

Comparing the Effectiveness of Perioperative Ketorolac to Opioids: A Scoping Review

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Purpose

This DNP project is a scoping review that aims to answer the question: What does the existing literature say about the effectiveness of ketorolac compared to opioids in the adult surgical population?

Specific Objectives:

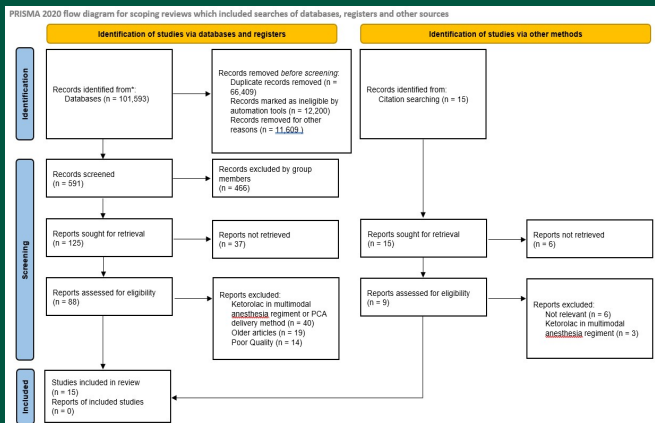
- Examine the efficacy of ketorolac in treating pain in the perioperative period
- Determine if ketorolac has a role in reducing opioid consumption

Background

The United States is currently experiencing an opioid epidemic, yet opioids are the current mainstay for treating surgical pain despite their many side effects:

- Postoperative nausea and vomiting
- Constipation
- Respiratory depression
- Addiction and contribution to opioid crisis

Ketorolac: nonsteroidal anti-inflammatory drug that has the potential to safely and effectively treat postoperative pain without the negative side effects associated with opioids.



Methods

Eligibility Criteria

- Peer Reviewed articles within the last ten years
- Reviewed by Institutional Review Board
- Performed on human participants for surgeries requiring general anesthesia
- Meta-analyses, scientific journals, evidence-based practice

Information Sources

- Comprehensive literature review between October 2020 and September 2021
- Search databases included: Pubmed, Ovid, Cochrane Library, and the University of Tennessee Health Science Center Library

Search

- We utilized Boolean operators with the following search terms: "ketorolac" AND "opioid" OR "narcotic" in the "intraoperative" OR "perioperative period"

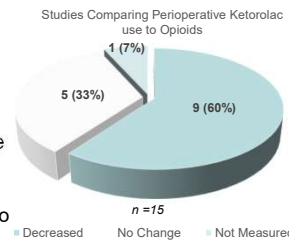
Selection of Sources and Evidence

- We constructed a synthesis table to display the level of evidence, methods, and outcomes for our 15 high-quality articles

Results

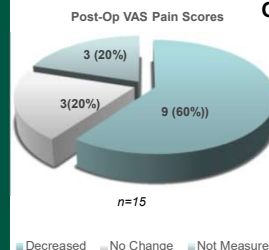
Outcome #1: Post-operative Opioid Consumption

Nine articles, including three meta-analyses, found a statistically significant reduction in postoperative opioid consumption when patients received an IV bolus of ketorolac in the perioperative period compared to placebo or opioids alone.



Outcome #2: VAS Pain Scores

11 of the articles we examined (including 5 systematic reviews) found a statistically significant reduction in postoperative VAS pain scores of patients treated with IV and IM doses of ketorolac compared to the patients who received a placebo or opioids alone. Martinez et al. (2019) found no statistically significant difference in postoperative pain scores.



Results (cont.)

Outcome #3: Miscellaneous Adverse Outcomes

- Three out of four studies showed no difference between time to first analgesic request. However, Wan et al. (2020) showed a modest increase in how long ketorolac treated patients waited before requesting a rescue analgesic.
- Two studies found that ketorolac-treated patients had a statistically significant reduction in their time to discharge vs. the opioid-treated group.
- Three meta-analyses showed no difference in "adverse postoperative outcome" rates in study groups treated with ketorolac, while one found a statistically significant reduction in the ketorolac group (Secrist et al., 2016).

Implications for Practice

- Intraoperative ketorolac provided opioid-sparing analgesia without the adverse effects of narcotics
- Ketorolac is a valuable adjunct in a multimodal analgesia regimen
- Anesthesia providers should consider ketorolac as an effective alternative to perioperative opioids to improve postoperative patient outcomes

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