

#2 _The Effectiveness and Safety of Intravenous Lidocaine in Thyroidectomy: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

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Background/Introduction:

Thyroidectomy is commonly performed for both benign and malignant conditions, with varying postoperative pain levels among patients. While opioids are typically used for pain management, their side effects have driven interest in alternative analgesics. Intravenous lidocaine, known for its analgesic and anti-inflammatory properties, has been studied for its role in enhancing postoperative recovery. This meta-analysis aimed to evaluate the effect of IV lidocaine on postoperative quality of recovery (QoR-40), pain scores, anesthesia time, and incidence of postoperative nausea and vomiting (PONV) in patients undergoing thyroidectomy.

Methods:

A systematic literature search was conducted in PubMed, Scopus, Web of Science, and Cochrane databases up to May 2025. Sixteen randomized controlled trials (RCTs) met inclusion criteria, comprising adult patients undergoing thyroidectomy who received either systemic lidocaine or placebo. Data on QoR-40 scores (preoperative, POD1, POD2), postoperative pain scores (at 1h, 4h, 12h, 24h, and 48h), anesthesia time, and PONV were extracted and analyzed using Review Manager. Risk of bias was assessed using the Cochrane RoB 2 tool.

Results:

Lidocaine significantly improved QoR-40 scores on POD1 (MD: 7.96 [6.04, 9.89]) and POD2 (MD: 6.52 [5.22, 7.83]; $p < 0.00001$), with no baseline difference preoperatively. Pain scores were significantly reduced in the lidocaine group across all postoperative time points, particularly at 1h (Std.MD: -0.77, $p < 0.00001$) and 4h (Std.MD: -1.73, $p < 0.0001$). However, lidocaine had no significant effect on anesthesia time (MD: -3.12, $p = 0.21$). The incidence of PONV was significantly lower with lidocaine (OR: 0.34 [0.17, 0.65], $p = 0.001$).

Conclusions:

This meta-analysis confirms that intravenous lidocaine significantly improves postoperative recovery and reduces pain and PONV in thyroidectomy patients, without affecting anesthesia time. These findings support the inclusion of IV lidocaine as part of a multimodal analgesic strategy to enhance patient comfort and outcomes after thyroid surgery.

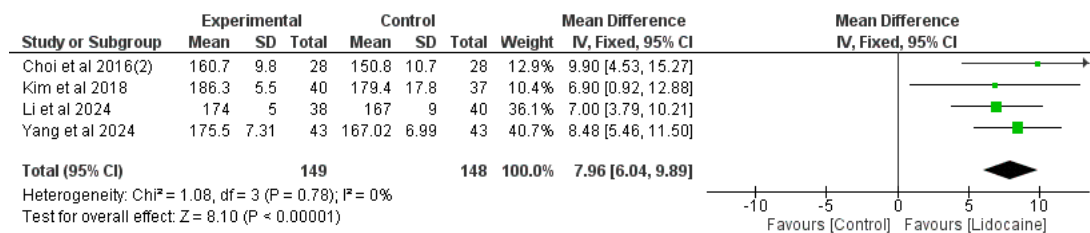


Figure 1. Forest plot showing the effect of intravenous lidocaine on postoperative Quality of Recovery (QoR-40) scores on postoperative day 1 (POD1) compared to control.