adequate regional anaesthesia. During carotid endarterectomy, we believe that verbal communication must be maintained with the patient at all times.

We agree with Professor Wildsmith that it is important for surgeons and anaesthetists to audit their results for this procedure on a regular basis and alter their techniques accordingly. However, we take issue about the requirement for a randomized, controlled study to compare regional with general anaesthesia. The non-randomized, often retrospective data analysed by Tangkanakul, Counsell and Warlow suggested that there is a 50% reduction in mortality rate and stroke with regional anaesthesia. If one assumes a combined stroke and mortality rate of 3% with general anaesthesia, and if this reduction with regional anaesthesia is true, this would translate to 10 lives saved for every 1000 patients treated.

We are not involved with the organization of the planned multicentre, randomized, controlled study, although Oxford may be one of the centres involved. Thus we are unable to comment on details of study design. However, we do believe that such a study is important to determine the 'best' anaesthetic to us, just as the surgical indications for carotid endarterectomy have been refined further by the publication of large, randomized, controlled studies, such as the North American and European ones.

Finally, we cannot see that a combination of regional general anaesthesia offers any benefits over a regional technique alone. On the contrary, administering general anaesthesia nullifies the principal reason for keeping the patient awake, namely monitoring adequate cerebral perfusion. However, if a patient requires general anaesthesia for this operation, we believe that a combination of general anaesthesia using remifentanil and a superficial cervical plexus block offers the best combination of techniques to provide a fully awake, yet comfortable patient after operation.

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Central nerve block and thromboprophylaxis

Editor—We read with interest the review article on central nerve block and thromboprophylaxis which has prompted us to consider our current practice. There is an increasing trend in our hospital to use an Iloprost (trometamol) infusion, a prostacyclin analogue, in patients with critical limb ischaemia who are awaiting re-vascularization surgery. The drug has an anti-aggregatory effect on platelets, resulting in a dose-related decrease in thrombogenesis. We thought that if a patient was receiving an Iloprost infusion, this represented a relative contraindication to epidural catheterization. Although the evidence suggests that other antiplatelet drugs are not a contraindication to epidural analgesia, Iloprost has a different mechanism of action and the risks of epidural bleeding and haematoma formation are not comparable. We considered that i.v. infusion of an antiplatelet aggregation agent had significant potential to cause epidural haematoma formation after central neural block when balanced against the benefit to the patient.

We could find no reference to this risk in the literature and were unsure if our assumptions were correct. Basic science research provides some relevant information. The pharmacodynamic and pharmacokinetic properties of Iloprost have been reviewed. Iloprost has the same spectrum of activity as prostacyclin. Its site of action is probably multifactorial but involves reversible binding to a specific platelet receptor, possibly on the Gs subunit of GTP. This increases cAMP formation and reduces platelet activation. The effect is short-lived. At the end of an infusion of 2 ng kg⁻¹ min⁻¹, the recommended maximal rate, the elimination half-life of Iloprost is 31 min with any inhibitory effect on platelets disappearing by 2 h. Iloprost does not interfere with the clotting cascade and unwanted bleeding associated with its use has not been reported.

However, if used concurrently with heparin, there is an additive effect and bleeding becomes more of a potential risk. This interaction is important in clinical practice as patients undergoing vascular surgery receive heparin in the peri-operative period via a variety of different routes and regimens. Importantly, systemic heparin is given during surgery, often within 1 h of epidural catheter insertion which, independent of the action of Iloprost, carries an increased risk. Patients are also restarted on Iloprost and heparin after operation and therefore have altered platelet and clotting cascade function when the epidural catheter is removed on the ward.

The risk of epidural bleeding with Iloprost remains unquantified. Concurrent administration of Iloprost with heparin would appear to be a relative contraindication to central regional block. If Iloprost is used alone and provided it is discontinued 2 h before epidural or spinal anaesthesia, the risk of epidural haematoma formation would appear to be very small and should not preclude their use. Similarly, the infusion should be discontinued for 2 h before removal of the epidural catheter. We hope that this would be regarded as safe practice.
Editor—Thank you for the opportunity to respond to Drs Dunnet and Pittman. To date, there have been no reports of vertebral canal haematoma associated with the use of Iloprost infusions in patients who have had central neuraxial block. Iloprost inhibits platelet aggregation in addition to being a vasodilator and has a cytoprotective effect on endothelial walls. It may also have some fibrinolytic activity. The duration of action is short with platelet anti-aggregatory effects undetectable 2 h after stopping the Iloprost infusion. As long as no other anticoagulant drugs have been administered and Iloprost has been stopped for at least 2 h, the risk of central neuraxial block or catheter removal is small. However, we feel that some caution should be exercised when considering central neuraxial block in patients who are receiving or who are scheduled to receive Iloprost infusions in the perioperative period. The great majority of these patients receive heparin concomitantly in the course of the operative procedure, which increases the risk of haemorrhagic complications. We agree with Pittman and Dunnet that simultaneous Iloprost and heparin infusions are a contraindication to central neuraxial block, but in our experience both drugs are stopped in advance of surgery. If an epidural catheter is already in place and the surgeon requests Iloprost–heparin infusions, it should be removed only when the antiplatelet and anticoagulant effects have resolved.

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