# Perioperative pain: Reducing opioids, enhancing recovery.

**Mona S. Ibrahim***

Department of Anesthesia and Pain Therapy, Cairo University, Egypt

## Introduction

Enhanced Recovery After Surgery (ERAS) protocols represent a paradigm shift in perioperative care, focusing on evidence-based practices to optimize patient outcomes. Within this framework, regional anesthesia stands out as a critical component, offering targeted pain relief that goes beyond merely controlling discomfort. This approach demonstrably reduces the need for systemic opioids, which is vital given concerns about opioid-related side effects and prolonged use. Furthermore, regional anesthesia within ERAS significantly enhances pain management, promotes earlier patient mobilization, and consequently speeds up overall recovery. The cumulative effect is a reduction in postoperative complications, shorter hospital stays, and quicker discharge times, ultimately improving the patient experience and healthcare efficiency [1].

For specific surgical specialties, such as colorectal surgery, the efficacy of pain management is significantly enhanced through the application of multimodal analgesia. This strategy involves the concurrent use of multiple analgesic agents and techniques, each acting on different pain pathways, to achieve a synergistic effect. This comprehensive approach has been shown to be far superior to relying on a single analgesic method, leading to more effective pain control. Crucially, multimodal analgesia substantially diminishes the requirement for opioids, thereby mitigating their associated risks while contributing positively to patient outcomes, including faster functional recovery and reduced incidence of chronic pain [2].

A central tenet of modern pain management is the active pursuit of strategies to limit opioid use following surgical procedures. This goal is driven by a broader understanding of opioid-related risks, including addiction, respiratory depression, and adverse gastrointestinal effects. Numerous effective strategies have been developed to achieve this, often integrating regional anesthetic blocks, a diverse array of non-opioid medications, and various complementary alternative therapies. This holistic approach focuses on providing robust pain management while reducing dependence on opioids, thereby fostering safer recovery environments and enhancing patient well-being by addressing discomfort through varied and comprehensive mechanisms [3].

The field of regional anesthesia continues to advance rapidly, with Point-of-care ultrasound (POCUS) emerging as a transformative technology. POCUS allows clinicians to visualize anatomical structures, particularly nerves, with unprecedented clarity in real-time. This capability enables the administration of nerve blocks with exceptional precision, thereby enhancing both safety and efficacy. By directly visualizing the needle placement and local anesthetic spread, POCUS minimizes risks such as nerve injury or intravascular injection and ensures optimal drug delivery. This leads to significantly improved pain control, particularly beneficial in anatomically challenging cases or for patients with complex medical histories [4].

Ketamine, traditionally known as an anesthetic, has found a valuable role as an analgesic adjunct, even when utilized at low, subanesthetic doses, in the management of postoperative pain. Its unique mechanism involves N-methyl-D-aspartate (NMDA) receptor antagonism, which helps to prevent central sensitization and reduce the perception of pain. This pharmacological action significantly contributes to lowering overall opioid consumption, an increasingly important goal in postoperative care. Patients, especially those experiencing moderate to severe pain, often report improved pain scores with ketamine's inclusion, cementing its position as a potent and valuable tool within a comprehensive multimodal pain management strategy [5].

The challenging nature of Complex Regional Pain Syndrome (CRPS) necessitates ongoing innovation in pain management, and regional anesthesia techniques are evolving to meet this need. Researchers and practitioners are continuously developing newer nerve blocks and refining existing methodologies to more effectively target the specific pain pathways involved in CRPS. These advanced approaches are designed to provide more profound and sustained pain relief, moving beyond symptomatic treatment to address underlying mechanisms. This offers renewed hope and improved quality of life for individuals grappling with this often debilitating and notoriously difficult-to-treat chronic pain condition [6].

A crucial shift in acute pain management involves a conscious move away from the automatic reliance on opioids. Strong evidence now unequivocally supports the effectiveness of a diverse range of non-opioid pharmacological agents. This extensive armamentar-

***Correspondence to:** Mona S. Ibrahim, Department of Anesthesia and Pain Therapy, Cairo University, Egypt. E-mail: mona.ibrahim@cairoedu.edu.eg

**Received:** 01-May-2025, Manuscript No. AAPMT-25-269; **Editor assigned:** 05-May-2025, Pre QC No. AAPMT-25-269 *(PQ)*; **Reviewed:** 23-May-2025, QC No. AAPMT-25-269; **Revised:** 03-Jun-2025, Manuscript No. AAPMT-25-269 *(R)*; **Published:** 12-Jun-2025, DOI: 10.35841/aapmt-9.3.269

*Citation: Ibrahim MS. Perioperative pain: Reducing opioids, enhancing recovery. J Pain Manage Ther. 2025;09(03):269.*

ium includes medications such as Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), acetaminophen, gabapentinoids, and various local anesthetics. These agents can provide substantial and effective pain relief while concurrently minimizing the undesirable side effects and risks associated with opioid use. Embracing these non-opioid strategies represents a safer and more patient-centered approach to managing acute pain after surgical interventions or traumatic injuries [7].

