitoneal haematoma and suture of the vessel but died 3 days later following a myocardial infarction.

In these patients bolus injection of thrombolytic agent increased the speed of clot lysis compared to conventional methods. Together with other centres in the Thrombolysis Study Group, we are presently conducting a prospective randomised controlled study to assess this further. Bolus injection offers an
alternative to PST as a method of accelerated thrombolysis. However, side effects using this technique, such as haemorrhage and distal embolisation, may be increased. This must be balanced against complications due to prolonged catheter insertion using conventional techniques. Further evaluation of both methods of accelerated thrombolysis is therefore needed before they become the treatment of choice.

T. A. Cook, B. D. Braithwaite, R. B. Galland and J. J. Earnshaw
Reading and Gloucester, U.K.

References

LMWH In Vein Grafts

Sir,

Wilson et al. suggest that low molecular weight heparin (LMWH) administered to rabbits inhibits the development of intimal hyperplasia in arteries undergoing vascular grafting. This finding is of considerable potential clinical relevance. A few comments may be of interest.

Unfractionated heparin (UH), at concentrations achieved during treatment, significantly enhances and induces platelet aggregation, in vitro, in samples obtained from patients with ischaemic heart disease (IHD) or peripheral vascular disease (PVD). In contrast, the addition of LMWH, or a LMW Heparinoid, did not reproduce this effect. Similarly, the administration of UH, but not of a LMW Heparinoid, to healthy volunteers was associated with enhanced platelet aggregation. Thus, platelets from patients that may require vascular surgery may be susceptible to stimulation by UH but not LMWH. Furthermore, platelet activation is associated with thrombus formation as well as with the release of intraplatelet growth factors (e.g. PDGF, serotonin). Thus, in contrast to UH, LMWH administration pre-, intra- and postoperatively is less likely to increase the release of these growth factors. In this context, it is relevant that although aspirin (a potent inhibitor of platelet aggregation) can prolong the life span of vascular grafts, it is ineffective if administered more than 2-3 days after surgery. This observation suggests that decreasing platelet activity in the peri-operative period may be of considerable importance.

In conclusion, LMWH use in patients undergoing vascular surgery may confer long-term benefits provided bleeding is not a problem.

D. P. Mikhailidis and M. A. Barradas
London, U.K.

References

No reply received.