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Single-Shot Femoral Nerve Block Versus Local Infiltration Analgesia for Patients Undergoing Total Knee Arthroplasty: A Systematic Review and Meta-Analysis

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Faculty Disclosure Information

- Nothing to disclosure.

Introduction

- Total knee arthroplasty is a widely performed procedure worldwide
- The control of post-operative pain is a critical aspect of patient care
- Local infiltration analgesia (LIA) and femoral nerve block (FNB) are options for the perioperative pain management
- No previous meta-analyses have specifically compared single femoral nerve block (sFNB) with LIA

Objectives

- Compare single femoral nerve block (sFNB) to local infiltration analgesia (LIA) in terms of postoperative pain scores, opioid consumption, incidence of nausea and vomiting, and length of hospital stay for total knee arthroplasty.

Material and methods

- This is a systematic review and meta-analysis
- Inclusion criteria
  - (1) Randomized clinical trials;
  - (2) Studies comparing sFNB versus LIA for the postoperative pain management in patients undergoing total knee arthroplasty
- Outcomes
  - Postoperative pain scores (at rest and during movement)
  - Opioid consumption
  - Nausea or vomiting in the postoperative period
  - Length of hospital stay

Material and methods

- Mean differences and risk ratios for continuous and binary outcomes, respectively, were pooled in a random-effects model
- Subgroup analyses were performed for the drugs used in the LIA cocktail
  - (1) Studies that included epinephrine in the drug cocktail
  - (2) Studies that included morphine in the drug cocktail
  - (3) Studies that included ketorolac in the drug cocktail

Results

- Systematic search yielded 922 results
- 37 studies were reviewed in full text to assess eligibility
- A total of 12 randomized clinical trials were included in the meta-analyses

