recommending the routine use of prophylactic magnesium sulphate.

Conflict of interest

None declared.

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1 Saran T, Perkins GD, Javed MA, *et al.* Does the prophylactic administration of magnesium sulphate to patients undergoing thoracotomy prevent postoperative supraventricular arrhythmias? A randomized controlled trial. *Br J Anaesth* 2011; **106**: 785–91

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Reply from the authors

Editor—We thank Drs Fragene and Ghori and Drs Mowat and Dickinson for their comments on our study. It was stated that the groups were well matched with specific reference to the patient characteristics. Acknowledgement was made with regard to the number of oesophagectomies in the control group at the start of the discussion which highlights the nature of randomization. Three of the five oesophagectomy subjects received magnesium on the general high-dependency unit. There were 89 and 67 participants in the control and treatment groups, respectively, that were fully protocol compliant, in that they received three study infusions perioperatively. The other seven and 27 participants in the control and treatment groups still received their first infusion, however, did not receive further doses or their third infusion. The Holter analyses were performed by a cardiac physiologist who remained unaware of the complications and group allocations. All 96 participants in the intervention arm received 5 g magnesium intraoperatively. Data from all 192 participants were analysed as the analyses were intention to treat.[1]

The incidence of supraventricular arrhythmia (SVA) with the various types of procedures does vary widely and is based upon the evidence within the published literature. With regard to the abstract, it states the factual observation of reduced incidence of SVA in the treatment arm compared with the placebo arm of the well-matched pneumonectomy sub-group. This is then further explored in the discussion with the conclusion that this may have been a false positive.

It is important research governance to state the difficulties encountered so that future trials' methodology can be modified in search of answers. Building on this study, we hope to see further work into the role of prophylactic administration of magnesium for the prevention of SVA post-thoracotomy including the high-risk cohort of patients undergoing pneumonectomy.

Conflict of interest

None declared.

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Does hyperbaric oxygen have positive effect on neurological recovery in spinal–epidural haematoma?: a case report

Editor—Epidural block is occasionally accompanied by severe complications such as epidural haematoma, which is generally associated with coagulopathy.[1 2] Hyperbaric oxygen therapy (HBO) has been demonstrated to be effective in treating spinal cord injury.[3] Earlier initiation of HBO results in better salvage from the spinal cord damage.[4] We speculated that HBO may also be beneficial for epidural haematoma and attempted HBO in the present case.

A 73-yr-old man had been suffering from lumbar pain and bilateral sciatica. An L4 laminectomy undergone 4 yr earlier did not relieve his pain. At presentation, radiography and magnetic resonance imaging (MRI) demonstrated vertebral spondylosis and disc degeneration (Fig. 1, left). We performed an epidural block (single shot) between L2 and L3. His symptoms improved after the block.

One week later, he received another epidural block. Four hours after the block, however, he felt unusual pain in the lumbar region and legs, and also numbness and motor weakness in the legs. MRI demonstrated a haematoma at L3–5 (Fig. 1, centre). Prothrombin time (PT), PT/international normalized ratio, and activated partial thromboplastin time were all within normal limits. As the haematoma appeared to be large enough to cause paralysis soon, we planned an emergency laminectomy and haematoma removal. However, there was a 3 h delay to set up the surgical suite. At this time, we realized that he had been taking aspirin, 150 mg day^{-1}.

During the delay, we decided to attempt HBO, which we hoped would aid the recovery of nerve function. HBO was thus conducted immediately with pure oxygen at 2 atm for 60 min, and prompt improvement was observed: all signs

Fig 1 MRI, before (left), immediately after (centre), and 1 month after (right) development of epidural haematoma after epidural block. Each column shows the T1-weighted images of sagittal (upper) and axial (lower) sections. Arrows indicate the haematoma. Complete spontaneous absorption is observed 1 month after the block.

and symptoms due to the haematoma recovered to the levels noted before the second epidural block. We then decided to cancel the emergency surgery. This improved state continued into the next day. To stabilize this effect, we administered additional HBO once a day for 4 days in total using the same protocol as that of the first session. The patient was discharged after the final HBO treatment without any residual signs. One month later, MRI showed complete spontaneous absorption of the haematoma (Fig. 1, right).

To our knowledge, this is the first report of HBO used to successfully treat post-epidural block haematoma. Based on our case, the suggested course of treatment is that when sufficient symptomatic relief is achieved with HBO, surgery may not be required but if HBO is ineffective, surgery should be conducted immediately. We believe that HBO could be a new option in the treatment of epidural haematoma.

