Multimodal analgesia for postoperative pain: pursuing liberation from pain, not redemption

Soo Yeun Park

Colorectal Cancer Center, Kyungpook National University Chilgok Hospital, Kyungpook National University School of Medicine, Daegu, Korea

Perioperative management has been systematically developed since Henrik Kehlet introduced the concept of Enhanced Recovery After Surgery (ERAS) in 1995 [1]. This includes preoperative preparation, intraoperative management, and postoperative care. The main purpose of ERAS is to minimize disturbance to the patient's physiologic balance and promote early recovery after surgery. Surgical treatments always involve injuring the body to address the disease completely, and pain invariably follows as a result. Pain management is one of the key components of ERAS. Effective pain management includes minimizing the injury and increasing the effectiveness of pain control. Previously, patient-controlled analgesia (PCA) using opioids was widely implemented to alleviate acute postoperative pain. However, the postoperative use of opioids is associated with rise in adverse events such as increased postoperative nausea and vomiting, dizziness, and urinary retention [2]. Therefore, various strategies for reducing postoperative opioid usage have been developed, such as use of the regional nerve blocks, local analgesics, oral acetaminophen, selective and nonselective nonsteroidal anti-inflammatory drugs (NSAIDs) and preemptive analgesia. Although not all of them has been fully evaluated in the terms of efficacy and safety, most of them showed effect on improvement of postoperative pain management and reduced usage of opioids. For example, adjacent prophylactic intravenous acetaminophen, which has been representatively introduced in pain management protocols, showed reduced (odds ratio, 0.66; 95% confidence interval, 0.47–0.93) postoperative nausea and vomiting through an opioid-sparing effect in a previous study [3].

Similar to surgical site infection prevention bundle, which addresses every potential source of infection, multimodal analgesia (MMA) targets two or more different analgesic receptors in the pain pathway to reduce side effects as well as to improve analgesic efficacy [4]. MMA includes preoperative (e.g., counseling, preoperative drugs, such as acetaminophen and antianxiety agents), intraoperative (e.g., regional block, local wound infiltration, and intravenous opioid and nonopioid analgesia), and postoperative (e.g., NSAIDS, acetaminophen) elements. MMA has been advocated for effective control of postoperative pain [5]. The use of these diverse methods of analgesia has been shown to reduce postoperative opioid consumption and provide pain relief [6].

Patients with locally advanced rectal cancer frequently face additional difficulties to fully recover from surgical treatment, including care of ileostomy and ileostomy reversal. Patients who undergo the primary resection for rectal cancer, often carry the emotional burden associated with the additional operation required for ileostomy reversal. Therefore, optimal management of the patients’ fear of surgery and surgery-related pain is important. To this end, Kim et al. [7] developed MMA for ileostomy reversal and demonstrated its effectiveness in comparison with conventional pain management. The key components of this MMA were perioperative oral analgesia and ropivacaine transverse abdominis plane (TAP) block. Preoperative protocol comprised counseling...
and administration of oral analgesics, including gabapentin, acetaminophen, and celecoxib. Intraoperatively, a surgical and ultrasound-guided TAP block was performed. Postoperatively, regular oral cyclooxygenase-2 inhibitor and acetaminophen were administered, and PCA, NSAIDs, and tramadol were provided on demand. Postoperative opioid consumption and pain until postoperative day 2 in the MMA group than those associated with conventional pain management. The median daily pain scores were as low as 2.6 ± 1.3 on postoperative day 1 and 2.9 ± 0.7 on postoperative day 2 in the MMA group. These patient-reported scores highlight the efficacy of this optimized pain management strategy.

Although Kim et al. [7] showed that MMA was effective for management of pain associated with ileostomy reversal, safety and effectiveness of many of its elements according to patient’s characteristics and surgery type need further evaluation. One example is perioperative use of gabapentin, which was administered preoperatively in this study. While no serious adverse events related to MMA were reported, gabapentin has been shown to increase the risk of adverse events, such as dizziness, cognitive dysfunction, and respiratory depression, especially when used in older patients and prescribed in combination with opioids [8]. Various new modalities such as wound infiltration, new long-acting local analgesics, and different types of regional nerve blocks administered with or without new devices, are also effective for postoperative pain management. Nonetheless, determining their optimal combinations requires further evaluation. Additionally, efforts to reduce postoperative opioid use have led to reduced intraoperative opioid usage [9]. However, this has raised concerns regarding increased postoperative pain and opioid consumption [10], highlighting the need for a comprehensive understanding of the entire pain pathway from injury, initiation of pain, and its continuation to eventual cessation.

Surgeons function as conductors guiding the path of treatment and overseeing every aspect of the surgical process. Hence, they can direct all perioperative management, ensuring patients return home free from both the disease as well as unnecessary pain. Similar to Kim et al. [7], surgeons should continue to dedicate efforts toward improving acute postoperative pain management through the development of more effective MMA strategies for patients undergoing surgery.

**ARTICLE INFORMATION**

Conflict of interest

Soo Y eun Park is an Editorial Board member of *Annals of Coloproctology*, but was not involved in the reviewing or decision process of this manuscript. No other potential conflict of interest relevant to this article was reported.

**Funding**

None.

**REFERENCES**


https://doi.org/10.3393/ac.2024.00304.0043