

### **What is the 30-Day Morbidity in Supracondylar Humerus Fractures? A Pediatric NSQIP Database Study**

**Introduction:** Open reduction and internal fixation (ORIF) is performed in children with supracondylar humerus fractures to maintain range of motion, achieve adequate cosmesis, and prevent neurovascular injury.

**Methods:** This study used the NSQIP-Pediatrics database to assess the 30-day morbidity after ORIF in pediatric supracondylar humerus fractures. Patient demographics (age, sex, and race) were recorded between 2012 and 2016, as were perioperative factors. Multivariate logistic regression was performed to identify predictors of complications.

**Results:** 16,356 ORIF patients with supracondylar humerus fractures were identified. They were more commonly white (71.6%), female (44.6%), and 5-9 years of age (63.0%). Procedures were more often classified as emergent (44.6%). Year-over-year trends revealed no difference in procedure volume during the study period. Asthma was the most common comorbidity at the time of operation (4.2%). Among admitted patients, mean time from admission to operation was  $0.48 \pm 6.4$  days, whereas mean total length of hospital stay was  $0.81 \pm 3.8$  days. Almost all (99.8%) cases were performed under general anesthesia with a mean anesthesia duration of  $75.6 \pm 40.4$  and a mean operative time of  $36.8 \pm 28.2$  minutes. Superficial incisional surgical site infection was the most common complication (0.4%), followed by nerve injury (0.2%). Male sex (OR: 1.52), ASA  $\geq 3$  (OR: 3.3), and transfer from an outside hospital (OR: 2.9) independently predicted complication (all,  $p \leq 0.044$ ).

**Discussion:** Most ORIF patients with supracondylar humerus fractures were healthy at the time of operation, classified as ASA class 1, and had low rates of comorbidities. Superficial incisional surgical site infection was the most common complication, and male sex, ASA Class  $\geq 3$ , and transfer from an outside hospital were predictive of increasing 30-day postoperative morbidity. This study may help surgeons to better risk stratify patients prior to supracondylar humerus fracture surgery.