



# CAS 2026

## Pain Management Abstracts

# Effect of erector spinae block on postoperative opioid consumption in patients undergoing pulmonary surgical procedures: a systematic review and meta-analysis of randomized controlled trials

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## INTRODUCTION

Lung surgery is often associated with substantial postoperative pain, which can impair respiratory function and drive high opioid requirements with attendant adverse effects.<sup>1,2</sup> This systematic review and meta-analysis evaluate whether the erector spinae plane block (ESPB) improves postoperative analgesia and reduces opioid consumption and opioid-related side effects, including postoperative nausea and vomiting (PONV), following lung surgery.

## METHODS

A systematic database search was conducted for randomized controlled trials (RCTs) comparing ESPB with control in patients undergoing lung surgical procedures. The primary outcome was the early (6h), intermediate (12h), and late (24h) pain scores at rest and during movement. The secondary outcomes were 24h postoperative opioid consumption and postoperative nausea and vomiting. Mean differences (MD) and odds ratios (OR) with 95% confidence intervals (CI) were calculated using a random-effects model.

## RESULTS

20 RCTs with 1,391 patients were included in the meta-analysis (ESPB vs. control: 668 vs. 723). ESPB significantly reduced resting pain at 6 hours (MD: 1.26; 95% CI: 0.78-1.75;  $p < 0.00001$ ), 12 hours (MD: 1.22; 95% CI: 0.41-2.03;  $p = 0.003$ ), and 24 hours (MD: 0.61; 95% CI: 0.33-0.90;  $p < 0.0001$ ). Similarly, movement-evoked pain was reduced at 6 hours (MD: 1.54;

95% CI: 0.71-2.37;  $p < 0.0001$ ), 12 hours (MD: 1.32; 95% CI: 0.88-1.76;  $p < 0.00001$ ), and 24 hours (MD: 0.91; 95% CI: 0.36-1.46;  $p = 0.001$ ). Seventeen RCTs showed reduced 24-hour postoperative opioid consumption (MD: 14.73; 95% CI: 1.92-27.54;  $p = 0.02$ ) and decreased PONV incidence (OR: 0.32; 95% CI: 0.20-0.51;  $p < 0.001$ ) in the ESPB group. The meta-regression analysis showed that only local anesthetic concentration significantly altered the results. The risk of bias was low, and the certainty of evidence was low.

## DISCUSSION

The ESPB may significantly reduce postoperative pain, 24-hour postoperative opioid consumption, and PONV compared to control in lung surgery patients. However, further RCTs with adequate power, unified protocols, and clearly defined endpoints are warranted.

## REFERENCES

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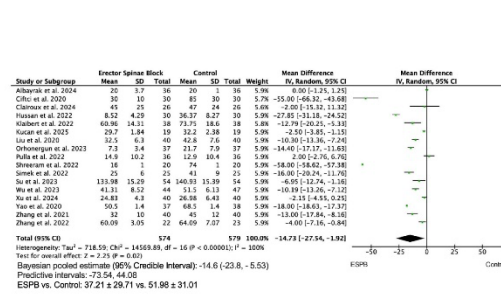
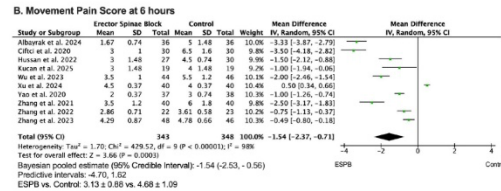
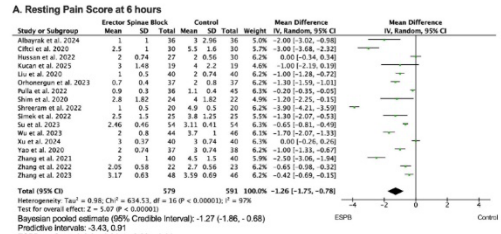
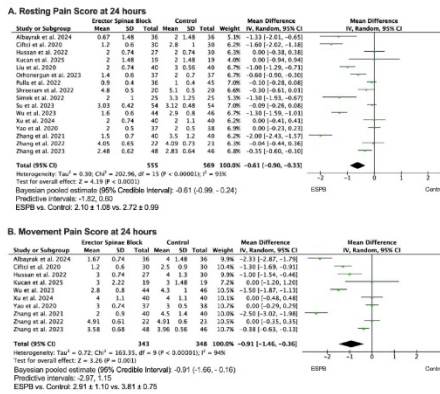
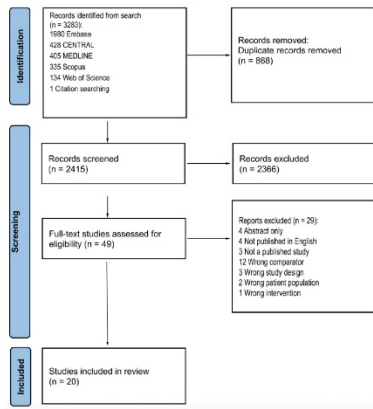


Figure 1