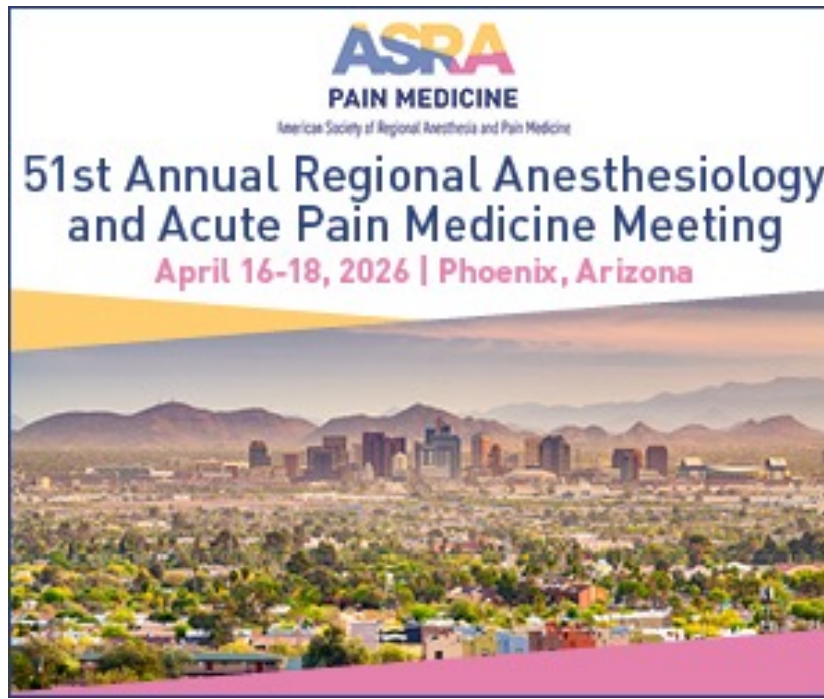




A Retrospective Comparison of Liposomal Bupivacaine with Continuous Popliteal Sciatic Nerve Catheter in Foot and Ankle Osteotomy

Ilay Cetiner, MD; Melinda Seering, MD; Franklin Dexter, MD, PhD; Anil Marian, MD
University of Iowa, Department of Anesthesia, Iowa City, IA



Background

- Regional anesthesia is an integral component of multimodal analgesia for the perioperative management of orthopedic surgeries associated with significant postoperative pain [1, 2].
- Currently, both single-shot liposomal bupivacaine (LB) and continuous peripheral nerve blocks (CPNB) are widely used to manage pain following ankle arthroplasties and complex foot osteotomies [2-5].

The Clinical Gap & Objectives

The problem: Despite the proven independent efficacy of both techniques, there is a paucity of data directly comparing single-shot LB nerve blocks to CPNB.

Study purpose: This study aims to address this gap by providing additional comparative data and conclusions to assist clinical decision-making.

Material & Methods

Study type: Single-center retrospective chart review

IRB approval: University of Iowa IRB as an Umbrella Project on December 19, 2025 (IRB ID: 201911151), with a waiver of informed consent

Inclusion interval: Medical records from January 2021 to November 2025

Inclusion criteria:

- Patients ≥18 years old
- Ankle arthroplasty and (or) complex foot osteotomy surgeries
- Single-shot popliteal sciatic and adductor nerve blocks with LB vs single-shot adductor nerve blocks with a continuous popliteal sciatic nerve catheter (CPSNB)