A haematoma mechanically compresses the spinal nerve tissues causing tissue hypoxia leading to nerve dysfunction. A rich supply of oxygen is delivered by HBO to the nerve tissues, and this may minimize neural damage and accelerate recovery of neural function. However, haemolysis products, such as haemoglobin, haemosiderine, and/or iron, may cause vasospasm[5] and neurotoxicity.[6] Surgical removal of clot from neural tissue is recommended for intracranial haemorrhage,[7] otherwise, muscular paresis may be permanent.[8] HBO may relieve nerve tissue hypoxia due to vasospasm, and accelerate clearance of haemolysis products. However, it is unlikely that the greater part of the haematoma, which was spread over L3–5 in the present patient, was absorbed quickly as a result of the HBO.

Conflict of interest

None declared.

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Combined ultrasound imaging and hydrolocalization technique for accurate placement of perineural catheters

Editor—Although continuous peripheral nerve blocks have become increasingly popular, a major concern is the accurate placement of perineural catheters in proximity to the nerves.[1–4]

Therefore, we developed a simple method for the accurate perineural catheter placement based on combined ultrasound guidance and hydrolocalization technique.

After the institutional Ethics Committee (Attikon University Hospital, Athens, Greece) approval, written consent was obtained from 18 patients, undergoing orthopaedic surgery of the foot, ankle, or both. The primary objective was to place the perineural catheter exactly underneath the targeted nerve. Patients were placed in the prone position and the popliteal-sciatic nerve was seen in the short-axis ultrasound view (Vivid I; GE Healthcare, WI, USA) with a 4–12 MHz linear transducer. An insulated needle was advanced under ultrasound guidance (in-plane technique) until the needle tip was seen precisely under the targeted nerve. The distance from the skin surface to the needle tip was measured and registered as distance '*D*' (Fig. 1A). The needle was then advanced for 2–3 cm beyond the targeted nerve (Fig. 1B)

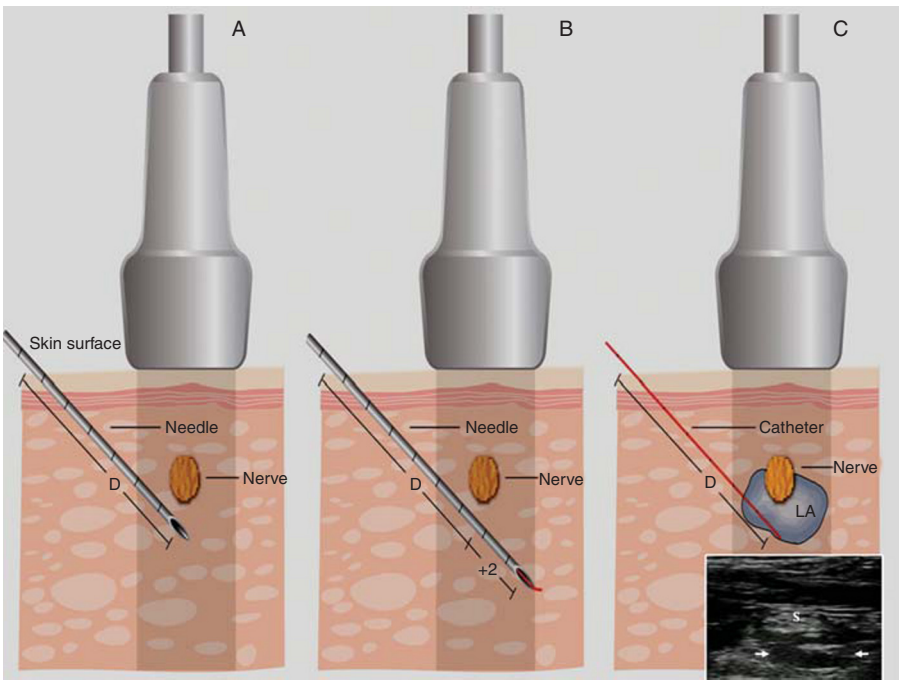

Fig 1 Schematic presentation of the combined ultrasound imaging and hydrolocalization technique used for the placement of perineural catheters. (A) Needle is positioned under the targeted nerve and the distance of needle tip to skin surface '*D*' is measured. (B) Further advance of the needle tip beyond the targeted nerve ensures that in the subsequent catheter insertion, there would be enough space for catheter retraction without the need to reposition the needle, the catheter, or both. (C) The catheter is gradually retracted in position '*D*' and hydrolocalization technique with local anaesthetic (LA) injected exactly underneath the targeted nerve, confirms the precise placement of catheter tip under the nerve structure. Inset: Two-dimensional ultrasound image of circumferential spread of the LA (arrows) around the sciatic nerve. S, sciatic nerve.