

Perioperative Opioid Analgesics and Hallux Valgus Correction Surgery: Trends, Risk Factors for Prolonged Use, and Complications

Introduction

Despite the current public health opioid crisis, and the orthopaedist's indirect contribution to the problem, there is a scarcity of epidemiological research on the prescribing patterns and effects of opioid analgesia on common orthopaedic procedures, such as hallux valgus correction. Perioperative analgesia for hallux valgus remains variable across prescribers. The purpose of the present study was to utilize a national insurance database to 1) examine trends in preoperative and prolonged postoperative opioid analgesia use in patients undergoing hallux valgus correction, 2) characterize risk factors for prolonged opioid analgesia use following hallux valgus correction, and 3) examine preoperative and prolonged postoperative opioid analgesia use as independent risk factors for complications following hallux valgus correction.

Methods

A national database was queried for patients who underwent hallux valgus correction from 2007-2015 with a minimum of 6 months of database follow-up using CPT coding. Preoperative opioid analgesia use was defined as an opioid prescription between 4 and 1 months prior to surgery. Prolonged postoperative opioid analgesia use was defined as a new opioid prescription between three and six months following surgery. A linear regression analysis was used to determine any trend in prescribing patterns over the study period. A multivariable logistic regression analysis was then utilized to identify any patient-related risk factors for prolonged postoperative opioid analgesia use, including pre-operative opioid analgesia use and other medication or drug use, patient demographics and patient comorbidities. Finally, a similar logistic regression analysis was used to evaluate: 1) any association between preoperative opioid analgesia use and prolonged postoperative opioid analgesia use, and 2) early and late complications following hallux valgus correction, including: emergency room visits, inpatient hospital admission, infection, stiffness, and revision surgery.

Results

20,749 patients met inclusion criteria, of which 3,464 patients were prescribed opioid analgesia preoperatively and 4,339 were prescribed opioid analgesia more than 3 months post operatively. Overall, 16.7 percent of patients were prescribed opioid analgesia preoperatively and 20.9 percent used opioid analgesia for a prolonged period postoperatively. There was no significant trend in the number of patients using opioid analgesia preoperatively or for a prolonged postoperative period over the years studied [Figure 1]. There were several independent risk factors for prolonged postoperative opioid analgesia use, the most significant being the number of opioid prescriptions prescribed preoperatively (OR 8.02, $p < 0.0001$) [Table 1]. Other significant risk factors included: preoperative prescription for methadone (OR 6.35, $p < 0.0001$), preoperative prescription for muscle relaxants (OR 1.61, $p < 0.0001$), preoperative prescription for anxiolytics (OR 1.48, $p < 0.0001$), back pain/lumbago (OR 1.45, $p < 0.0001$), and depression (OR 1.42, $p < 0.0001$)

Preoperative narcotic use was independently associated with an increased risk for emergency room visit for patients with 4+ opioid prescriptions (OR 1.78, $p < 0.0001$), increased risk of admission to hospital (OR 1.59, $p = 0.001$), infection (OR 1.28 $p = 0.033$), and revision surgery

(OR 1.29, $p = 0.014$). Prolonged postoperative use was also associated with significantly increased rates of infection (OR 1.87, $p < 0.0001$) and revision surgery (OR 1.55, $p = 0.0002$).

Conclusion and Discussion

Over the study period, 16.7 percent of patients undergoing hallux valgus correction are prescribed opioids preoperatively and 20.9 percent use opioid analgesia for a prolonged period postoperatively. There are several independent, patient specific risk factors for prolonged postoperative opioid analgesia use, the most significant of which is the degree of preoperative use. There is a significantly higher rate of postoperative complications following hallux valgus correction in patients who utilize opioid analgesia preoperatively and for a prolonged period postoperatively. Patients who undergo hallux valgus corrective surgery using opioid analgesia in the perioperative period should be counseled on their increased risk for such complications.