

Randomized Controlled Trial Comparing a Multimodal Pain Protocol Versus Hydrocodone-Acetaminophen After Outpatient Orthopaedic Trauma Surgeries

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Purpose: The opioid epidemic continues to be a nationwide public health crisis. Due to the increasing implementation of multimodal pain regimens for postsurgical pain management, but with less literature available for the orthopaedic trauma population, we aimed to compare opioid monotherapy against a multimodal pain protocol after outpatient orthopaedic trauma surgeries.

Methods: This was a randomized controlled trial at a Level I trauma center. Patients were given either a peripheral nerve block and a multimodal pain protocol (ibuprofen, acetaminophen, gabapentin, oxycodone) or a peripheral nerve block and hydrocodone-acetaminophen between June 2021 and December 2021. The primary outcome of interest was morphine milligram equivalents (MME) consumed. Our secondary aims were pain scores, satisfaction and effectiveness of individual interventions on pain management.

Results: A total of 68 (34 multimodal, 34 monotherapy) patients were available for analysis. There was no difference in age, sex, body mass index (BMI), American Society of Anesthesiologists (ASA) physical status, or surgical duration between the 2 cohorts. Average total MME consumed was 58.75 ± 48.7 . At the postoperative time points, other than day 4 average pain, there was no difference in MME, pain scores, or satisfaction. The average number of MME consumed per day was 3.58 in the standard cohort and 4.56 in the multimodal group ($P = 0.2695$). Patients in both groups rated the nerve block as the most effective individual intervention for pain control ($P < 0.00001$).

Conclusion: There was no significant difference in MME consumed, pain scores, or satisfaction with the implementation of a multimodal pain management protocol versus an opioid monotherapy regimen after outpatient orthopaedic trauma surgeries. According to patients, nerve blocks seem to be the most effective in diminishing the effect of opioid therapy and any differences in MME consumed. An analgesic regimen including the MME equivalent of 75 MME was sufficient for achieving adequate pain scores and satisfaction in over 65% of our study population. Further studies are necessary to define the best strategies to minimize opioid usage and optimize pain control.