Multimodal opioid-sparing for postoperative pain management.

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Introduction

Managing postoperative pain effectively while minimizing opioid reliance presents a significant challenge in modern medicine. The pursuit of opioid-sparing strategies is critical for improving patient outcomes and addressing public health concerns related to opioid misuse. Research continues to explore various pharmacological and non-pharmacological interventions to achieve this delicate balance.

Gabapentin's role in managing pain after surgery shows it can reduce opioid use and lower pain intensity in the first 24 hours post-op. However, clinicians need to weigh these benefits against the higher risk of side effects like dizziness and sedation [1].

Liposomal bupivacaine has been assessed for its effectiveness in postoperative pain management and reducing opioid requirements. While it offers extended pain relief and can cut down on opioid use compared to plain bupivacaine, its benefits are often modest and might not always justify the increased cost, depending on the surgical context [2].

Perioperative dexmedetomidine has emerged as a promising option, with findings suggesting that its administration can lead to less opioid consumption and better pain control, all while maintaining a favorable safety profile. This makes it a valuable candidate for integration into multimodal analgesia plans aimed at opioid sparing [3].

For orthopedic procedures like total knee arthroplasty, regional analgesia techniques are highlighted as a cornerstone. Studies strongly suggest that incorporating these techniques significantly reduces postoperative opioid consumption and can even shorten the length of hospital stay [4].

Multimodal analgesia strategies are considered the gold standard in acute pain settings. By using multiple pain-relieving agents, each targeting a different pain pathway, there's a significant reduction in the need for opioids and an improvement in pain control, without increasing adverse events [5].

Low-dose ketamine infusions during the perioperative period also contribute significantly. Research indicates that ketamine can effectively lower postoperative pain scores and decrease opioid consumption, particularly in patients undergoing more painful procedures, without a marked increase in serious side effects. This makes it a valuable strategy for enhancing opioid sparing [6].

The integration of non-opioid adjuvants, such as Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), is crucial. These agents contribute significantly to reducing opioid consumption and improving pain scores when used as part of a multimodal regimen, underscoring their importance in achieving opioid-sparing goals [7].

Comprehensive approaches like Enhanced Recovery After Surgery (ERAS) pathways offer a holistic solution. Evidence strongly indicates that implementing ERAS protocols significantly reduces both the amount of opioids prescribed and consumed by patients postoperatively, showcasing ERAS as a highly effective strategy for improving patient outcomes in acute care [8].

Cannabidiol (CBD) has also been investigated for acute postoperative pain. While CBD shows potential in reducing pain intensity, especially when used with conventional analgesics, its effect on opioid consumption isn't yet definitively established. This means more robust clinical trials are needed to clarify its role as a consistent opioid-sparing agent [9].

Finally, non-pharmacological interventions such as acupuncture, music therapy, and relaxation techniques offer valuable avenues. Findings suggest these approaches can contribute to reducing pain intensity and, in some cases, opioid consumption, highlighting the benefits of integrating non-drug strategies into comprehensive pain plans to enhance opioid sparing and patient comfort [10].

Together, these studies paint a clear picture: a multifaceted approach combining pharmacological and non-pharmacological methods is essential for optimizing postoperative pain management, reducing opioid dependence, and enhancing recovery for surgical patients.

Conclusion

Recent meta-analyses highlight various effective strategies for re-

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Received: 01-May-2025, Manuscript No. AAPMT-25-263; **Editor assigned:** 05-May-2025, Pre QC No. AAPMT-25-263 *(PQ)*; **Reviewed:** 23-May-2025, QC No. AAPMT-25-263; **Revised:** 03-Jun-2025, Manuscript No. AAPMT-25-263 *(R)*; **Published:** 12-Jun-2025, DOI: 10.35841/aapmt-9.3.263

Citation: Becker OK. Multimodal opioid-sparing for postoperative pain management. J Pain Manage Ther. 2025;09(03):263.

ducing opioid consumption and improving pain management following surgery. Gabapentin has shown promise in decreasing opioid use and pain intensity in the initial 24 hours post-operation, though clinicians must weigh this against potential side effects like dizziness and sedation. Liposomal bupivacaine offers prolonged pain relief, lessening opioid dependence, but its cost-effectiveness requires careful evaluation. Perioperative dexmedetomidine emerges as a valuable option, leading to reduced opioid needs and better pain control with a favorable safety profile. Regional analgesia techniques, particularly for procedures like Total Knee Arthroplasty, significantly cut down on postoperative opioid use and can shorten hospital stays. The gold standard appears to be multimodal analgesia, which combines different pain-relieving agents to target various pain pathways, thereby substantially reducing opioid requirements and enhancing overall pain control without increasing adverse events. Low-dose ketamine infusions also contribute to lower pain scores and decreased opioid consumption, especially in more painful surgeries. Non-opioid adjuvants, including NSAIDs, are integral to these multimodal regimens, effectively supporting opioid-sparing goals. Comprehensive approaches like Enhanced Recovery After Surgery (ERAS) pathways demonstrably reduce both prescribed and consumed opioids, leading to better patient outcomes. Meanwhile, Cannabidiol (CBD) shows potential for pain reduction, but its definitive impact on opioid consumption still requires further robust clinical trials. Even non-pharmacological interventions, such as acupuncture, music therapy, and relaxation, offer valuable contributions to pain management and opioid sparing, reinforcing a holistic approach to acute postoperative care.

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Citation: *Becker OK. Multimodal opioid-sparing for postoperative pain management. J Pain Manage Ther. 2025;09(03):263.*