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OLICERIDINE VERSUS SUFENTANIL IN SURGICAL PROCEDURES: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CLINICAL TRIALS

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INTRODUCTION

Oliceridine, a G protein-biased μ-opioid receptor agonist, selectively activates analgesic signaling while minimizing recruitment of the β-arrestin pathway — a profile that may allow **potent analgesia with fewer opioid-related adverse effects**.

This systematic review and meta-analysis evaluated the analgesic efficacy, safety, and adverse effects of oliceridine compared with sufentanil in surgical procedures.

This meta-analysis compared **oliceridine** versus **sufentanil** across pain control, recovery quality, and postoperative nausea and vomiting (PONV) in adult surgical patients.

MATERIALS AND METHODS

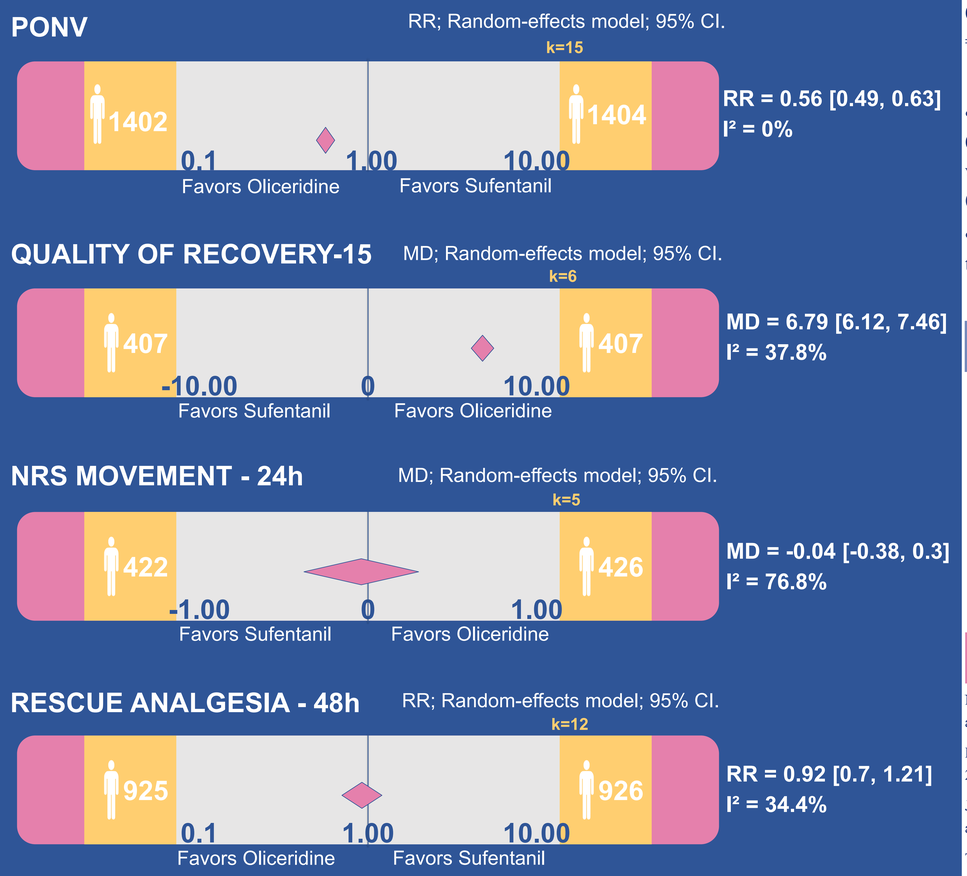
- Searched PubMed, Embase, and Cochrane CENTRAL, from inception through June 2026.
- **RCTs only.**
- **Inclusion:** Oliceridine vs. sufentanil in adults undergoing surgical procedures, spanning thoracoscopic, laparoscopic, gynecologic, orthopedic, and other surgery types.
- **Outcomes:** Pain (NRS for movement) at 24h, PONV, total rescue analgesia within 48h, and the Quality of Recovery-15 (QoR-15).
- Risk ratios (RR) or Mean differences (MD) with 95% CI; Heterogeneity via I^2; **Leave-one-out sensitivity analyses** for all four outcomes; Statistical analysis performed using R v4.4.3.
- **All 16 included trials were conducted in China**, reflecting the current geographic concentration of the randomized evidence base.

Oliceridine decreased PONV risk by 44% and improved quality of recovery versus sufentanil, with similar analgesic efficacy.

- **497** records identified.
- **128** full-text reports after deduplication and screening.
- **16 studies included.**

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2,868 patients included.
Oliceridine vs Sufentanil in surgical procedures.



RESULTS

- **Study Selection: 497 records identified** (PubMed 80, Embase 194, Cochrane 223); 142 duplicates removed; 227 excluded by title/abstract, leaving 128 full-text reports assessed for eligibility.
- Of these, 104 were excluded for no results published, 5 for foreign language, and 3 for other reasons, leaving **16 RCTs** (2,868 patients).
- **Outcomes: Oliceridine significantly reduced PONV** (RR 0.56 [0.49, 0.63], I^2 = 0%) and **increased QoR-15** (MD 6.79 [6.12, 7.46], I^2 = 37.8%) versus sufentanil.
- **No significant differences** in NRS for movement at 24h (MD −0.04 [−0.38, 0.30], I^2 = 76.8%) or total rescue analgesia within 48h (RR 0.92 [0.70, 1.21], I^2 = 34.4%).
- **Leave-one-out sensitivity: PONV remained remarkably stable** (RR 0.54–0.57, I^2 0–5.2%); **QoR-15 remained significant throughout** (MD 6.43–6.94), with Meng 2025 exclusion yielding the greatest heterogeneity reduction **(37.8% to 1.6%).**
- NRS movement and rescue analgesia remained non-significant, (MD −0.15 to 0.13) and (RR 0.84–0.97) respectively.

DISCUSSION

Oliceridine significantly reduced PONV and enhanced quality of recovery compared with sufentanil, with **similar analgesic efficacy**. These findings support oliceridine as a promising alternative to traditional opioids.

All 16 included trials originated from single-country surgical cohorts.

Larger multicenter randomized trials are warranted to further characterize oliceridine's benefits across distinct clinical and perioperative contexts.

REFERENCES

Na X et al. Effect of oliceridine versus morphine on the quality of early recovery after thoracoscopic surgery: a randomized, controlled clinical trial. BMC Anesthesiol. 2026;26(1):178.

Paul AK et al. Opioid analgesia and opioid-induced adverse effects: a review. Pharmaceuticals (Basel). 2021;14(11):1091.

Jin Z et al. Evaluating oliceridine as a treatment option for moderate to severe acute post-operative pain in adults. Expert Opin Pharmacother. 2022;23(1):9–17.

Tan HS, Habib AS. Safety evaluation of oliceridine for the management of postoperative moderate-to-severe acute pain. Expert Opin Drug Saf. 2021;20(11):1291–1298.