

# **Extended-release, dual-acting local anesthetic in primary TKA is associated with decreased postoperative opioid use, shorter time to physiotherapy clearance, shorter hospitalization and higher percentage of early discharge**

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## **INTRODUCTION:**

Effective perioperative pain management after total knee arthroplasty (TKA) is essential for early mobilization, facilitates ambulatory surgery and leads to better long-term outcomes. A novel extended-release, dual-acting local anesthetic (ERDALA), comprising of bupivacaine and low-dose meloxicam in a Biochronomer polymer has demonstrated superior analgesic efficacy and opioid use reduction after TKA. The aim of this study was to determine if these benefits were associated with a shorter time to physiotherapy clearance and shorter length of stay.

## **METHODS:**

1254 primary TKA patients had ERDALA application and were matched to 1254 primary TKA where periarticular injection (PAI) was used using age, sex, body mass index (BMI) and American Society of Anaesthesiologists (ASA) scores. All patients had spinal anesthesia and anesthesiologist administered adductor canal and posterior capsule (IPACK) blocks. Postoperative morphine milligram equivalent (MME) use, numerical rating scale (NRS) pain scores, postoperative ambulation distance, knee arc of motion, time to physiotherapy clearance, time to discharge from post-anesthesia care unit (PACU) and length of stay were recorded.

## **RESULTS:**

Patients receiving ERDALA had lower postoperative MME use (41.7 vs 52.2,  $p=0.02$ ), greater initial postoperative ambulation distance (50m vs 38m,  $p=0.009$ ), shorter time to physiotherapy clearance (27.1h vs 42.7h,  $p<0.001$ ), quicker discharge from PACU (0.32 hours quicker,  $p=0.03$ ), and shorter length of stay in the hospital (.25 days faster,  $p<0.001$ ). 85% of TKA patients that received ERDALA were discharged within 2 days as compared to 70% who received PAI. There were no differences in baseline demographics, postoperative NRS pain scores and knee arc of motion ( $p>0.05$ ). There were no intraoperative events or complications related to ERDALA application. Time of administration for SOC PAI in this patient population is on average about 4 minutes while application of ERDALA is about 1 minute.

## **DISCUSSION AND CONCLUSION:**

Extended-release, dual-acting local anesthetic (ERDALA) application in TKA led to reduction of postoperative opioid use which was associated with shorter time to physiotherapy clearance, shorter hospitalization and higher percentage of early discharge. The quicker application time of ERDALA as well as the reimbursement of the product provide a potentially cheaper product in addition to improved outcomes. Future studies can look at the cost difference between the use of ERDALA versus SOC at other institutions and within other patient populations.