

Optimizing Pain Management After Outpatient Ankle Fracture Fixation: A Randomized Controlled Trial

Matthew Siow, MD; Canhnghi Ta, BS; Paul J. Girard, MD; Alexandra Kay Schwartz, MD; William T. Kent, MD

UCSD, San Diego, California, UNITED STATES

Purpose: The use of prescription opioid analgesics has seen an alarming rise over several decades in the United States. To circumvent this, there has been a push towards implementing multimodal pain regimens for postsurgical pain management, but less data are available for the orthopaedic trauma population. In the present study, we compare how a single opioid regimen versus multimodal pain protocol affects opioid consumption, pain scores, and patient satisfaction after outpatient ankle fracture surgery.

Methods: This was a randomized controlled trial at an urban Level I trauma center. Patients were prescribed either a peripheral nerve block and hydrocodone-acetaminophen, or a peripheral nerve block and a multimodal pain regimen consisting of ibuprofen, acetaminophen, gabapentin, and oxycodone between June 2021 and December 2021. The main outcome of interest was morphine milligram equivalents (MME) consumed at postoperative days 4 and 14. Secondary aims included pain scores, satisfaction, and efficacy of individual interventions on pain control.

Results: A total of 31 patients (13 single, 18 multimodal) were included. There was no difference in demographics or surgical time between the groups. Average total MME consumed was 73.9 ± 50.5 . There was no difference in MME consumed, pain scores, or satisfaction at day 4 following surgery. Patients in the multimodal group consumed more MME by postoperative day 14 (55.9 vs 86.8), although this was not statistically significant ($P = 0.08$). At day 14, patients in the single protocol trended toward lower pain and higher satisfaction, although this was not statistically significant. The nerve block was found to be the highest rated individual intervention for pain control in either group ($P < 0.00001$).

Conclusion: There was no statistically significant difference in MME consumed or satisfaction when comparing a multimodal protocol versus a single opioid regimen after ankle fracture fixation. The present study shows that hydrocodone-acetaminophen monotherapy may yield superior pain control and satisfaction in the short term, but the superior effectiveness of nerve blocks may decrease the utility of opioid analgesia and potential differences in MME consumed. Further evaluation is required to optimize postoperative pain management and minimize opioid consumption, but this study suggests that an analgesic regimen equivalent to 75 MME is sufficient for the majority of outpatient ankle fracture surgeries.