

Femoral Catheter Marginally Improves CPM Compliance but Significantly Lowers Opioid Use vs Adductor Canal Catheter with ACL Repair

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Background

- Evidence shown by previous studies:
 - Adductor Canal Block catheter (ACB) is non-inferior to Femoral Nerve Block catheter (FNB) analgesia after Total Knee Arthroplasty [1].
 - Single shot ACB is non-inferior to single shot FNB after ACL repair [2].
 - ACB shows similar analgesia to FNB, with ACB better preserving quadriceps strength [3].
- Some surgeons have requested a FNB catheter but not an ACB catheter for pain control after ACL reconstruction due to a subjective impression of **(1) better pain control, (2) less call back for poor pain control, and (3) less opioid refill requests.**
- Hypothesis: FNB catheter will be superior to an ACB catheter after ACL reconstruction for pain control without negatively affecting the quality of recovery from potential transient quadriceps weakness.

Aims

- Primary aims: Opioid Use and Pain Scores
- Secondary aims: Continuous Passive Motion Device (CPM) compliance for 48 hours after surgery and Quality of Recovery (QoR-15) score

Methods

- Double-blinded, Randomized Controlled Trial comparing Femoral Nerve Catheter with Adductor Canal Catheter.
- Standard ultrasound-guided femoral or adductor canal block catheter with a loading dose of 20mL 0.5% ropivacaine.
- Upon arrival to the recovery room, catheters were connected to portable infusion pump delivering a continuous infusion of 0.2% ropivacaine at 5mL/hr, with 5mL demand bolus and 30-minute lockout.
- Quality of Recovery questionnaire (QoR-15) conducted by phone at 24 and 48 hours after discharge from the recovery room.

Results

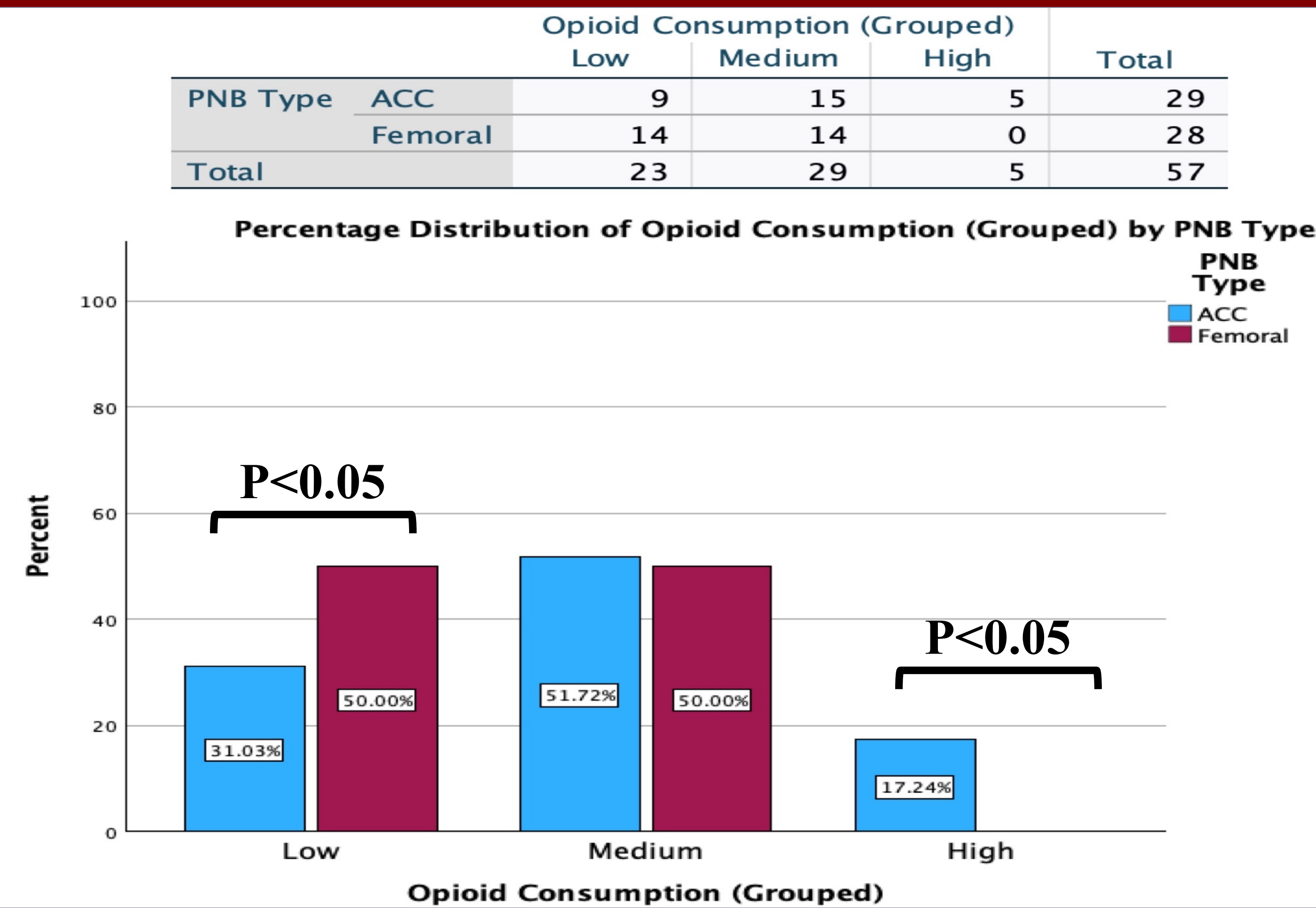


Figure 1: Opioid consumption of patients grouped by nerve block type

Opioid Consumption is defined as: High >50 MME/day, Medium between 10 and 50 MME/day, Low <10 MME/day

