

Efficacy & Safety of Dexamethasone in Postoperative Recovery Following Hysterectomy: A Systematic Review and Meta-analysis

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RESULTS

Fifteen RCTs (1,362 patients) were included. Dexamethasone significantly reduced PONV (RR: 0.53, 95% CI 0.47–0.61, $p < 0.00001$, I^2 : 0% high certainty) and pain scores at 24 hours (MD: -0.20, 95% CI -0.35 to -0.05, $p = 0.009$, $I^2 = 0\%$, moderate certainty), 8 to 12 hours (MD: -0.60, 95% CI -0.88 to -0.31, $p < 0.0001$, I^2 : 27%, moderate certainty and 4 hours (MD: -0.43, 95% CI -1.07 to 0.21, $p = 0.19$, 93%, moderate certainty). It also decreased the use of rescue antiemetics (RR: 0.57, 95% CI 0.43–0.75, I^2 : 39%, high certainty) and postoperative opioid consumption (SMD: -0.48, 95% CI -0.90 to -0.05, $p = 0.03$, I^2 74%, low certainty). The effects on rescue analgesics and hospital stay duration were nonsignificant. Subgroup analyses showed consistent antiemetic efficacy of dexamethasone across doses, timings, routes, and procedures. For pain, greater analgesic effects were seen with higher doses and perineural administration, particularly at 8–12 hours. Risk of bias was low in most studies and evidence of publication bias observed for pain score outcome.

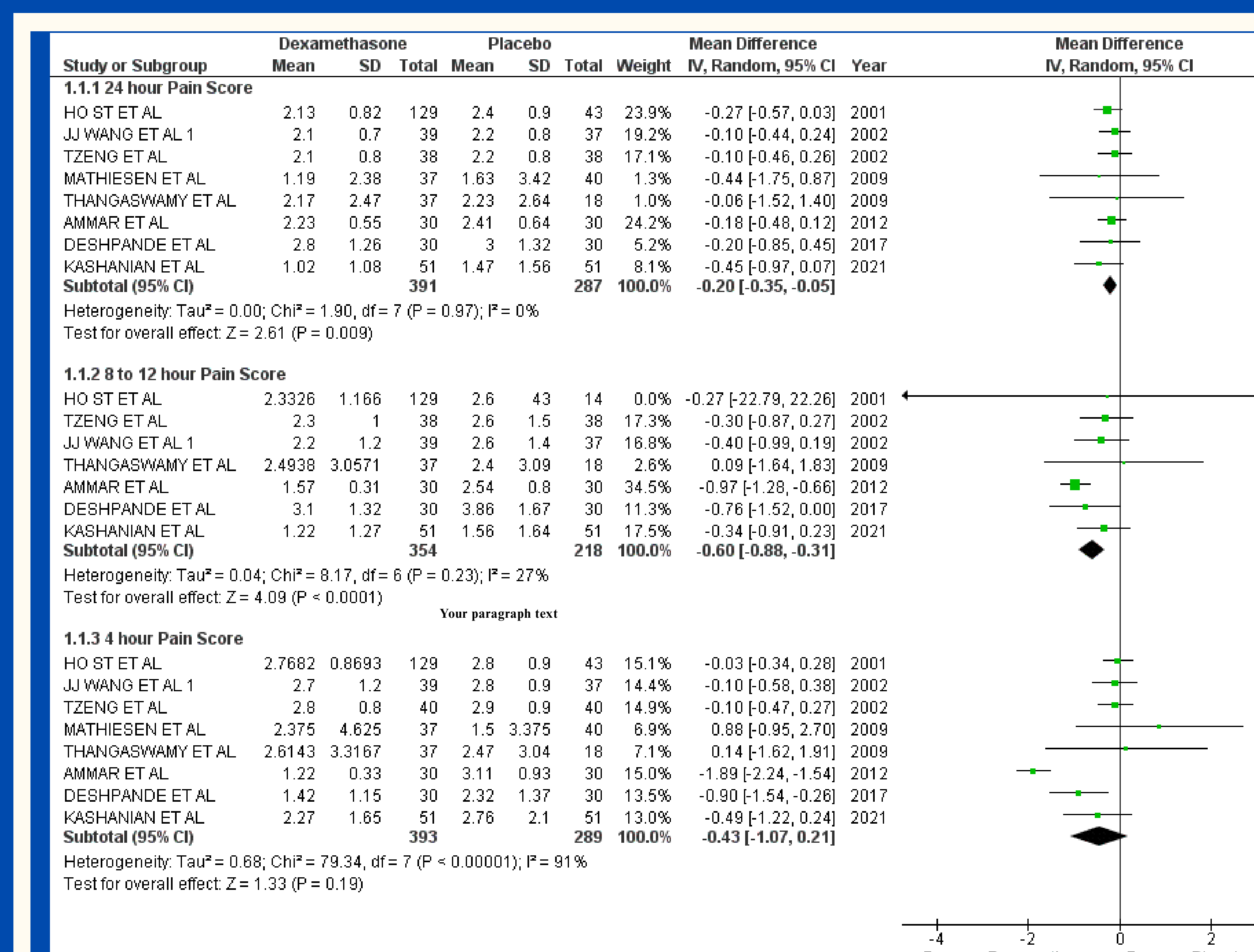
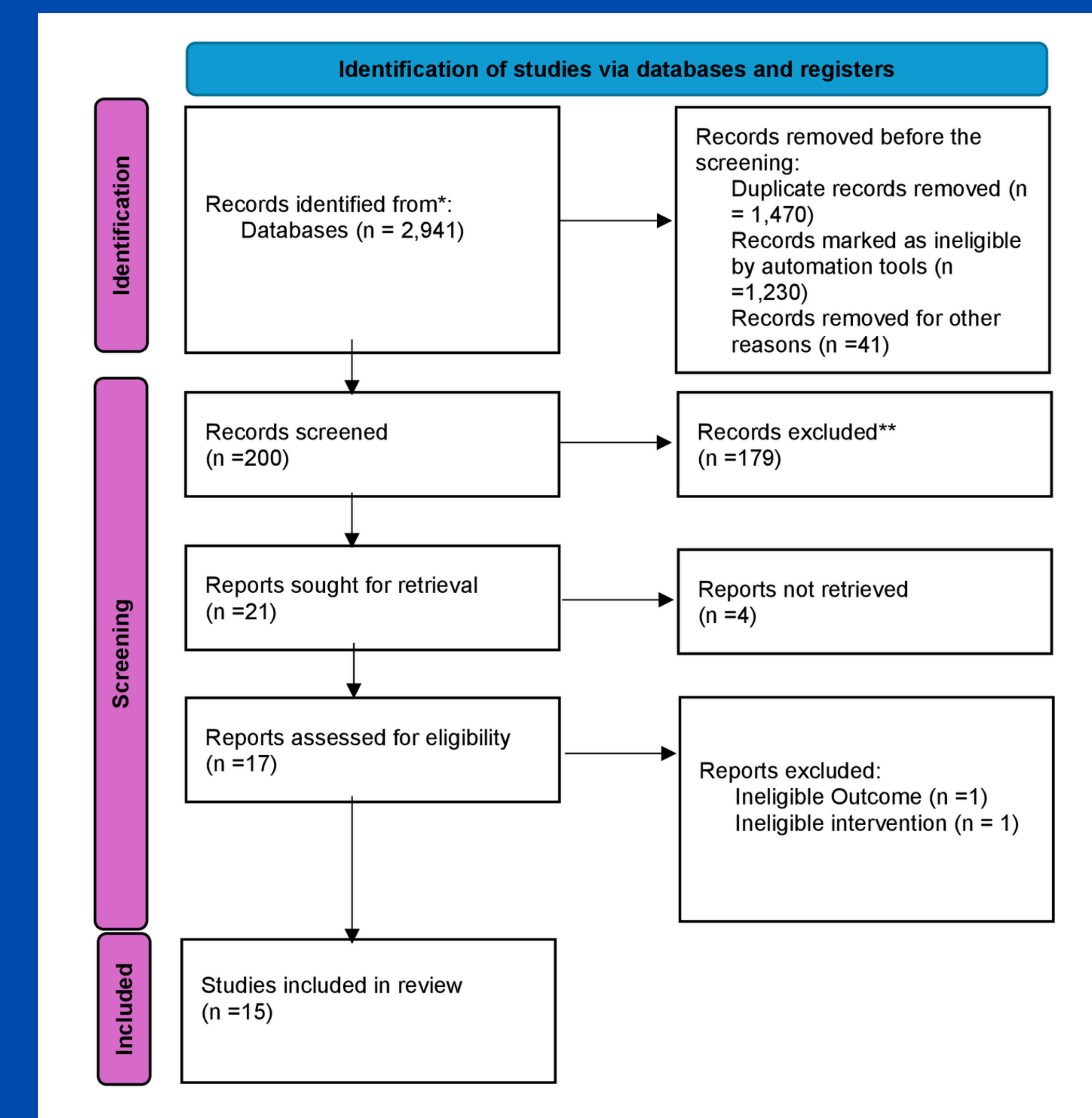


