

Δ Periarticular Multimodal Analgesia for Postoperative Pain in Tibial Plateau Fractures: A Double Blind Randomized Controlled Study

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Purpose: Multimodal analgesic injections are becoming commonplace in elective orthopaedic surgery and while peripheral nerve blocks can be useful, the postoperative monitoring for compartment syndrome largely precludes the use of such blocks in patients with tibial plateau fractures. A previous pilot study of periarticular multimodal analgesia showed a potential benefit in patients with tibial plateau fractures in reducing pain but had a higher than anticipated rate of infection. After changing the delivery vehicle for the medication, the study was completed and the results follow.

Methods: Patients aged between 18 and 79 years with an isolated closed tibial plateau fracture (AO 41-B and C) were prospectively enrolled and randomized in a 1:1 double blinded fashion to either a placebo or active medication treatment arm. After open reduction and internal fixation of the tibial plateau fracture, either multimodal analgesic solution or normal saline was injected deep (morphine, clonidine, ketorolac) and superficial (morphine, epinephrine, bupivacaine) to the fascia. Patients were followed for 24 hours postoperatively every 4 hours with visual analog pain scores (VAS) and narcotic usage and discharge time was recorded. Patients were monitored postoperatively for complications including compartment syndrome, infection, arthrofibrosis, and nonunion.

Results: 90 patients were enrolled, 49 in the active group and 41 in the placebo group. 13 patients (9 active and 4 placebo) failed to complete the 24 hours of pain scores and 4 patients (3 active and 1 placebo) had the medicines contaminated prior to injections and were withdrawn. There was no difference at any time point in pain scores between the active and placebo group. There was no difference in narcotic pain medication usage (morphine milligram equivalents [MME] 110 vs 128, $P = 0.23$) or discharge timing (32 vs 32 hours, $P = 0.85$) between either group. Infections were similar between groups (4 vs 3, $P = 1.0$) with an overall infection rate of 9.6%. There was 1 manipulation under anesthesia and 1 nonunion in the active group with none for either complication in the placebo group. No patients were diagnosed with compartment syndrome postoperatively.

Conclusion: The use of local multimodal periarticular analgesic for closed tibial plateau fractures showed no difference in pain control and narcotic usage 24 hours postoperatively in this randomized double blind controlled trial. This study does not support the use of multimodal analgesic injections for tibial plateau fractures.

Δ OTA Grant

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.