

Continuous Erector Spinae Plane Block VS Continuous Thoracic Epidural for thoracic analgesia: A meta-analysis & narrative review

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INTRODUCTION

- Thoracic epidural analgesia (TEA) is the gold standard for thoracic analgesia.
- TEA may cause adverse events, such as hemodynamic instability.
- Erector spinae plane block (ESPB) is a simple, low-risk fascial plane technique.

This meta-analysis compares continuous ESPB and continuous TEA in cardiothoracic surgery, focusing on pain scores and complications.

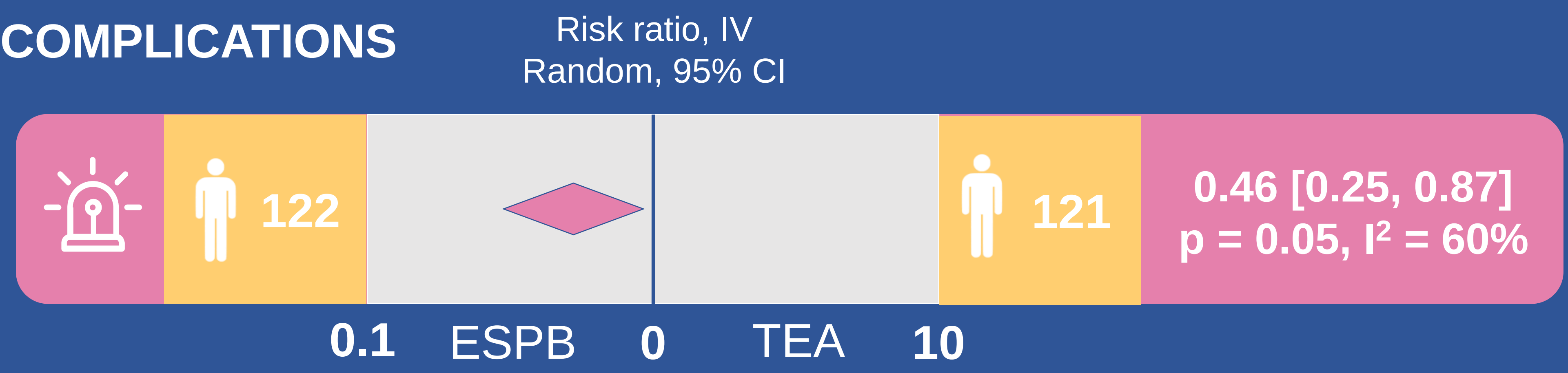
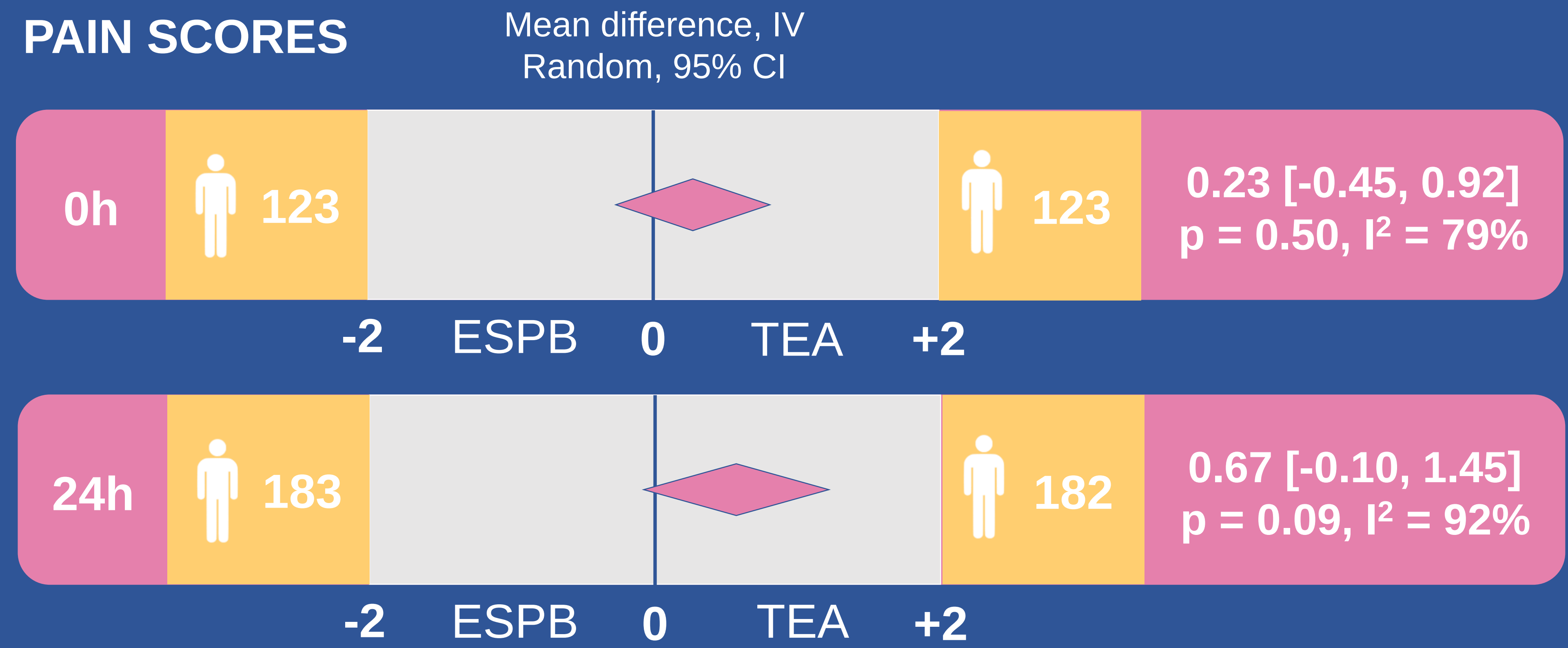
MATERIALS AND METHODS