Figure 2: Forest plot of (A) Pain at 24 hours, (B) Pain at 8 to 12 hours, and (C) Pain at 4 hours

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Figure 1: PRISMA Flow Diagram



BACKGROUND

METHODS

CONCLUSION

Hysterectomy, a common surgical procedure, often leads to moderate-to-severe postoperative pain and increased postoperative nausea and vomiting (PONV). Dexamethasone, a corticosteroid, may mitigate these issues; however, existing evidence is largely generalized across surgical populations and does not clearly define its efficacy and safety in patients undergoing hysterectomy. This meta-analysis provides a focused, updated synthesis of randomized controlled trials in hysterectomy, with time-stratified pain outcomes and subgroup analysis of dosing and administration timing, to evaluate dexamethasone's role in postoperative recovery.

A systematic search identified Risk ratios (RR), mean differences (MD), and standardized mean differences (SMD) with 95% confidence intervals (CIs) were pooled using a random effects model. Study quality was evaluated using the Cochrane RoB 2 tool, while the quality of evidence for outcomes was assessed with GRADEpro. Publication bias was assessed through funnel plot analysis. (PROSPERO registration number: CRD42024608067)

Dexamethasone is an effective adjunct in hysterectomy, significantly reducing PONV and postoperative pain at 8–12 and 24 hours, particularly with 4–10 mg doses. Benefits are consistent across routes, timings, and surgical approaches, with greater early analgesia after perineural use. It reduces opioid consumption but has a limited effect on rescue analgesia, supporting its role as a complementary analgesic. While generally considered safe, current safety data are limited, highlighting the need for further research. These results support its use in multimodal recovery protocols and identify priorities for future studies in high-risk and diverse surgical populations.