Variation in documentation of pediatric supracondylar fractures
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INTRODUCTION
- Supracondylar humerus fractures are the most common pediatric elbow fracture with a reported rate of nerve injury from 6-16%
- Previous studies have found poor rates of neurologic examination in orthopaedic patients
  - Tan et al. studied 114 orthopaedic trauma patients and noted incomplete initial neurologic examination in all patients
  - Chang et al. noted that insufficient preoperative neurologic documentation correlated with delayed diagnosis of postoperative neurologic events in pediatric orthopaedic patients
- The purpose of this study is to assess the adequacy of neurologic documentation in children with supracondylar humerus fractures.

METHODS
- Retrospective chart review of children under 15 years with a supracondylar humerus fracture.
  - Patient age, type of fracture, clinician type (Emergency Department, “ED”, vs. Orthopaedics) and level of training were recorded.
  - Documentation of specific motor and sensory exam and presence of nerve palsy was recorded, including anterior interosseous, radial and ulnar for motor and median, radial and ulnar for sensory.
  - Linear regression was used to analyze documentation with regards to patient’s age and clinician level of training.

RESULTS
- 33 patients included, 3 with identified nerve palsies
  - 2 anterior interosseous, 1 radial nerve
- In all 3 patients with nerve palsies, it was not recognized/documented by the ED clinicians or Orthopaedic residents prior to Orthopaedic attending evaluation
- 97% of ED clinician notes did not have complete documentation of each specific nerve function
- Improved documentation by orthopaedic residents significantly improved with increasing patient age
  - Complete documentation in 90% of patients ≥6 years (p-value 0.046)
- No correlation between improved documentation and correctly identifying a nerve palsy (OR 0.88, p-value 0.43)

CONCLUSIONS
- Our results are in line with previous studies and demonstrate that neurologic documentation is often inadequate or incorrect in a pediatric population
- Neurologic documentation was lacking in almost all ED clinician evaluations of supracondylar humerus fracture patients
- Orthopaedic residents had improved neurologic documentation as patient age increased but did not recognize nerve palsies
  - Implies that barriers exist to appropriate examination of young children
- Improved education of ED clinicians and Orthopaedic residents is important to provide age-appropriate neurologic examinations in young children with orthopaedic injuries

Figure 1. ED clinician physical exam on a child with a supracondylar humerus fracture. Note that it just says “wiggles fingers”

Figure 2. Orthopaedic resident initial evaluation of a child with a pediatric supracondylar humerus fracture. Note the mention of FDP but no specification of which digit(s).

Both the ED clinician and Orthopaedic resident document an incomplete neurologic exam.

Figure 3. Post-operative attending Orthopaedic physician note including documentation of AIN palsy.

Citations.