

Superficial versus deep approach of serratus anterior plane block for anterior chest wall surgery: a systematic review and meta-analysis of randomized controlled trials



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INTRODUCTION

- Serratus anterior plane (SAP) block is simple, safe, and effective for postop pain.
- It targets the lateral branches of the intercostal nerves traverse .
- Two approaches, superficial and deep SAP blocks, are described depending on the deposition of local anaesthetic above or below the serratus anterior muscle.
- Blanco et al. in 2013 concluded that the superficial approach is more effective for the two approaches based on the MRI contrast spread and sensory mapping on the four volunteers
- Both approaches offer effective analgesia for breast and thoracoscopic surgeries, but the potential differences in efficacy between the two remain a topic of interest.

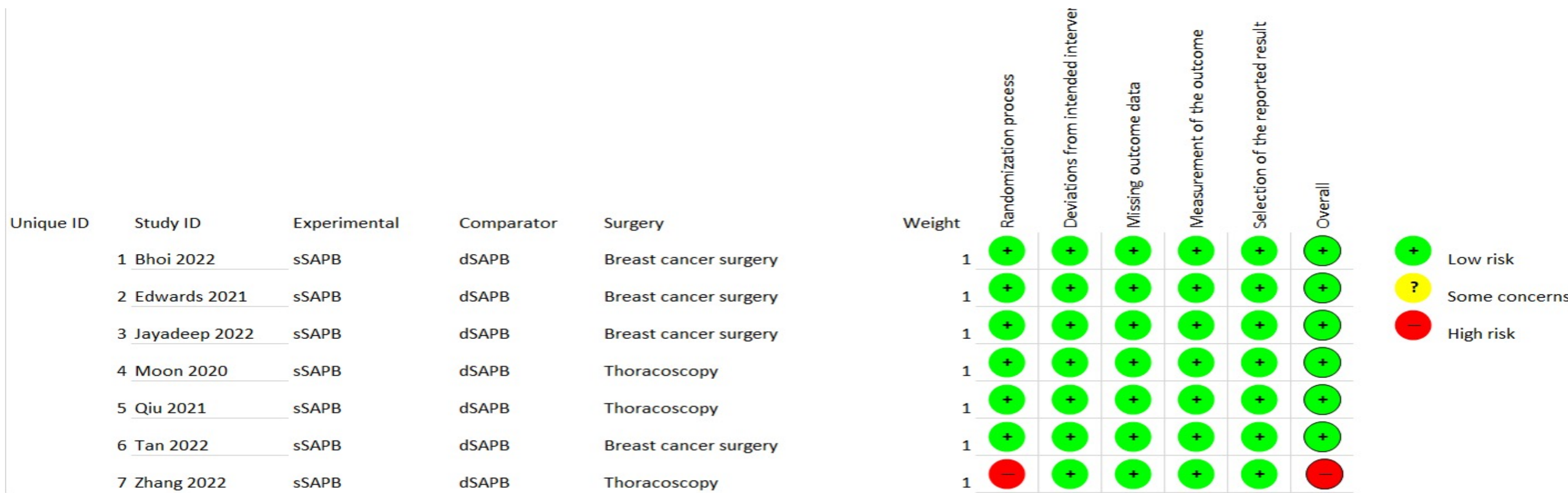
OBJECTIVES

To evaluate the comparative efficacy of the two approaches for SAP block (Superficial vs deep).

- **Primary outcome:** Opioid consumption during first 24 hours of the postoperative period.
- **Secondary outcomes:** Pain scores at various intervals, intraoperative opioid consumption, time to first analgesic request, block-related complications, opioid-related side effects, and patient satisfaction scores.

METHODOLOGY

- **PICOS criteria used**
Patients: Adults (≥ 18 years) undergoing breast or thoracic surgery.
Intervention: Patients receiving superficial approach SAP block.
Comparator: Patients receiving deep approach SAP block.
Outcome: described above
Settings: Inpatient
- Methodology and study selection are reported as per (PRISMA) guidelines
- Databases searched from inception to the August 2023 included PubMed, Embase, Scopus, and Cochrane Central Registers of Controlled Trials.
- The risk of bias (ROB) was determined based on the Cochrane Collaboration (ROB2) criteria.
- The overall certainty of evidence was assessed using (GRADE) guidelines.

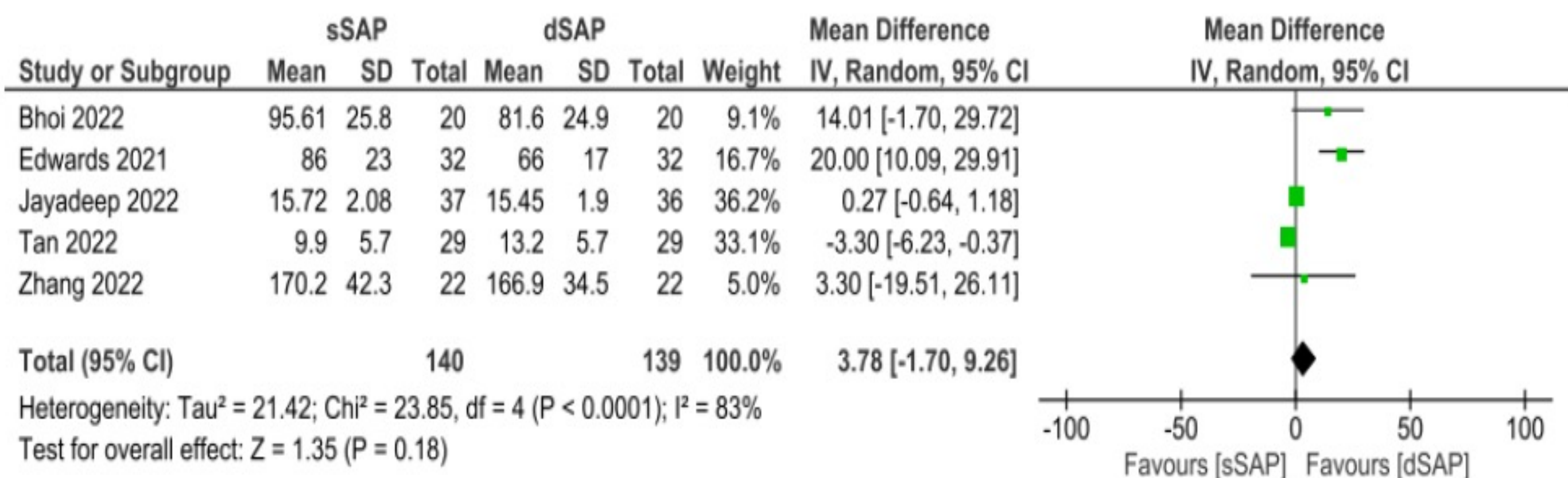


Risk of bias summary of included studies according to Cochrane Collaboration guidelines. *Green, red, and yellow circles indicate low, high, and some concerns respectively*

Statistical analysis : Review Manager Version 5.3.

RESULTS

- Seven trials enrolled 371 patients. 186 received superficial SAP, and 185 received deep SAP block.
- Moderate certainty of evidence suggests that both approaches of SAP block were comparable for 24-hour opioid consumption.



Primary outcome: Pooled data evaluating oral morphine equivalent consumption at 24 hours

- The 95% prediction interval showed that future trials may strengthen the evidence to differentiate the clinical efficacy between the two approaches.
- The results of other secondary outcome were comparable between the two approaches.

CONCLUSION

Current evidence does not support the preference for one approach of SAP block over the other for postoperative pain. Based on the available data, we recommend further future trials to determine any differences between these interventions (if any).



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