

Regional anaesthesia and perioperative medicine

The practice of regional anaesthesia has advanced rapidly, with well-defined benefits such as reducing pain, reduced opioid consumption, and improved quality of early recovery. Challenges include extending the benefit beyond the immediate postoperative period, improving access for patients and defining the long-term effects.

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Acute pain

Regional anaesthesia is effective at reducing pain and opioid consumption during the early postoperative period. This increases patient satisfaction and reduces many of the negative psychological and physiological sequelae associated with surgical stress.

However, national data show that this analgesic benefit diminishes within 24 hours postoperatively (Perioperative Quality Improvement Programme, 2019). Advances in extended-release local anaesthetic compounds or using catheters with infusion and intermittent bolus technology may overcome this limitation. Changes to training and service provision may also be needed to ensure that all patients have access to regional anaesthesia and appropriate follow-up care.

Chronic pain

The incidence of chronic postsurgical pain varies with the surgical procedure, but increased severity of acute postoperative pain is a recognised risk factor (Hutton et al, 2018). Regional anaesthesia appears to reduce chronic postsurgical pain but further research is required to define its role.

Limiting opioid use

There is increasing awareness of the opioid epidemic, where the perioperative period is often the source of initial exposure. As regional anaesthesia is opioid sparing, this not only limits opioid-related side effects but also forms part of the overall strategy to provide balanced perioperative analgesia and reduce opioid consumption.

Other physiological advantages

Regional anaesthesia can potentially improve postoperative pulmonary function by preventing the need for a general anaesthetic, reducing opioid consumption and allowing patients to take deep breaths and cough as a result of the improved pain control.

There is also improved recovery of gastrointestinal function and reduction in ileus postoperatively, partially because of the decrease in opioid consumption.

Cancer recurrence

Cancer recurrence and survival after primary surgery may be impacted by factors such as volatile anaesthesia, opioids and physiological stress (Shakhar and Ben-Eliyahu, 2003). It has been suggested that regional anaesthesia can reduce recurrence by reducing the exposure to these factors or by direct absorption of local anaesthetic, although there is no high-quality evidence to support this.

High-risk patients

In high-risk patients, regional anaesthesia can help decrease the risk of perioperative morbidity and improve short- and long-term outcomes, particularly in the orthopaedic,

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vascular, cancer and chronic pain patient populations (Bendtsen et al, 2016). Peripheral nerve blocks avoid the haemodynamic compromise of both general anaesthesia and central neuraxial block and so theoretically may be safest in high-risk patients, although there is only anecdotal evidence to support this (Hutton et al, 2018).

Postoperative mobility

In the immediate postoperative period, a reduction in pain scores, drowsiness and nausea can improve postoperative mobility and facilitate earlier hospital discharge. However, this effect is ongoing and studies have shown improved knee flexion both immediately postoperatively and 1 month after regional anaesthesia was used for major knee surgery (Martin et al, 2008).

Decrease hospital costs

Peripheral nerve blocks decrease the rate of adverse events experienced by patients, decrease their length of stay, improve functional health outcomes and decrease overall hospital costs (McIsaac et al, 2015).

Regional anaesthesia can also be used in the preoperative period and is being used in both emergency departments and prehospital care. This can improve clinical flow and decrease the length of stay in the emergency department compared to procedural sedation for selected patients (Gadsden et al, 2020).

Conclusions

The practice of regional anaesthesia has advanced rapidly. There are well-defined benefits such as reducing pain, reduced opioid consumption and improved quality of early recovery. The current challenges include extending the impact beyond the immediate postoperative period, improving access for patients and defining the long-term effects.

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