

Emergency department visits after pediatric supracondylar humerus fracture

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INTRODUCTION: Pediatric supracondylar humerus fractures make up approximately 18% of all pediatric fractures, and are the most common pediatric fracture to require surgical intervention. Emergency department (ED) visits following this injury/surgery are not well characterized, but should be of clinical interest.

METHODS: Pediatric patients (age greater than 1 years old and less than 13 years old) who had a supracondylar humerus fractures were identified from the 2010 – 2021 PearlDiver M157 administrative database. These patients were stratified based on whether they visited the emergency department at least once within ninety days following their initial injury diagnosis/evaluation. In order to determine predictor factors for ED utilization, patient characteristics were determined and multivariate logistical regression was performed. Additionally, the timing of when patients were utilizing the ED and reasons for ED visits were determined.

RESULTS: A total of 92,994 patients were identified, of which surgery was performed for 3045 (29.5%). Post-injury/post-operative ED visits were noted for 10,325 patients (11.1%) for a total of 12,627 ED visits.

Nearly half of all ED visits occurred within the two weeks immediately following the fracture (46.1%, Figure 1). Notably, 54.7% of visits were unrelated to the elbow (viral infections, GI related concerns, strep pharyngitis, etc).

On multivariate analysis, patients who utilized the ED were of greater odds ratio (OR) to have: utilized ED prior to their initial injury (OR:2.69), be diabetic (OR: 1.81), had surgical fixation (OR:1.58), be obese (OR: 1.57), have asthma (OR:1.55), have Medicaid insurance (OR: 1.29), or be younger (OR: 1.11 per year decrease) ($p < 0.001$ for all).

DISCUSSION: In the 90 days following pediatric supracondylar humerus fracture, over 11% of patients visited the ED most commonly in the first two weeks. While many of these were related to fracture/injury care, over half were not. This study is limited by the retrospective nature of administrative dataset. Additionally, data was viewed at population level, so patient-specific factors were not assessed.

SIGNIFICANCE/CLINICAL RELEVANCE: Following initial diagnosis/surgery for pediatric supracondylar humerus fractures, ED visits are an important metric that relates to patient satisfaction may indicate potential needs for improvement in patient care pathways. The defined timing and factors associated with such ED visits may help target steps to improved patient management.

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IMAGES AND TABLES:

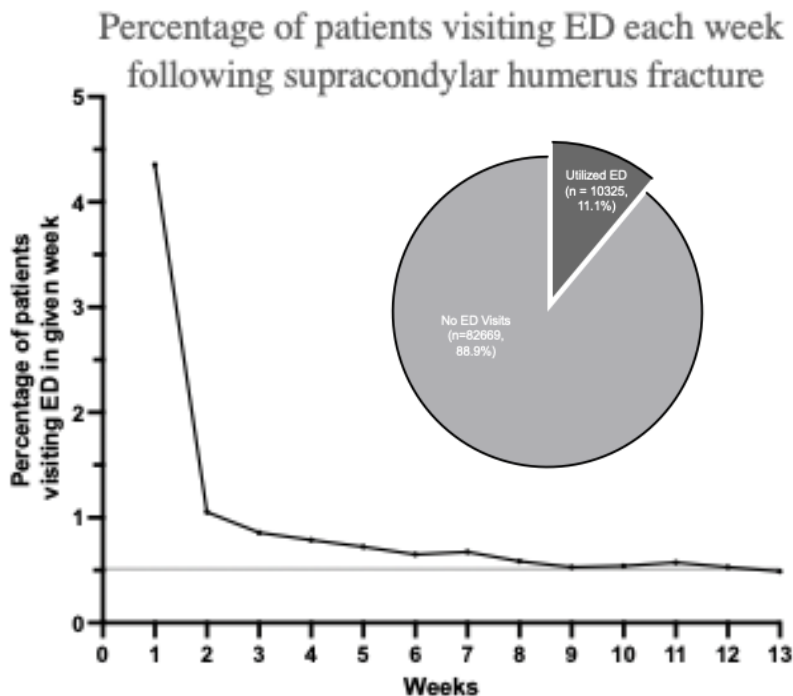


Figure 1: The percentage of overall patients that presented to the ED each week is shown. The grey bar represents the average ED visits a year out from fracture, representing the average ED visits for this population.