

## Background:

- Adductor canal blocks are commonly used for post-operative pain management after total knee arthroplasty
- Rebound pain after nerve blocks has been reported in ~50% of patients
- Risk factors for rebound pain: female sex, young age, and bony upper limb surgery
- Our study aimed at investigating the effect of local concentration on the incidence of rebound pain

## Methods:

- Quality improvement study
- Retrospective analysis of 94 patients
- Exclusionary Criteria: Opioid tolerance, spinal anesthesia
- 0.2% ropivacaine group (n=46) vs. 0.5% bupivacaine group (n=48)
- Primary outcome: Rebound pain score (RPS)
- Secondary Outcomes: (MME)/day, LOS, and block duration.
- Analysis using a two-sample t-test.

**Table 1: Baseline Characteristics**

| Characteristic          | 0.2% Ropivacaine (n=46) | 0.5% Bupivacaine (n=48) |
|-------------------------|-------------------------|-------------------------|
| <b>Sex</b>              |                         |                         |
| <b>Male, n (%)</b>      | 13 (28.3)               | 11 (22.9)               |
| <b>Female, n (%)</b>    | 33 (71.7)               | 37 (77.1)               |
| <b>ASA Score</b>        |                         |                         |
| <b>ASA 2, n (%)</b>     | 13 (28.3)               | 13 (27.1)               |
| <b>ASA 3, n (%)</b>     | 33 (71.7)               | 34 (70.8)               |
| <b>ASA 4, n (%)</b>     | 0 (0.0)                 | 1 (2.1)                 |
| <b>Age</b>              |                         |                         |
| <b>Mean (SD), years</b> | 68.3 (9.9)              | 65.7 (7.0)              |
| <b>Median [Range]</b>   | 70 [44-90]              | 65 [52-82]              |

**Table 2: Results**

| Endpoints                           | 0.2% ropivacaine (n=46) | 0.5% bupivacaine (n=48) | p-value      |
|-------------------------------------|-------------------------|-------------------------|--------------|
| <b>Mean Rebound pain score (SD)</b> | 4.52 (2.62)             | 4.65 (2.59)             | <b>0.941</b> |
| <b>Mean daily MME consumed (SD)</b> | 38.9 (19.2)             | 45.11 (23.11)           | <b>0.092</b> |
| <b>Mean Block duration (SD)</b>     | 15.83 (5.69)            | 18.77 (7.94)            | <b>0.043</b> |
| <b>Mean Length of stay (SD)</b>     | 2.83 (0.88)             | 2.75 (0.89)             | <b>0.662</b> |

## Results:

- No significant difference in RPS between groups (4.52 vs 4.65; p=0.941).
- No significant differences were observed in MME/day (38.9 mg vs. 45.11 mg; p = 0.092) or LOS (2.83 vs. 2.75 days; p = 0.662)
- Block duration was significantly shorter with ropivacaine 0.2% than 0.5% bupivacaine (15.83 vs. 18.77 hours; p = 0.043).

## Discussion:

- Local anesthetic concentration had minimal impact on postoperative outcomes
- The 0.2% ropivacaine group had significantly shorter block duration
- The 0.2% ropivacaine group did not have higher MME/day or worsened analgesia
- The clinical relevance of longer block duration is unclear and further research is needed

### References:

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