Beyond conventional pharmacological and regional anesthetic interventions, innovative non-pharmacological approaches are emerging as valuable adjuncts in postoperative pain management. Virtual Reality (VR) is at the forefront of this innovation, offering a novel method to address pain. VR operates by creating immersive, distracting environments that effectively alter a patient's perception of pain, thereby reducing its intensity. Early research indicates promising results in not only diminishing pain scores but also in alleviating associated anxiety. This non-pharmacological strategy provides an exciting and potentially drug-free complement to existing pain management protocols, particularly appealing for patients seeking alternative methods [8].

The discipline of perioperative pain management is in a state of constant evolution, driven by a relentless pursuit of superior patient comfort and accelerated recovery times. This dynamic field encompasses a multitude of innovations, including the development of highly personalized pain plans tailored to each individual's unique physiological profile and the specific demands of their surgical procedure. It also involves the continuous refinement of advanced regional anesthesia techniques and the strategic integration of diverse non-pharmacological interventions. These combined efforts are aimed at holistically optimizing patient outcomes, ensuring a more comfortable and efficient recovery trajectory [9].

Among the more recent innovations in regional anesthesia, the erector spinae plane (ESP) block has rapidly gained prominence due to its relative simplicity of execution and its remarkable effectiveness in providing postoperative analgesia. This interfascial plane block offers extensive somatic and visceral pain relief, making it applicable to a wide spectrum of surgical procedures, from thoracic to abdominal surgeries. Its successful application significantly contributes to reducing the systemic requirement for opioids and markedly enhances patient comfort during the critical postoperative recovery period, firmly establishing it as a valuable asset in the modern multimodal analgesic armamentarium [10].

## Conclusion

Modern pain management focuses on reducing opioid use and accelerating patient recovery through diverse strategies. Regional anesthesia is key to Enhanced Recovery After Surgery (ERAS) protocols, minimizing opioid dependence and improving patient outcomes. Multimodal analgesia, which combines several pain relief methods, is highly effective for surgeries like colorectal procedures, offering superior pain control with fewer opioids. Efforts to limit postoperative opioid use involve regional blocks, non-opioid medications, and alternative therapies. Technological advances like Point-of-care ultrasound (POCUS) enhance regional anesthesia by enabling precise nerve blocks, reducing risks, and improving effectiveness. Newer techniques such as the erector spinae plane (ESP) block also provide significant postoperative pain relief, further reducing opioid needs. Pharmacologically, non-opioid options including NSAIDs, acetaminophen, and gabapentinoids are crucial for acute pain, offering effective relief with fewer side effects. Low-dose ketamine also serves as a valuable adjunct in multimodal strategies, lowering opioid consumption and improving pain scores. Beyond traditional methods, non-pharmacological interventions are gaining traction. Virtual reality (VR) shows promise in managing postoperative pain by distracting patients and altering their pain perception, reducing intensity and anxiety. Regional anesthesia techniques are also evolving for complex conditions like Complex Regional Pain Syndrome (CRPS), providing more targeted and sustained relief. Overall, perioperative pain management is continuously innovating, integrating personalized plans, advanced regional techniques, and non-pharmacological interventions to optimize patient comfort and facilitate faster, safer recoveries.

## References


1. Aliakbar M, Samaneh Z, *Mohammad A. The Role of Regional Anesthesia in Enhanced Recovery After Surgery* (ERAS) Protocols: A Narrative Review. Anesth Pain Med. 2021;11:e112423.

2. Juan MA, Sara UM, Anne-Mette HH. Multimodal analgesia in colorectal surgery: A systematic review and meta-analysis. *J Clin Anesth.* 2021;70:110190.

3. Kristopher MS, Mark DJ, Stephen LH. Opioid-Sparing *Strategies in Postoperative Pain Management. Anesthesiology.* 2020;133:673-689.

4. Matthew AS, Andrew JT, Anam T. Point-of-care ultrasound (POCUS) in regional anesthesia: *Recent advances and future directions. Best Pract Res Clin Anaesthesiol.* 2023;37:101037.

5. Yanan X, Jian Z, Dong W. The role of ketamine in postoperative pain management: a narrative review of recent evidence. *J Pain Res.* 2020;13:691-700.

6. Timothy JL, Jacob CK, *Matthew CS. Recent Advances in Regional Anesthesia Techniques for Complex Regional Pain Syndrome. Curr Pain Headache Rep.* 2022;26:797-805.



***Citation:*** *Ibrahim MS. Perioperative pain: Reducing opioids, enhancing recovery. J Pain Manage Ther. 2025;09(03):269.*

7. Andrea ST, Steven PC, Amitabh G. Non-opioid pharmacologic strategies for acute pain management: an evidence-based narrative review. *Br J Anaesth.* 2021;126:613-622.

8. Jennifer EO, Sara JS, Yevgeniy NG. Virtual Reality for Postoperative Pain Management: A Systematic Review and Meta-analysis. *Anesth Analg.* 2023;136:151-163.

9. David RD, Christopher HNL, Jean-François *T. Current Innovations in Perioperative Pain Management. Anesthesiol Clin.* 2022;40:15-28.

10. David HA, Eric SW, Edward RM. Erector spinae plane block for postoperative analgesia: a narrative review. *Br J Anaesth.* 2020;124:e133-e145.

***Citation:*** *Ibrahim MS. Perioperative pain: Reducing opioids, enhancing recovery. J Pain Manage Ther. 2025;09(03):269.*