

A Three-Arm, Randomized, Double-Blinded, Placebo-Controlled Trial Comparing the Efficacy of Adductor Canal Pain Catheters following Total Knee Arthroplasty

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INTRODUCTION: The United States has experienced a significant increase in opioid use and abuse over the last several years, with orthopedic surgeons reported to be the third-highest prescribers by specialty. Several studies have attempted to address opioid use after major orthopedic procedures but have largely focused on prescribing practices. There is currently limited data on the utility of adding adductor canal pain catheters to multimodal regimens following total knee arthroplasty to improve pain control and reduce opioid dependence. The purpose of this study was to compare a single-shot adductor canal block to continuous infusion or intermittent bolus adductor catheters, comparing postoperative pain levels and duration of opioid use.

METHODS: A total of 60 opioid-naïve patients participated in a prospective, randomized, double-blinded placebo-controlled trial. Following total knee arthroplasty, patients were randomized into one of three cohorts in a 1:1:1 fashion based on preoperative pain levels: 1) single shot adductor canal block with placebo catheter, 2) continuous infusion catheter, or 3) intermittent bolus catheter. Postoperative protocols were similar between cohorts except for the catheter. Patient outcomes were recorded for 60 days postoperatively.

RESULTS: There was no difference in length of stay ($P = 0.57$), oral morphine equivalents ($P = 0.63$), or use of on-demand medication ($P = 0.78$) between groups. There was no difference in pain scores at any point postoperatively (all $P > 0.05$). Though the single shot cohort trended towards a longer duration of opioid use (median 21 days) compared to the catheter groups (median 14 days for both), this did not approach statistical significance ($P = 0.59$). There was no difference in KOOS Jr. scores between groups at 30 or 60 days postoperatively (all $P > 0.05$).

DISCUSSION AND CONCLUSION: We found no significant differences in clinical outcomes, pain scores, or patient-reported scores between a single shot adductor canal block, a continuous infusion adductor canal catheter, and an intermittent bolus adductor catheter following total knee arthroplasty.

