# Can we treat lower limb critical ischaemia with chemical sympathectomy?

*Jamie Smart, Brigitta Brandner*

Chemical lumbar sympathectomy was first introduced into medical practice in the 1920s. It has been used to treat a variety of conditions from muscular spasm to hyperhydrosis, although it has been used most widely in the treatment of complex regional pain syndrome and also in the treatment of critical ischaemia of the lower limb.

Chemical sympathectomy acts primarily via its vasodilator effects on the collateral circulation secondary to decreased sympathetic tone. This improves tissue oxygenation and ulcer healing, and decreases tissue damage and pain. Pain is also decreased by interrupting sympathetic–nociceptive coupling and by a direct neurolytic action on nociceptive fibres.

The use of chemical sympathectomy in critical ischaemia has decreased in frequency and popularity, because it is perceived to provide very little benefit in relation to limb salvage. This article will explore whether lumbar neurolysis still has a role in treating the patient with occlusive peripheral vascular disease.

## TRIAL RESULTS

The measures of success of lumbar sympathectomy are improved limb salvage or graft survival, relief from rest pain, increased walking distance before developing claudication and healing of dystrophic lesions.

Randomized controlled trials looking at limb salvage following vascular reconstruction with sympathectomy have shown no difference in graft survival when compared to vascular reconstruction alone (Barnes et al, 1977; Satiani et al, 1982). Retrospective studies have shown a small increase in graft survival, 70% *vs* 75% in those with sympathectomy. A similar result is shown when comparing sympathectomy to conservative treatment, with a small increase in limb salvage, 50% *vs* 55% in favour of sympathectomy.

A randomized double-blind placebo controlled trial of chemical sympathectomy against control has shown promising results in the role of sympatholysis in relieving rest pain (Cross and Cotton, 1985). In this study 83.5% of patients were free from rest pain at 1 week, and 66% remained pain free at 6 months. Retrospective trials have shown similar results with total relief of rest pain in 60–70% of patients between 6 and 18 months. Intermittent claudication appears not to be improved by lumbar sympathectomy (Fyfe and Quin, 1975).

The rate of partial or complete healing of ischaemic ulcers has been reported as 60–80% (median 66%).

## COMPLICATIONS

Morbidity excluding postsympathectomy pain is usually limited to <3%.

The most common complication of lumbar sympatholysis is development of a new postsympathectomy pain. This develops between days and weeks after the procedure with an incidence of 20–30% affecting the area innervated by the ganglions blocked. The severity of the pain is usually low and there is spontaneous resolution of the condition in the majority of patients. A more problematic pain is caused by irritation of the genitofemoral nerve that occurs in 5–15% of those treated, again of variable but usually low severity.

Complications secondary to misplacement of the needle (e.g. intravenous injection, intrapsoas injection) are virtually eliminated by use of computed tomography or fluoroscopic guidance.

Bleeding is not usually a problem in patients who are not anticoagulated or receiving antiplatelet medication. Infection (abscess formation, peritonitis) can be minimized with careful attention to antisepsis during the procedure.

## CONCLUSIONS

Lumbar sympathectomy still has a role in the management of critical ischaemia. There is evidence for a small increase in rate of graft survival and limb salvage, although the clinical significance of this is questionable. However, the majority of patients have total and lasting relief from rest pain. Healing of ischaemic ulcers is increased when compared with conservative treatment. It is a minimally invasive procedure with a low complication rate, most complications being temporary and/or treatable. The short- and long-term benefits of sympatholysis can be seen in most patient groups. HM

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**Dr Jamie Smart** is Specialist Registrar in Anaesthesia and **Dr Brigitta Brandner** is Consultant Anaesthetist in the Department of Pain Management, National Hospital for Neurology and Neurosurgery, London WC1N 3BG

*Correspondence to: Dr J Smart*

Anaesthetic and critical care dilemmas are coordinated by **Dr Robert Self** and **Dr Pete Bishop**, Research Fellows at the Centre for Anaesthesia, UCL, London

Ideas for future dilemmas can be sent to Rebecca Linssen hmed@markallengroup.com