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## The importance of pain management in perioperative outcomes

Recent focus by leading experts on enhanced recovery after surgery has been on not only a patient-specific but also a procedure-specific approach to analgesia in the perioperative period. Analgesic planning should begin at the earliest possible opportunity, not least to adequately counsel patients about what their anaesthetic will likely entail.

### **Opioids**

Opioids are a vital analgesic and can be delivered via several means. Their side-effect profile is one of a number of reasons why opioids are undesirable, along with evidence that they obtund cell-mediated immunity thus increasing the risk of cancer recurrence. There is no doubt that opioids are very effective analgesics and should not be withheld from patients if other methods provide inadequate analgesia. The aim should not be total avoidance but conscientious use as part of a multi-modal approach.

Dependence is becoming a growing issue globally and avoiding unnecessary opioid prescription is hugely important. Opioid-induced hyperalgesia is a topic currently under debate. The clinical significance of this effect remains unclear. Used in combination with other drugs, such as ketamine, this effect may be reduced alongside an improved overall analgesic effect.

### **Regional analgesia**

Where possible regional analgesia should be considered as this is a highly effective way of delivering analgesia with considerable opioid-sparing effect. In major open abdominal and thoracic surgery, an epidural allows coverage of sufficient dermatomes to potentially alleviate the need for further analgesia immediately postoperatively. In turn



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patients are less likely to develop postoperative pulmonary complications while having a reduced stress response, incidence of ileus and postoperative nausea and vomiting, thromboembolic events and blood loss with an earlier return to diet and some evidence to suggest a reduction in the rates of myocardial infarction, renal failure and mortality (Scott et al, 2015). The level of insertion must be appropriate for the procedure and a postoperative environment suitable for looking after patients with epidurals is essential.

Intrathecal block is considered suitable for many procedures. Neuraxial anaesthesia has an inherent risk profile, albeit with a low risk of more serious complications such as nerve damage or spinal cord compression. Contraindications also limit the extent to which neuraxial blocks can be offered, with septic patients and those with a coagulopathy being unsuitable.

The vast array of regional blocks warrants an article to itself and some excellent resources can be found online.

#### **Other options**

Paracetamol remains a vital component of systemic analgesia. It can be used intravenously in patients who are nil by mouth and the safety profile is excellent when used and dosed appropriately. Non-steroidal anti-inflammatory drugs can also be effective but with a greater risk profile including anastomotic breakdown in colonic surgery (Gorissen et al, 2012).

Gabapentinoids reduce postoperative pain, opioid consumption and postoperative nausea and vomiting, although they can cause sedation, visual disturbances and dizziness with the more recently developed pregabalin having a better adverse effect profile than gabapentin (Eipe et al, 2015).

NMDA antagonists (ketamine and magnesium) are useful adjuncts in acute pain with effects on acute tolerance and hyperalgesia with central desensitization.



Alpha-2-agonists (clonidine and dexmedetomidine) have an analgesic effect through reduction of sympathetic outflow and noradrenaline release within the central and peripheral nervous systems interrupting pain pathways.

Lidocaine infusions offer analgesia equivalent to an epidural while being safer, anti-inflammatory and anti-bacterial with possible inherent immunomodulatory effects improving cancer outcomes. They can promote cell-mediated immunity and reduce cancer spread and metastatic mechanisms (Eipe et al, 2016).

Others such as cannabinoids, transcutaneous electrical nerve stimulation, hypnosis and acupuncture do not currently feature strongly in any enhanced recovery protocols.

### **Conclusions**

Analgesic options are wide-ranging making it easier to tailor your anaesthetic appropriately with a patient- and procedure-specific approach.

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