

Effective Local Wound Infiltration with Morphine, Ketorolac, and Bupivacaine following Lower Extremities Tendon Surgery in Pediatric Patients: A Stratified Randomized Controlled Trial

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INTRODUCTION:

Tendon surgery in the pediatric lower extremities could cause severe postoperative pain, leading to psychological distress and chronic pain. Local wound anesthesia could significantly improve postoperative pain, but the best anesthesia regimen after tendon surgery in pediatric patients remains unknown. Therefore, this study aimed to compare the efficacy between single modal and multimodal local analgesia and the amount of morphine consumption in pediatric patients who underwent lower extremities tendon surgery.

METHODS:

Patients aged 1-17 who underwent lower extremity tendon surgery were stratified into two age groups due to different appropriate pain evaluation scales. Group 1 included patients aged 1-6 using the Children's Hospital of Eastern Ontario Pain Scale (CHEOPS), and Group 2 included patients aged 7-17 using the Numeric Rating Scale (NRS). Each group was then randomized into two groups of different local anesthesia regimens: A single modal group (1A and 2A: n = 20) who received 0.5% bupivacaine, and the multimodal group (1B and 2B: n = 20), who received a combination of 0.5% bupivacaine, ketorolac, and morphine. **(Figure 1)** A clinical significance level was defined using a minimum clinically important difference (MCID) at 2 points. In addition, postoperative morphine consumption and complications were also recorded.

RESULTS:

Forty pediatric patients (26 male and 14 female) with an average age of 9.2 ± 4.4 years were studied. The average day of admission was 3.08 ± 0.35 days. The multimodal analgesia regimen group demonstrated no significant difference in postoperative pain control compared with the single modal group during the first 48 hours postoperative period in both age groups. **(Figure 2)** Moreover, at no point were there any between-group differences in the CHEOPS and NRS scores that exceeded the MCID. We also observed no significant difference in postoperative morphine consumption between the two treatment groups. **(Figure 3)** Only one minor adverse event (pruritus) was found, and no major complications.

DISCUSSION AND CONCLUSION:

Multimodal wound infiltration using bupivacaine, ketorolac, and morphine did not yield any clinically important reduction in postoperative pain or opioid consumption compared with bupivacaine alone in pediatric patients who underwent lower extremities tendon surgery.

