Should regional anaesthesia be used for day case surgery?

Day case surgery is becoming more popular with health-care providers throughout the world. It saves money, improves throughput thus releasing valuable inpatient beds for more complex procedures, and importantly allows the patient to recover in familiar surroundings. In the era of the 18-week delivery target and payment by results, the increased use of day case surgery has become a priority for the NHS.

The success of day case surgery depends on the correct choice of patient, surgical procedure and the anaesthetic technique, which should provide a rapid and complete recovery with minimal postoperative complications such as pain and nausea and vomiting.

The case for regional anaesthesia

A number of regional anaesthetic techniques can be used for day case surgery including peripheral nerve blocks, major plexus blocks and central neuroxial blockade. These techniques offer excellent analgesia without causing sedation, and so reduce the time in the recovery suite and enable an early discharge. They confer the benefits of prolonged postoperative analgesia minimizing the use of opioids and thereby reducing the risk of post-operative nausea and vomiting. Inadequate pain control and postoperative nausea and vomiting remain the major reasons for unexpected readmission after day case surgery.

Furthermore, the use of regional anaesthesia avoids general anaesthesia-related complications such as sore throat, dental damage, aspiration, laryngospasm and respiratory depression. The use of regional techniques may facilitate the inclusion of patients who would otherwise be considered unsuitable or high risk for day case surgery.

The use of ultrasound to aid the performance of peripheral nerve blocks was first introduced in 1994 with the advent of sophisticated ultrasound technology. This relatively new technique has had a positive impact on the suitability of regional anaesthesia for day case surgery with the potential advantages of: less local anaesthetic being required to perform the block reducing the risk of toxicity, improved quality of the block and improved patient discomfort (Marhofer and Chan, 2007; Marhofer et al, 2010).

> 'The success of day case surgery depends on the correct choice of patient, surgical procedure and the anaesthetic technique'

The case against regional anaesthesia

One of the criticisms of regional anaesthesia with peripheral nerve blocks in the day case setting is the perception that they cause theatre delays, as they can take longer to perform with the possibility of a long time for the onset of the block. This increase in anaesthesia induction time was found to be 8–9 minutes by Liu et al (2005) in their meta-analysis of randomized control trials comparing general anaesthesia with central neural blockade or with peripheral nerve blocks in ambulatory surgery.

However, the availability of anaesthetic rooms as a safe environment to perform blocks while the preceding patient is undergoing surgery and the use of fast-acting local anaesthetic agents may help alleviate this problem. Additionally, the introduction of ultrasound has helped to reduce the procedure time as well as the block onset time according to Marhofer and Chan (2007) and Marhofer et al (2010).

The disadvantages of the use of peripheral nerve blocks include specific complications relating to each block, side effects of local anaesthetic drugs, and when a difficult or failed procedure requires conversion to general anaesthesia. Peripheral nerve block may not be suitable for the anxious patient who may require additional sedation. Discharging a patient home who has a numb limb is also a point of contention, as anaesthetized limbs are at risk of injury and special care is required until the block starts to wear off.

There are also concerns about the return of severe pain after the block has worn off, while the patient is at home and the lack of medical support in this scenario. Some centres use catheters to top up the block with long-acting local anaesthetics before discharge, and some even discharge patients with pumps that continuously infuse local anaesthetic. The use of spinal anaesthesia in day case surgery is often disadvantaged by delayed ambulation, postural hypotension, urinary retention and concerns about postdural puncture headache.

Conclusions

General anaesthesia is likely to remain the predominant technique for most cases, but there is certainly a strong case for increasing the use of regional anaesthesia in the setting of day case surgery. BJHM

Dr Hany Shawkat *is Locum Consultant Anaesthetist in the Anaesthetic Department, University Hospital of South Manchester, Manchester M23 9LT and* **Dr Joe Sebastian** *is Consultant Anaesthetist in the Anaesthetic Department, Salford Royal Hospital, Salford*

Correspondence to: Dr H Shawkat

Liu SS, Strodtbeck WN, Richman JM (2005) A comparison of a meta-analysis of randomized controlled trial. *Anaesth Analg* **101**: 1634–42

Marhofer P, Chan V (2007) Ultrasound guided regional anaesthesia: current concepts and further trends. *Anaesth Analg* **104**: 1265–9

Marhofer P, Harrop-Griffiths W, Kettner SC, Kirchmair L (2010) Fifteen years of ultrasound-guidance in regional anaesthesia: Part 1. *Br J Anaesth* **104**: 538–46

Anaesthetic and critical care dilemmas are coordinated by Dr Pervez Sultan and Dr Kate Adams, Specialist Registrars in Anaesthetics, University College Hospital London

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