Randomized Pilot Trial for Pain Control Following Operatively Treated Ankle Fractures

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Purpose: Ankle fractures are often treated surgically in an outpatient setting. Postoperative pain control is achieved via a multimodal regimen, regional block, or local injection cocktail. It is unknown whether any of these methods is superior with regard to pain level, opioid usage, or quality of recovery. The goal of this trial was to assess if any method demonstrated improved pain control or quality of recovery.

Methods: In a two-center, randomized, patient-blinded controlled trial, patients with surgically treated ankle fractures using two incisions were included. Patients with a history of substance use disorder, active opioid use, or pain disorder were excluded. Patients were randomized to receiving multimodal, regional block, or a local cocktail consisting of ropivacaine, epinephrine, clonidine, and ketorolac. Patients were given a pain journal and recorded their pain scores at 24, 48, and 72 hours. Morphine milligram equivalents (MME) were recorded in the post-anesthesia care unit (PACU) and through 72 hours. Quality of recovery (QOR) score was assessed via telephone at 24, 48, and 72 hours. Outcomes were assessed using ANOVA and regression methods.

Results: In total, 40 patients participated (average age: 43 years). There was no difference observed in pain scores at 24, 48, and 72 hours among the groups (visual analogue scale [VAS] at 24 hours: 4.9, SD: 2.6, $p = 0.94$; VAS at 48 hours: 4, SD: 2.38, $p = 0.71$; and VAS at 72 hours: 3.3, SD: 2.1, $p = 0.71$). There was no difference in MME among groups in either the PACU or home (PACU: Mean MME: 40.0, SD: 59.3, $p = .22$; 72: Mean MME: 71.8, SD: 40.5, $p = .51$). QOR at 24 hours was similar between the cocktail and block, but improved over multimodal (24-hour QOR: 15.2, 15.2, and 13, respectively, $p = 0.024$). At 48 and 72 hours, the block demonstrated slight improvement over both, with multimodal lowest (48-hour QOR: 16.5, 15.7, and 13.5, respectively, $p= 0.03$; 72-hour QOR: 17.2, 16.3, 15, respectively, $p = 0.03$).

Conclusion: Although none of the methods demonstrated a statistically significant difference in pain score and opioid usage, the cocktail and block were associated with a clinically significant increase in QOR in the first 24 hours, with this diverging through 48 and 72 hours.