Convulsions associated with a low plasma level of local anaesthetics

Editor—We read with interest the case report by Satsumae and colleagues, addressing the question of sensitivity to local anaesthetics (LAs) with toxicity occurring at a lower than expected dose.

We encountered a similar case in a 51-yr-old woman who presented with generalized myoclonic movements after a popliteal-sciatic blockade with a non-stimulating catheter, inserted with a peripheral nerve stimulator. Ropivacaine 24 mg had been given 60 min after injection of lidocaine 300 mg. The dosages and time intervals between injections complied with guidelines of the French Society of Anesthesiology. A venous blood sample drawn during the myoclonic movements showed non-toxic levels of LAs (0.12 and 0.1 mg litre$^{-1}$ for ropivacaine and lidocaine, respectively). The blood glucose level was normal, and she had no significant medical history, such as neurological disease or high alcohol intake, and took no medication. The postoperative course was uneventful and an electroencephalogram performed 30 days later showed no abnormality. This case suggests that toxicity complications may occur after administration of low dosages of LA in the absence of intravascular injection. In healthy volunteers, a mean plasma level of ropivacaine 2.2 (0.8) mg ml$^{-1}$ was found for the first signs of neurological toxicity, but myoclonic movements were considered as signs of systemic toxicity, as in our patient, and the lowest plasma level associated with this kind of symptoms was 0.5 mg ml$^{-1}$. Two case reports have previously reported symptoms of toxicity of LA associated with the administration of a small dose. In one case, symptoms occurred with low plasma levels of ropivacaine suggesting that some patients may have a low tolerance to LA or that the threshold for toxicity varies with factors such as medication, hypercarbia, electrolytic abnormalities, and carnitine deficiency. In addition, general anaesthesia may influence the toxicity of ropivacaine by central nervous system effects and altered pharmacokinetics.

This case suggests that these complications may occur with low dosages, despite careful attention to the needle and catheter placement, fractionated dosing, and frequent aspirations, in the absence of intravascular injection. It must also be pointed out that a 1 mg litre$^{-1}$ plasma level of lidocaine and 0.12 mg litre$^{-1}$ of ropivacaine seem to be very low, especially when it was measured during the myoclonia suggesting that patients with a low tolerance to LAs may exist. Therefore, safety in regional anaesthesia cannot rely only on the use of ‘safe’ dose limits. Careful monitoring and preparation for managing complications throughout the course of regional anaesthesia is of paramount importance.

Kinking of a transluminal pacing probe

Editor—An 83-yr-old male was resuscitated after a non-witnessed cardiac arrest due to asystole. After return of spontaneous circulation, a Swan-Ganz Thermfieldilution Paceport Catheter (Edwards Lifesciences®) was introduced via the right internal jugular vein without complications. Because of recurrent bradyarrhythmias, a Transluminal V-Pacing Probe (Edwards Lifesciences®) was successfully introduced via the catheter, according to the prescribed instructions. An X-ray of the thorax demonstrated proper placement of the tip of the probe in the right ventricle. In the presence of normal sinus rhythm after 2 days, external pacing was no longer indicated. During removal of the pacing probe, there was an abrupt resistance. The probe was re-advanced without any difficulty. A new attempt to withdraw the pacing probe was again unsuccessful. Multiple cautious attempts led to the same abrupt resistance consistently occurring at the same place. Ultimately, the entire pulmonary artery catheter was cautiously removed, without occurrence of further complications. After removal, it was apparent that there was kinking of the distal end of the pacing probe. It was this abnormal bend, most likely due to entrapment at the right ventricular catheter exit, which caused the abrupt resistance during removal. After careful examination, it became clear that there were no missing fragments, although it was substantially damaged (Fig. 1). This rare complication might
ultimately lead to a broken wire resulting in a loss of a pacing probe fragment into the circulation.

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Successful use of the laryngeal mask airway supreme™ in a patient with cranio-cervical dystonia during magnetic resonance imaging

Editor—The classic laryngeal mask (LMA-C™) airway is a helpful device in maintaining an adequate airway during magnetic resonance imaging (MRI). 1 2 With the exception of the MRI-safe-LMA, all LMAs have a variable quantity of ferromagnetic material that could reduce image quality, or potentially affect the patient security with respect to movement or dislodgement. 3 4 The Laryngeal Mask Airway Supreme™ (LMA-S™) is a new disposable LMA with gastric access, and at this time, there are no data available on the use of the LMA-S™ during MRI. We report a case of a man who underwent brain MRI, which was managed successfully using an LMA-S™.

A 69-yr-old man with a history of cranio-cervical dystonia presented for brain MRI. He suffered from involuntary contractions affecting the oribcular muscle of the eye, oromandibular and neck muscles, and in the proximal muscles of his left arm, with important visual disability and dysphagia. On examination, he suffered involuntary spasms, a marked torticollis with restricted neck movements and a Mallampati grade 1. General anaesthesia was induced with fentanyl and propofol without a neuromuscular blocking agent. After induction, the movements of the head and neck disappeared, and a size-4 LMA-S™ was easily introduced and successful at the first attempt and a suction catheter was passed into the drainage tube. Anaesthesia was maintained with sevoflurane in spontaneous ventilation. The procedure was completed uneventfully with a good image quality without artifacts and the LMA-S™ was removed without incidence.

This is the first reported case of the use of the LMA-S™ to secure the airway during MRI. Tracheal tubes or LMAs have been the standard of care for cases that need general anaesthesia. The radiologists usually are familiar with the effect on imaging interpretations produced by the metallic spring in the pilot balloon or anatomic distortions induced by the LMAs, although there are some reports of misdiagnosis as a result of the LMAs. 5 6

Any magnetic material can reduce the image quality depending on the quantity of magnetic material within the field, the pulse sequence that is used, and if the area of interest is in the region to the LMA. When the MRI is done in close proximity to the LMA-Flexible™, LMA-ProSeal™, or LMA-Fastrach™ tracheal tube, there will be distortion of the image due to the wire component of the airway tube and heating. 7 With the LMA-S™, we optimized the airway, without the risk of produce artifacts or compromising the patient’s airway. Although the LMA-S™ has not been previously tested for MRI compatibility, we used it because its characteristics (medical grade PVC) and the small amount of metal within the valve in the pilot balloon similar to the LMA-Classic. The patient had a history of dysphagia, and an LMA with gastric access could offer more security. 10

We conclude that the LMA-S™ is potentially useful during MRI.

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