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What is the best choice for postoperative analgesia after major gynaecological oncology surgery?

Major gynaecological oncology surgery can be complex and extensive, with correspondingly high requirements for postoperative analgesia. Multiple options are available including intravenous, neuraxial and regional techniques. This article discusses the pros and cons of different anaesthetic modalities for postoperative analgesia.

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Introduction

Major gynaecological oncology surgery can be complex and extensive, with correspondingly high requirements for postoperative analgesia. Different surgical approaches include laparotomy and minimally invasive surgery (laparoscopic, robotic). Multiple analgesic options are available to the anaesthetist: neuraxial analgesia (single-shot spinal or epidural catheter insertion), truncal blockade and intravenous patient-controlled analgesia. Multimodal analgesia is recommended by the guidelines on gynaecological oncology enhanced recovery after surgery, for its opioid-sparing effects (Nelson et al, 2019). Systemic analgesics should be considered on a case-by-case basis, as should neuraxial and regional or local techniques. This is an area of clinical equipoise, evidenced by differing practice among departments and anaesthetists. This article discusses the possible options for optimal postoperative analgesia for these patients.

Insertion of an epidural catheter

Pros

Epidural analgesia via catheter and continuous infusion, or patient-controlled bolus dosing, has been described as a 'gold standard' for major abdominal surgery (Nelson et al, 2019). It provides effective analgesia, allows avoidance of high-dose systemic opioids, attenuates the surgical stress response and has beneficial effects on postoperative respiratory function. In patients at high risk of developing significant postoperative pain, epidural analgesia should be considered (Morosan and Popham, 2014). Epidurals can provide effective pain relief for up to 5 days postoperatively.

Cons

NAP3 showed that the highest incidence of epidural abscess was in patients who had undergone major surgery, with increased duration of epidural catheter placement found to be a risk factor (The 3rd National Audit Project of The Royal College of Anaesthetists, 2009). Additionally, with emphasis on enhanced recovery, the association of epidurals with complications such as hypotension requiring vasopressor therapy, ineffective analgesia (up to 30%), longer time to ambulation (Nelson et al, 2019), and requirement for more frequent nursing interventions, means that some clinicians now offer spinal analgesia instead.

Single shot spinal analgesia

Pros

Single shot spinal analgesia with low dose preservative-free intrathecal morphine is an alternative to epidurals for postoperative analgesia. Single shot spinal analgesia is a simpler technique than epidural analgesia, requiring shorter anaesthetic time, and with no need for continuous attachment to infusion pumps or specialised epidural management postoperatively. Intrathecal morphine is effective for postoperative analgesia and may last up to 48 hours postoperatively (Kjølhede et al, 2019). This covers much of the period of maximal pain, following which the patient can be converted to systemic analgesia.

Compared to epidural analgesia, single shot spinal analgesia has been linked to a shorter hospital stay, reduced opioid consumption, earlier removal of the urinary catheter and earlier mobilisation (Kjølhede et al, 2019). Single shot spinal analgesia can therefore facilitate enhanced recovery pathways and improve patient outcomes.

Cons

The low lipid solubility of morphine has been related to late onset respiratory depression, requiring careful postoperative monitoring for the first 24 hours, especially for elderly patients. Diamorphine has a higher lipid solubility, and therefore carries a lower risk of late onset respiratory depression, but provides a shorter duration of analgesia. The limited availability of diamorphine also restricts its use. A recent meta-analysis found that intrathecal morphine is not associated with an increase in nausea or early respiratory depression when used in routine doses (≤500 mcg), but is associated with pruritus (Koning et al, 2020). The authors felt unable to comment on late respiratory depression because there are limited specific studies on this outcome. In practice, patients may have a varied response to intrathecal morphine, necessitating the use of patient-controlled analgesia in certain cases.

Intravenous patient-controlled analgesia

Pros

The benefits of opioid intravenous patient-controlled analgesia include ease of setup, avoidance of an invasive neuraxial procedure and its potential complications, and immediate patient-controlled access to dosing. Intravenous patient-controlled analgesia plays a vital role in treating breakthrough pain, and in patients for whom neuraxial analgesia is contraindicated (including the patient choosing not to have neuraxial analgesia) or is providing inadequate analgesia.

Cons

Opioid intravenous patient-controlled analgesia brings with it significant side effects relating to the use of systemic opioids, including nausea, sedation, hallucinations, dizziness and pruritus. Opioid use is associated with postoperative ileus and constipation.

Truncal blocks

Pros

Truncal blocks relevant to gynaecological oncology surgery include the transverse abdominis plane, rectus sheath and quadratus lumborum blocks. They can be performed with the patient anaesthetised under ultrasound guidance for enhanced patient tolerability and can be used if there are contraindications to neuraxial techniques, or if neuraxial block is unsuccessful. Transverse abdominis plane blocks reduce opioid requirement for 24 hours postoperatively (Champaneria et al, 2013). If blocks are not performed, local infiltration of the wound by the surgeon should be considered as a minimum.

Cons

Truncal blocks do not provide the same consistent degree of analgesia as neuraxial techniques and only have short-term efficacy, within 24 hours (Champaneria et al, 2013). Blocks are not routinely performed on awake patients because of the pain on injection, which limits their role as rescue analgesia.

Conclusions

An informed and balanced discussion with the patient about their analgesic options should take place preoperatively, empowering them to share in the decision making. Patient preferences should be addressed and respected. Surgical, anaesthetic and patient factors should be considered as part of the dilemma; the discussion can be framed around the pros and cons of each anaesthetic modality. Future modalities may include using long-acting liposomal bupivacaine and pharmacogenomics to provide an individualised approach.

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