Should anaesthetists routinely use a gabapentinoid perioperatively?

Gabapentin and pregabalin have antiallodynic and antihyperalgesic properties, making them cornerstones in the treatment of neuropathic pain. There is now evidence that they also have an adjunctive role in the management of acute postoperative pain when administered perioperatively.

The case for perioperative gabapentinoids

A systematic review by Tiipana et al (2007) evaluated randomized controlled trials examining the efficacy and safety of perioperative gabapentinoids. It found that a single preoperative dose of gabapentin (300–1200 mg) had an opioid-sparing effect ranging from 20–60% in the first 24 hours with a mean reduction in opioid consumption equivalent to 30 +/- 4 mg morphine (mean +/- 95% confidence interval; CI). Gabapentin also reduced opioid-related adverse effects such as nausea, vomiting and urinary retention (numbers needed to treat 25, 6 and 7 respectively).

A meta-analysis of 11 randomized controlled trials found that perioperative pregabalin was also efficacious in the management of postoperative pain (Zhang et al, 2011). When pregabalin doses of 300 mg or more were used, there was a reduction in cumulative opioid consumption at 24 hours of 13.4 mg morphine (weighted mean difference), and also reduced opioid-related adverse effects, such as vomiting (risk ratio=0.73, 95% CI=0.56–0.95).

Additional benefits beyond postoperative analgesia have also been found. Ozgencil et al (2012) compared gabapentin (1200 mg/day) and pregabalin (300 mg/day) to placebo in patients undergoing lumbar laminectomy and discectomy. This randomized controlled trial found significantly lower morphine consumption in the gabapentinoid groups but, interestingly, also significantly lower levels of preoperative anxiety, pruritus and postoperative shivering as well as higher patient satisfaction.

The beneficial effects of perioperative gabapentinoids may extend outside of the acute postoperative window; a combined systematic review and meta-analysis by Clarke et al (2012) identified 11 trials assessing the impact on chronic postsurgical pain. Of eight trials which studied gabapentin, four found that perioperative administration of gabapentin decreased the incidence of chronic pain more than 2 months after surgery. The three trials looking at pregabalin found a significant reduction in the incidence of chronic postsurgical pain, and two of these also showed an improvement in postsurgical patient function.

The case against perioperative gabapentinoids

It is worth noting that the efficacy of perioperative gabapentinoids centres around reduced opioid consumption postoperatively, but evidence suggests no impact on postoperative pain intensity (Zhang et al, 2011), pain scores at rest, and pain scores on coughing (Fassoulaki et al, 2012).

When considering adverse effects, Fassoulaki et al (2012) examined the use of perioperative pregabalin in patients undergoing hysterectomy and myomectomy and found significantly higher incidences of dizziness, ataxia, blurred vision and diplopia. In this randomized controlled trial, pregabalin bestowed no analgesic benefits beyond 48 hours and did not impact the presence of wound pain or altered sensation at 1 and 3 months postoperatively. Meta-analysis data also support the view that the risk of visual disturbance is increased with pregabalin (risk ratio=3.29, 95% CI=1.95–5.57) (Zhang et al, 2011). Tiippana et al (2007) suggest that the most common adverse effects of gabapentinoids are sedation and dizziness (numbers needed to harm 35 and 12 respectively).

Another consideration is cost; for gabapentin, this is arguably negligible – a dose of 1200 mg costs 50 p. However, pregabalin is more expensive: 300 mg in a split dose costs £2.30. Even if pregabalin is only used for 1 day perioperatively, costs would rapidly escalate if prescribed to all patients undergoing surgery under general anaesthesia. A proviso is that cost would be offset to a degree by reductions in opioid consumption and opioid-related adverse effects.

A final thought relates to practical implementation of what essentially is a premedication; many studies advocate the first dose of a gabapentinoid to be taken 1–2 hours before the operation. Outside of cardiac anaesthesia, routine use of premedication is increasingly rare, so inertia would likely be encountered in reinstituting this, especially in trusts using day of surgery admissions.

Conclusions

There is good evidence to support the use of perioperative gabapentinoids to reduce postoperative opioid consumption and opioid-related adverse effects. Pragmatic patient selection may be the best approach to ensure that benefits outweigh any potential adverse effects, focusing on patients likely to have significant opioid requirements in the first 24 hours postoperatively or have procedures carrying a higher chronic postsurgical pain risk. **BJHM**

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