**Efficacy of a Multimodal Analgesic Protocol at Reducing Opioid Use After Orthopaedic Trauma**

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**Purpose:** Use of opioid therapy, which has been the mainstay of analgesia after orthopaedic trauma, can quickly lead to dependence after short-term use. Half of patients on opioids for at least 3 months progress to lifelong use. Limiting use during hospitalization may decrease the need for secondary prescriptions, which may decrease rates of dependence. The goal of this study was to determine the efficacy of two multimodal analgesic protocols at minimizing inpatient opioid utilization and decreasing outpatient secondary prescriptions following orthopaedic trauma. We hypothesized that our programs would decrease the rate of new long-term opioid use.

**Methods:** This IRB-approved, retrospective cohort study compared pre/post-implementation of state guidelines and implementation of a multimodal protocol informed by OTA guidelines. Patients were categorized into three cohorts: control, partial intervention (PI), and full intervention (FI). Control patients had no standardized protocol and pain was managed at surgeon's discretion. PI included state regulations regarding maximum days' supply prescribing limits, hiring of dedicated staff (pharmacist and nurse), and educational pamphlets. FI included the multimodal analgesic protocol emphasizing nonopioid pharmacologic therapy. The medical record and prescription data from our state prescription drug monitoring program (PDMP) were primary sources of data. The primary outcome of our study was rate of new long-term opioid use defined as 60 cumulative days of opioid therapy in the first 90 days post-discharge. Secondary outcome measures included receipt of an opioid prescription at discharge, days' supply of the opioid prescription at discharge, average daily morphine milligram equivalents (MME) of the discharge opioid prescription, and cumulative MME through post-discharge day 14.

**Results:** 1130 patients were included (393 in control, 359 in PI, 378 in FI). New long-term opioid use was significantly decreased for both interventions when compared to control (12.7%, 8.1%, and 7.9%, $P = 0.045$). Patients in either intervention cohort were discharged with shorter days' supply ($8.1 \pm 6.2$, $5.9 \pm 4.4$, and $5.7 \pm 4.1$, $P<0.001$) and lower average daily MME ($51.5 \pm 44.0$, $35.3 \pm 25.1$, and $34.8 \pm 24.9$, $P<0.001$) compared to the control cohort. However, the differences in end points between PI and FI cohorts were not significant. Cumulative MME through post-discharge day 14 was significantly less for both interventions and between PI and FI cohorts ($563 \pm 500$, $330 \pm 298$, and $269 \pm 249$, $P<0.001$).

**Conclusion:** Implementation of both a state-based protocol and our multimodal protocol led to decreased opioid use in the immediate post-discharge period as well as decreased long-term opioid prescriptions following discharge. This is promising evidence that protocols informed by the OTA guidelines likely result in decreased opioid dependence.