

Factors Associated with Post-operative Opioid Use in Opioid Naïve Patients Undergoing Total Knee Arthroplasty

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Background: Opioids persist as a concern for post-surgical complications such as ileus, urinary retention, delayed rehabilitation, and opioid dependence. Yet, they are still routinely prescribed following total knee arthroplasty (TKA). Evidence suggests that preoperative and in-hospital opioid use are risk factors for postoperative opioid use after TKA or total hip arthroplasty. However, there is still a paucity of information regarding the extent to which intraoperative opioid exposure contributes to postoperative opioid use in opioid naïve TKA patients. Our study aimed to assess the effect of in-hospital opioids, such as intraoperative IV, post-anesthesia care unit (PACU) IV, or PACU oral opioids, on postoperative opioid use.

Methods: This retrospective cohort study analyzed the patients who underwent unilateral, primary TKA between May 2020 and November 2023 by a single surgeon. All patients included in this study were opioid-naïve (defined as having no opioid prescriptions filled for the given patient three months prior to the patient's date of surgery), received the same multimodal pain protocol and did not have a contralateral TKA within six months post primary TKA. Patients received oral opioids after surgery upon their request. Patient data was retrieved from electronic medical records. Opioid prescription history data were collected from the Louisiana Board of Pharmacy's Prescription Monitoring Program (PMP) database. Data management and entry were done using REDCap while data analysis was done using SAS version 9.4 (SAS Institute Inc, Cary, NC, USA). Opioid prescriptions during the three months following TKA were analyzed as a function of in-hospital opioid use among the opioid-naïve group.

Results: A total of 140 patients were included in the study. The patient population was predominantly female (68.1%) and of White ethnicity (63.8%), with an average age of 66.7 years. The most common form of insurance coverage was private insurance (43.2%). Additionally, the majority of patients (91.4%) underwent peripheral nerve tissue freezing treatment within one month prior to the procedure, and most did not require hospital admission post-procedure (71.4%). During their hospital stay, 22.1% (31/140) of patients received Fentanyl IV, and 9.3% (13/140) received hydromorphone IV, either intraoperatively or during the PACU stay. Additionally, 31.4% (44/140) were administered an oral opioid during their hospitalization, and 5.7% (8/140) filled a prescription provided at discharge. Within three months post-surgery, 25.0% (35/140) filled at least one opioid prescription. Notably, none of the previously mentioned opioid exposures during the hospital stay showed a significant association with post-discharge opioid filling.

Conclusions: Further investigation is required to clarify whether in-hospital opioid administration, including intraoperative IV, PACU IV, or PACU oral opioids, poses a risk for heightened post-operative oral opioid consumption among opioid-naïve patients undergoing TKA. Additional research is needed to identify potential factors contributing to opioid-naïve patients' fulfillment of opioid prescriptions following TKA.