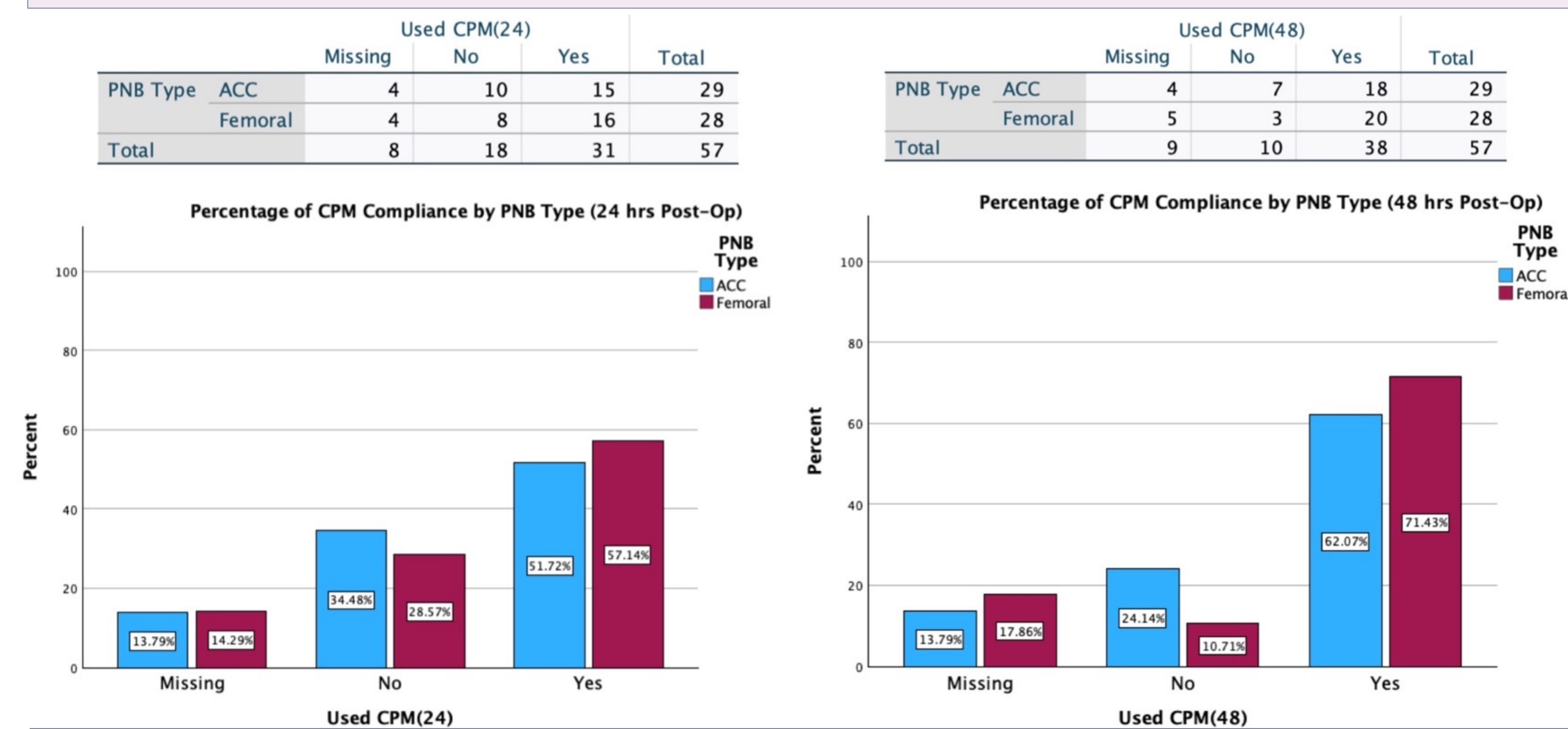


Figure 2: CPM compliance of patients grouped by nerve block type

Left: 24 hours post-op (p=0.932), Right, 48 hours post-op (p=0.455)

Results

- Patients included: FNB = 28, ACB = 29
- A significant association (p<0.05) exists between the FNB group and low opioid consumption, while the ACB group is associated with high opioid usage (p<0.05).
- Within the FNB group, there were no patients, 0% (0/28), who had a high opioid consumption level of more than 50 MME/Day. Moreover, there were 50% (14/28) patients who had a low opioid usage level of less than 10 MME/Day in the FNB group.
- In contrast, the ACB group included 17% (5/29) patients with high opioid usage and only 31% (9/29) patients with low opioid usage.
- There were no differences between FNB and ACB catheters for CPM Compliance, pain scores, and Quality of Recovery (QoR-15) score.

Discussion

- No difference in pain scores and quality of recovery partly due to a dedicated team titrating opioids to desirable clinical effects for both groups.
- ACB was placed proximal to the junction of the distal femoral triangle and proximal adductor canal, on average 5 cm above the mid-thigh, measured as the mid-point between the ASIS and the patella.
- Despite the small difference between the 2 groups, the FNB catheter prevents the most severe pain.
- Limitation: No power to assess “fall” risk**

References

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