- Searched Embase, PubMed, and Cochrane
- RCTs and observational studies
- Inclusion: continuous ESPB vs. continuous TEA in cardiothoracic surgery.
- Exclusion: different infusions or different adjuvants between groups.
- Primary outcome: pain scores at 0 and 24 hours;
- Secondary outcomes: complications.
- Calculated weighted mean differences for continuous data and risk ratios for binary data with 95% confidence intervals; heterogeneity assessed with I²; analysis done in RevMan 7.12.

Continuous ESPB is associated with fewer complications than continuous TEA in patients undergoing cardiothoracic procedures, with no difference in postoperative pain scores.

807 initial results
48 full-text reviews after deduplication and screening
7 studies included

399 patients
50.12% received ESPB



RESULTS

- Study Selection:**
- 807 initial results; 48 full-text reviews after deduplication and screening.
 - 7 studies included (main exclusions: different adjuvants, case reports, ongoing trials).
 - Total 399 patients; 200 (50.12%) received ESPB.

- Baseline Data:**
- Groups had comparable baseline characteristics (Table 1).

- Pain Outcomes:**
- No VASr difference at 0h
 - No VASr difference at 24h

Complications: ESPB linked to fewer complications vs. TEA

DISCUSSION

- The results show no difference in pain control between the techniques.
- ESPB is associated with fewer complications than TEA.
- Significantly lower mean arterial pressure (MAP) and higher proportion of patients requiring inotropic support in the TEA group compared to the ESPB block², and the lower intraoperative MAP in the TEA group³ suggest that ESPB may be more indicated for critically ill patients.
- More studies comparing these infusion regimens are necessary to confirm the results.

REFERENCES

- van den Broek RJC et al. Continuous erector spinae plane block vs thoracic epidural in VATS: randomized non-inferiority trial. *Reg Anesth Pain Med.* 2025;50(1):11–19. doi:10.1136/rapm-2023-105047
- Jain A et al. Continuous US-guided ESPB vs thoracic epidural analgesia for anterolateral thoracotomy. *World J Methodol.* 2025;15(4):105386. doi:10.5662/wjm.v15.i4.105386
- Elsabeeny WY et al. Serratus anterior and erector spinae plane blocks vs thoracic epidural in thoracotomy. *J Cardiothorac Vasc Anesth.* 2021;35(10):2928–2936. doi:10.1053/j.jvca.2020.12.047
- Nagaraja PS et al. Continuous thoracic epidural vs bilateral erector spinae block for cardiac surgery. *Ann Card Anaesth.* 2018;21(3):323–327. doi:10.4103/aca.ACA_16_18