Results

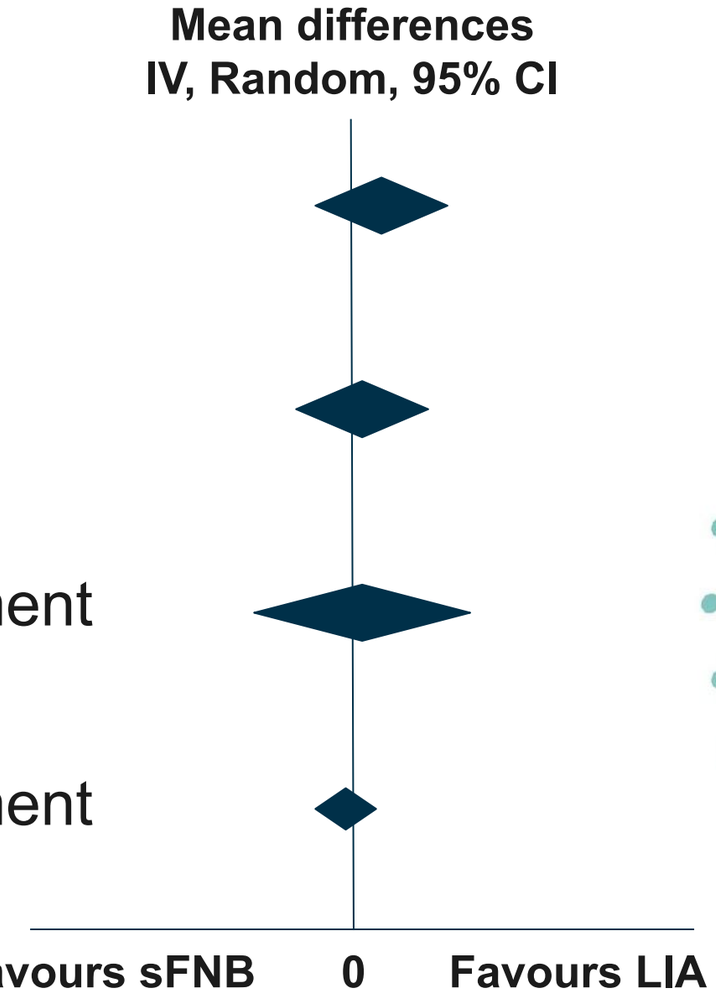
- **Postoperative pain scores**

On postoperative day 1 at rest

On postoperative day 2 at rest

On postoperative day 1 during movement

On postoperative day 2 during movement



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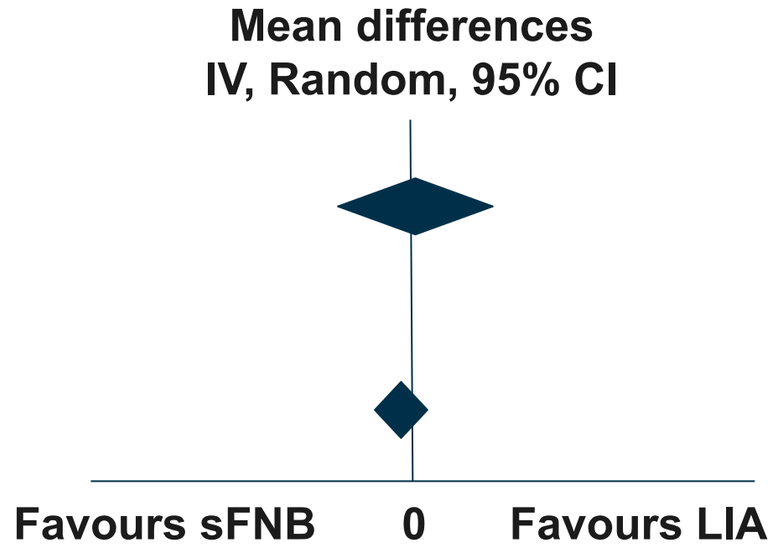
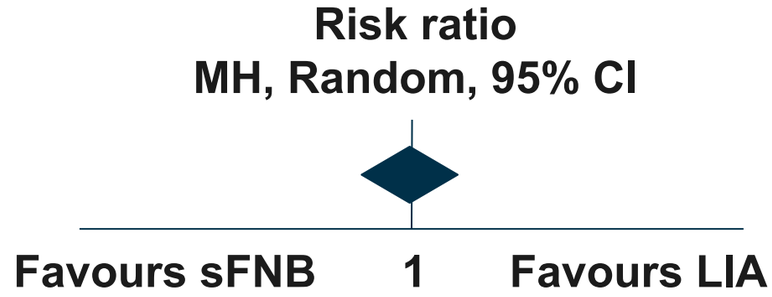
Results

Opioid consumption on postoperative day 1

Opioid consumption on postoperative day 2



Postoperative nausea and vomiting



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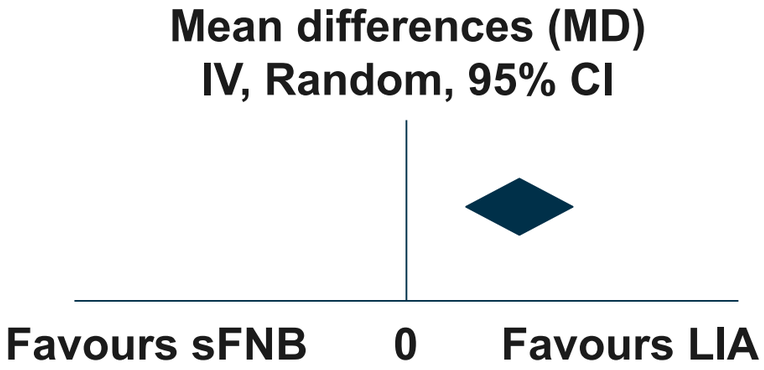
Results

Length of hospital stay

MD ≅ 5 hours and 30 minutes, favoring LIA group



- **Subgroup analyses**

The subgroup analyses with (1) epinephrine, (2) morphine, and (3) ketorolac followed the overall non-statistically significant trend in postoperative pain scores and opioid consumption outcomes

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Conclusion

- No differences were found between single femoral nerve block (sFNB) and local infiltration analgesia (LIA) for total knee arthroplasty in terms of postoperative pain scores, opioid consumption or nausea and vomiting
- The LIA group demonstrated a shorter length of hospital stay; however, the mean difference of 5.5 hours may lack clinical relevance
- The addition of (1) epinephrine, (2) morphine, or (3) ketorolac to the LIA drug cocktail did not result in outcomes that differed significantly from the overall findings

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