

Opioid Prescription Patterns 30 Days after Pediatric Supracondylar Humerus Fracture Closed Reduction and Percutaneous Pinning

David Deckey¹, Jack Haglin², Tony Gaidici, Daniel Reichert Gaines³, Judson Walker Karlen⁴, Jessica Davis Burns⁵

¹Orthopaedic Surgery, Mayo Clinic Arizona, ²Mayo Clinic, ³Ohiohealth, ⁴Phoenix Childrens Hospital, ⁵Phoenix Children's Hospital

INTRODUCTION: Supracondylar humerus fractures (SCH) are the most common type of elbow fracture in children, with high rates of surgical intervention. Medical management for postoperative pain for supracondylar humerus fractures has high variability, with evidence that many supracondylar humerus fractures could be treated effectively postoperatively with minimal or no opioids. Furthermore, there is significant morbidity and mortality related to pediatric opioid consumption. The goal of this study was to characterize the prescription patterns in the United States following closed reduction and percutaneous pinning (CRPP) of SCH and to propose a reduced postoperative pain protocol.

METHODS:

All patients, aged ≤ 17 years of age, who underwent CRPP of SCH from January 2010 and December 2021 were identified in a national insurance database. The primary outcome was quantifying postoperative pain medication prescriptions in the 30 days following SCH CRPP. Patient demographics, prescription duration, and morphine milligram equivalents (MME) were analyzed.

RESULTS:

In total, 45,252 SCH CRPP cases were identified, with average age of 5.9 ± 2.4 years. Nearly half of all patients (22,246/45,252) received a narcotic pain prescription. Patients were prescribed a mean of 6 ± 2 days of narcotics, averaging 16 MMEs per day, with an average total of 79.2 MME prescribed. The most common prescriptions were Acetaminophen / Codeine 120-12mg/5mL and Hydrocodone / Acetaminophen 7.5-325mg/15mL (6,290 and 8,389 prescriptions, respectively). Non-narcotic medications, including acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs), were prescribed to less than 10% of patients (4,120/45,252).

DISCUSSION AND CONCLUSION: Minimal narcotic protocols after CRPP for SCH have been shown to be effective, with all published studies recommending no more than eight doses and most recommending less. Furthermore, 22-98% of patients did not take any narcotics in these studies. The average 6-year-old should be prescribed no more than 25.2 MME total, based on these studies' recommendations. Additionally, four randomized controlled trials on pediatric musculoskeletal pain have shown that ibuprofen is equivalent to codeine with less adverse events. Therefore, the fact that nearly half of all patients over the past decade treated with CRPP for SCH received an average of 3 times (79.2 MME) the largest recommended narcotic prescription amount and 6,290/22,246 (28.3%) of prescriptions were for codeine is surprising. While efforts have been made to reduce opioid overprescribing while maintaining appropriate analgesia for supracondylar humerus fractures, there continues to be room for improvement. The authors advocate providing local analgesia infiltration intraoperatively, prescriptions for both an NSAID and acetaminophen, and education by the surgeon on scheduling non-narcotic pain medications, rest, ice, and elevation.