Caesarean section in a patient with torsion dystonia

Editor—Olufolabi and Wee’s excellent case report emphasizes the need for good communication and early referral from our obstetric colleagues. Their patient obviously presented a difficult anaesthetic dilemma. The ability to have all appropriate preoperative investigations and a balanced discussion with a challenging patient in an outpatient setting makes planning their anaesthetic considerably easier. One could imagine the difficulties had this lady presented de novo in labour requiring an emergency Caesarean section. There are, however, two points that arise from their management that perhaps could be challenged. First, the use of mivacurium for a rapid sequence induction (RSI). The authors quote Naguib and colleagues for suggesting that mivacurium is a suitable alternative to succinylcholine for RSI. However, in that paper, it was the combination of rocuronium 0.45 mg kg$^{-1}$ and mivacurium 0.15 mg kg$^{-1}$ that could be considered as an alternative, not mivacurium on its own (which had slower onset than succinylcholine, high dose rocuronium or mivacurium and rocuronium together). While Pino and colleagues suggest that mivacurium in divided doses provides good or excellent intubation conditions, this is at 90 s. In their paper, rocuronium at higher doses (0.9 and 1.2 mg kg$^{-1}$) provided faster onset. Ali and colleagues specifically state that although mivacurium in divided doses does provide good to excellent intubation conditions after 90 s, their conclusion does not apply to RSI. While the patient wished to avoid succinylcholine given her poor respiratory function and reduced functional residual capacity, from pregnancy and pre-existing disease, it would seem appropriate to minimize the apnoea time as much as possible. A Cochrane review suggested that there was no statistical difference between rocuronium and succinylcholine in providing clinically acceptable conditions for RSI intubation.

Second, the use of neostigmine for antagonization of a mivacurium-induced neuromuscular block. The data for the use of neostigmine in antagonization of mivacurium-induced neuromuscular block are conflicting with some studies showing an increase in block duration and some a reduction. Given that the usual duration of an uncomplicated caesarean section is ~30 min and the duration of a mivacurium block is between 10 and 20 min it would seem reasonable to have used edrophonium or avoided antagonization entirely.

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2 Thomas C, Buder CS. Delayed pneumothorax and hydrothorax with central venous catheter migration. Anaesthesia 1999; 54: 987–90
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Haemodynamic status of the patient improved immediately: central venous pressure decreased to acceptable levels, mean arterial pressure could be maintained with less vasoactive support and lung compliance was enhanced. A repeat chest X-ray showed resolution of the tension hydrothorax. The operation was completed eventuallly.

Catheter tip migration is a documented event after central venous cannulation, occurring in up to 17% of percutaneously introduced catheters. The chest X-ray showed resolution of the tension hydrothorax. Mean arterial pressure could be maintained with less vasoactive support and lung compliance was enhanced. A repeat chest X-ray showed resolution of the tension hydrothorax. The operation was completed eventuallly.

The usual cause for hypotension and tachycardia in burn patients is hypovolemia as a result of increased permeability and wound exudate. The clinical signs of escalating central venous pressure and falling lung compliance should alert the clinician to the possibility of catheter tip misplacement. The continuous monitoring of the central venous pressure through the proximal lumen may reveal the tip misplacement at early stage. It should be kept in mind that complications as a result of central venous catheterization can occur also at a later stage.

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Editor—Thank you for allowing us to respond to Dr Geoghegan’s comments. We acknowledge his reservations concerning our use of mivacurium instead of rocuronium and there is good evidence of rocuronium adequately substituting succinylcholine as a drug for RSI. Our primary aim was to choose a neuromuscular blocking agent of relatively short duration of action with potentially less incidence of residual motor blockade because of the possibility of a difficult intubation and the patient’s clinical condition. Mivacurium despite its slightly less suitability for RSI fulfilled this criterion better than rocuronium. It has been shown that intubating conditions are good or excellent with the method of administration used.

Neostigmine is still the most common drug utilized for reversal of neuromuscular function block and the patient may have been adequately reversed without any
anticholinesterase agent. However, because of the condition of the patient and the need to optimize her respiratory effort after operation, we decided to give half the usual dose recommended.

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The preconditioning effects of levosimendan

Editor—We read with interest the article by Tritapepe and colleagues1 on the preconditioning effects of levosimendan and agree with the therapeutic implications of myocardial ischaemic preconditioning. But the question remains: does it actually work? The concept originated from an observation that mortality in ischaemic heart disease was noted to be less in patients who had suffered from anginal episodes in the past, rather than the other subgroup of patients who suffered MI as the first presentation to the hospital. As such, the authors have rightly pointed out the need for a larger number of patients to be recruited for the study. The pilot study demonstrates that pharmacological preconditioning with a short duration infusion of levosimendan in cardiac surgical patients before commencing CPB appears to confer additional myocardial protection beyond that provided by cardioplegia alone, as manifested by a better haemodynamic recovery and lower postoperative TnI concentrations. The authors have also pointed out that, in this setting, the use of cardiac specific markers for diagnosis and quantitation of myocardial damage is still debated. As such, we believe that there are a lot of ethical issues involved in new drug trials in a high-surgical risk patient population. We congratulate the authors in conducting the first study, albeit preliminary, that has investigated levosimendan-induced myocardial protection in humans with ischaemic heart disease undergoing a major cardiac and circulatory insult.

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Editor—We thank Drs Kumar and Kumar for their interest in our paper. Over the past 30 years, hundreds of experimental interventions (pharmacological and non-pharmacological) have been reported to protect the ischaemic myocardium in experimental animals. However, with the exception of early reperfusion, none has been translated into clinical practice. The National Heart, Lung, and Blood Institute convened a working group to discuss the reasons for the failure to translate potential therapies for protecting the heart from ischaemia and reperfusion and to recommend new approaches to accomplish this goal. The Working Group concluded that cardioprotection in the setting of acute myocardial infarction, cardiac surgery and cardiac arrest is at a crossroad. The Working Group urged a new focus on translational research that emphasizes efficacy and clinically relevant outcomes, and recommended the establishment of a system for rigorous preclinical testing of promising cardioprotective agents with clinical trial-like approaches (i.e. blinded, randomized, multicentre and adequately powered studies using standardized methods).

Our pilot study was designed to provide preliminary data to test the hypothesis that levosimendan has a preconditioning effect in patients. A power analysis performed on the basis of the study suggests that a sample size requirement of 96 patients (48 in each group) would be needed to detect a reduction in median ICU length of stay from 35 h in the control group to 24 h in the protocol group (a=0.05, power 0.9). This further trial is currently underway in our hospital.

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