Primary outcome: 24-hour MME

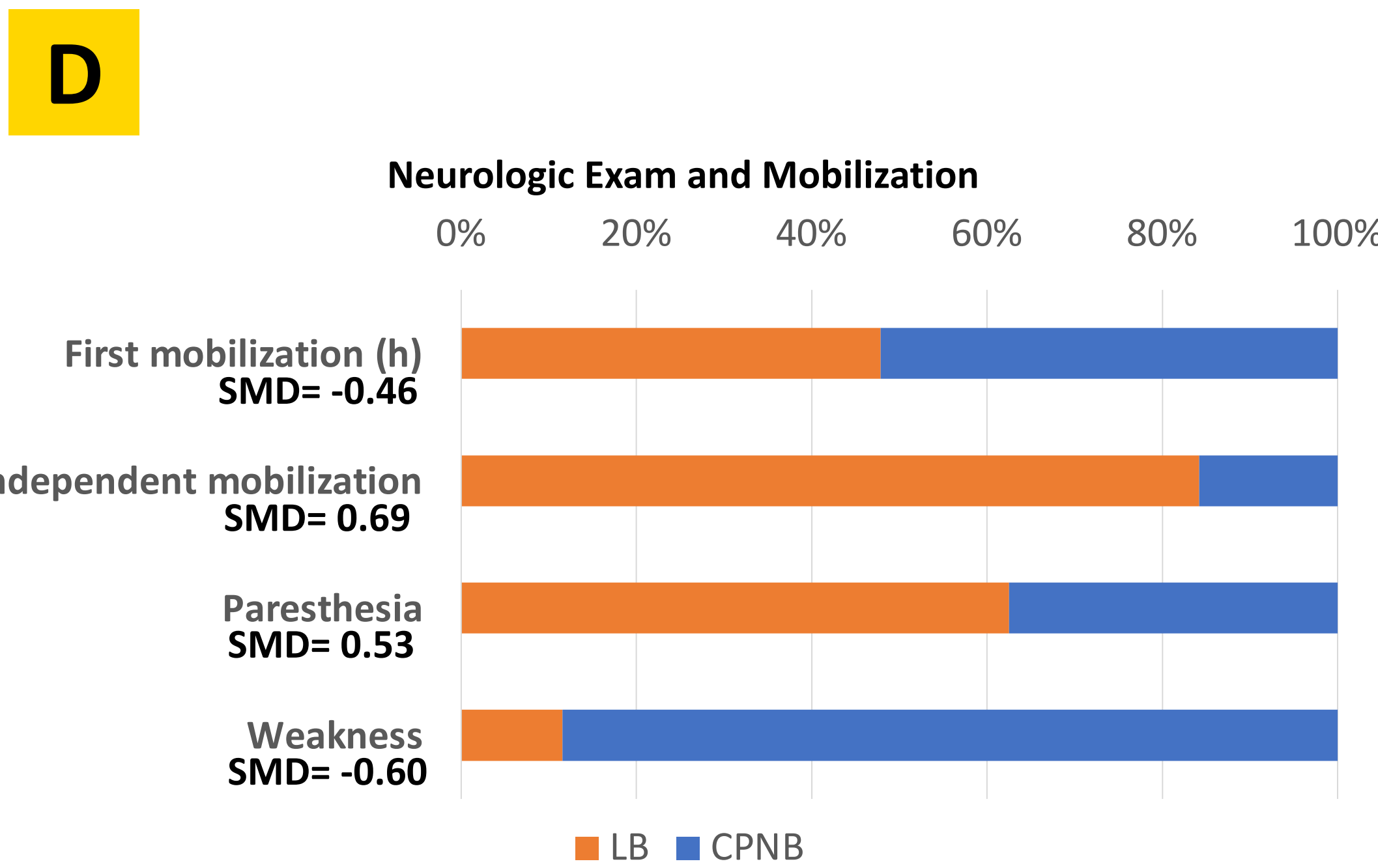
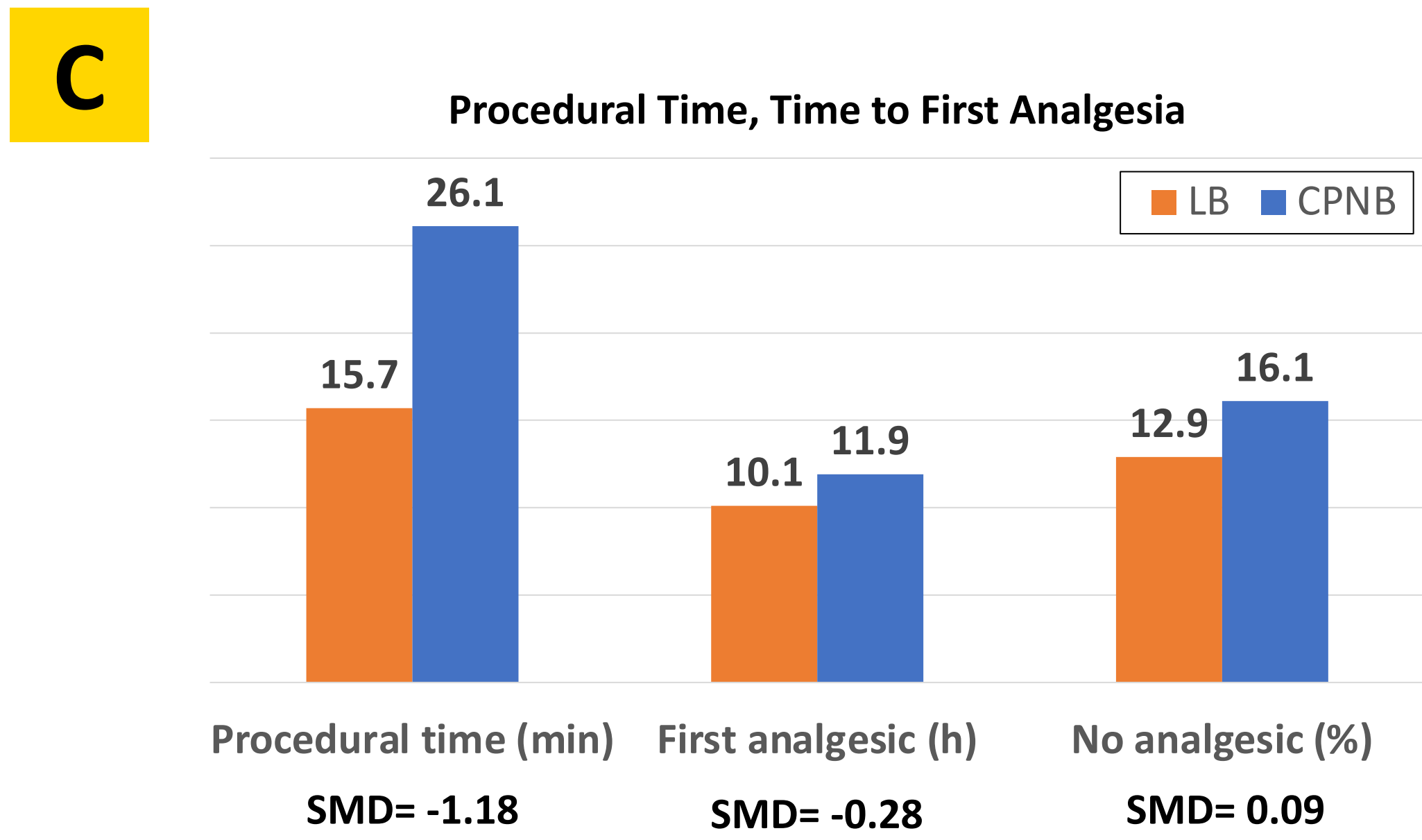
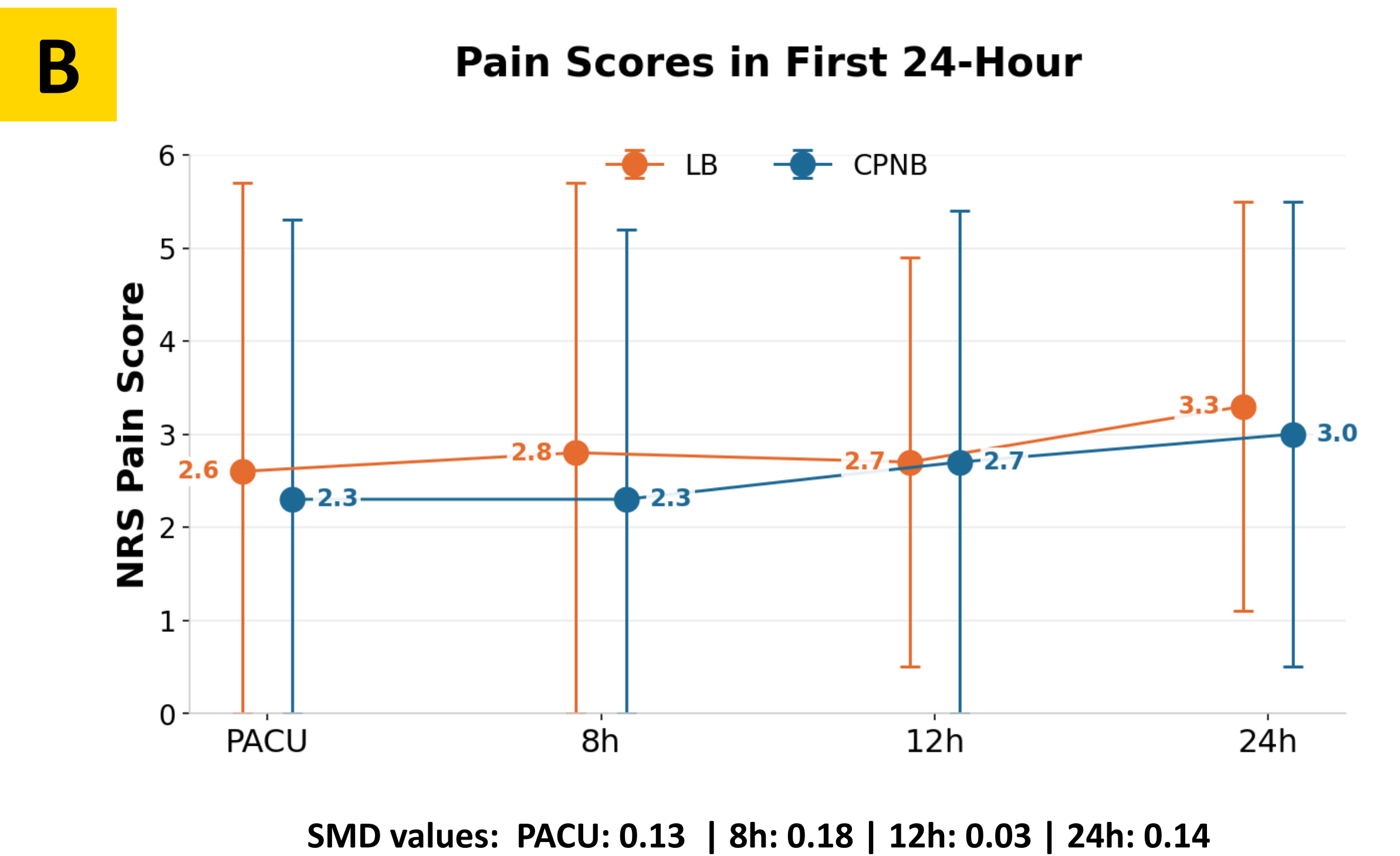
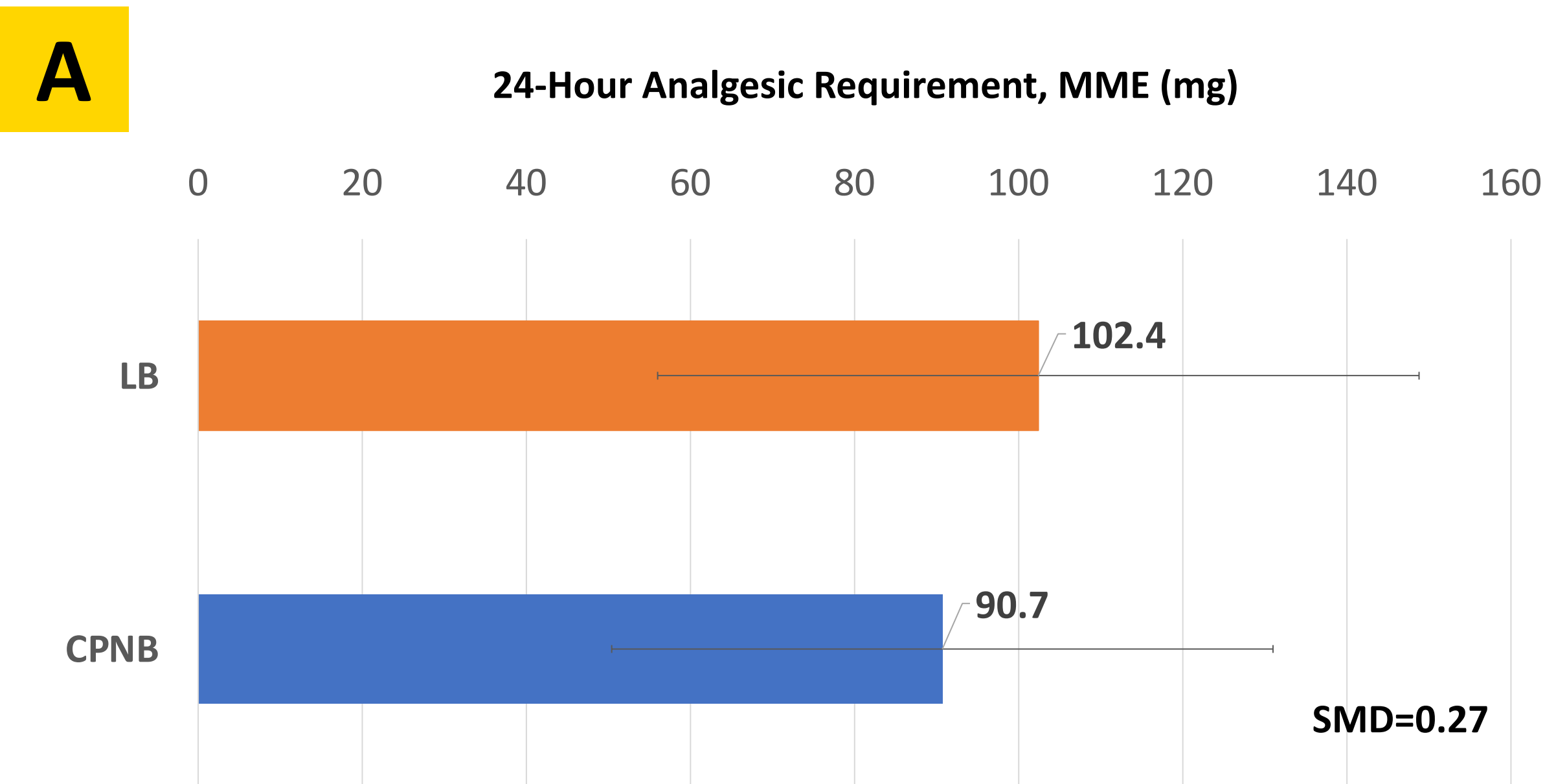
Secondary outcomes: NRS scores (PACU, 8 h, 12h, 24h), analgesic duration, procedural duration, ambulation outcomes, and adverse events.

Statistical analysis: Comparison using central tendency and dispersion measures

Results

Matched cohorts:

- 31 patients per group
- No statistically meaningful differences in age, BMI, sex, race, or ASA classification.
- Neither group experienced arrhythmia within the first 24 hours, nor were there any cases of infection, hematoma, delirium, or local anesthetic systemic toxicity.



Discussion

Key Takeaways:

- ✓ LB provided equivalent analgesia to CPSNB while minimizing motor impairment.
- ✓ Single-injection LB significantly reduced acute pain service workload compared to catheter management.

Prior Literature:

- Ankle & Foot Surgeries:** Prior data shows that LB extends block duration (up to 5–7 days) and reduces opioid use (MME) compared to plain local anesthetics [2, 6, 8].
- LB vs. Catheters:** Our study aligns with similar existing joint arthroplasty literature [7, 9–11], suggesting that LB offers comparable or better pain control and recovery versus CPNB approaches.

Study Context:

- ❖ **Novelty:** To our knowledge, first direct comparison of CPSNB vs LB in these specific foot/ankle surgeries.
- ❖ **Limitations:** Retrospective design relies on existing documentation, risking potential selection/information bias.

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