"Making Waves"
25th Annual Pain Medicine Meeting
November 5-7, 2026 | Tampa, Florida
www.asra.com/pain | #ASRAFALL26

DEXMEDETOMIDINE–ESKETAMINE–BASED OPIOID-FREE ANESTHESIA IN OLDER AGE: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Rangel da Silva Neto, M.; Ribeiro, M.; Vergna, R.D.; Moreira e Lima, R.

INTRODUCTION

Multimodal opioid-free anesthesia combining **dexmedetomidine** and **esketamine** has emerged as a compelling **neuroprotective, opioid-sparing strategy** for older surgical patients.

However, comparative trial evidence on its pain trajectory, opioid requirements, and emetic side-effect profile remains inconsistent across disparate surgical cohorts, motivating a systematic synthesis of the randomized evidence.

This meta-analysis evaluated **dexmedetomidine-esketamine opioid-free anesthesia** versus **conventional opioid-based anesthesia** in older surgical patients, focused on analgesic durability and safety margins.

MATERIALS AND METHODS

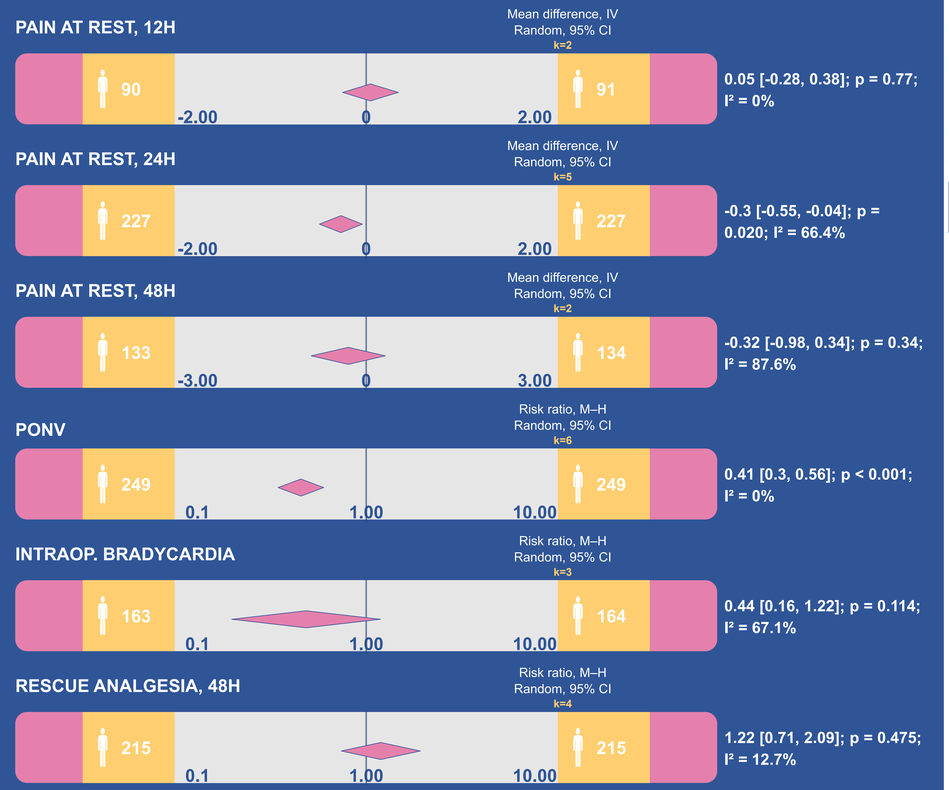
- Searched **PubMed, Cochrane CENTRAL, and Embase** through May 2026
- **RCTs only**
- **Inclusion:** dexmedetomidine-esketamine opioid-free anesthesia vs. opioid-based anesthesia in older surgical patients
- **Primary outcome:** 24-hour postoperative resting pain score (VAS or NRS)
- **Secondary outcomes:** PONV, resting pain at 12 and 48 hours, rescue analgesia within 48 hours, and intraoperative bradycardia
- **Random-effects models (REML)**; mean differences or risk ratios with 95% CI; **leave-one-out sensitivity analyses** systematically performed across all outcomes; analysis in R v4.6.1.
- **Publicly available, de-identified aggregate data**; met institutional criteria for IRB exemption.

OFA cut PONV by 59% and improved 24-hour pain control versus opioid-based anesthesia in older patients.

751 records identified
38 full-text reports after deduplication and screening
6 studies included

Scan Me for full abstract

498 patients
50% received **OFA**



RESULTS

- **Study Selection:**
- **751 records identified** (PubMed 123, Embase 355, Cochrane 273); 227 duplicates removed; 486 excluded by title/abstract, leaving 38 full-text reports assessed for eligibility.
- Of these, 9 were excluded for population overlap, 8 for no control group, for no outcomes of interest, and 12 for foreign language, leaving **6 RCTs** (498 patients; OFA n = 249, OBA n = 249).
- **Outcomes:**
- **OFA cut PONV risk by 59%** (RR 0.41 [0.30, 0.56], $p < 0.001$, $I^2 = 0\%$), stable on leave-one-out sensitivity analysis (RR range 0.39–0.44; all $I^2 = 0\%$).
- **OFA reduced 24h resting pain** (MD −0.30 [−0.55, −0.04], $p = 0.020$); omitting Yao et al. cut heterogeneity from 66.4% to 10.8% (MD −0.22 [−0.39, −0.05]).
- No differences at 12h ($p = 0.77$) or 48h ($p = 0.34$) pain, rescue analgesia (RR 1.22 [0.71, 2.09]), or intraoperative bradycardia (RR 0.44 [0.16, 1.22]).

DISCUSSION

Dexmedetomidine-esketamine opioid-free anesthesia is a highly effective, opioid-sparing alternative to conventional general anesthesia in older patients, significantly **cutting PONV by 59% and improving 24-hour pain control**. Systematic leave-one-out analyses confirm overall estimate stability and show that heterogeneity in pain and bradycardia is driven by specific trial designs, supporting incorporation of this strategy into perioperative enhanced recovery pathways.

CONTACT INFORMATION

miltonrangel.on@gmail.com

miltonrangel