Presentation Title/Topic: Time to Intervention affecting Outcomes in Pediatric Upper Extremity Nerve Injuries following Supracondylar Humerus Fractures

Summary/Abstract:

Introduction

Supracondylar humerus fractures are the most common pediatric elbow fractures and nerve injury is a well documented complication associated with these fractures [1-4]. While some nerve injuries following supracondylar humerus fractures spontaneously resolve, other injuries require operative intervention by a nerve specialist [3]. The aim of this study was to determine if time from injury to surgical intervention affects clinical outcomes in nerve injuries following pediatric supracondylar humerus fractures.

Aim/Purpose: The aim of this study was to determine if time to surgical intervention affects clinical outcomes in nerve injuries following pediatric supracondylar humerus fractures.

Methods

This study is a retrospective chart review of pediatric patients treated by the senior author (ZL) for nerve injuries following supracondylar humerus fractures. The study was approved by the institutional review board. ICD9 and ICD10 codes were used to identify all the pediatric nerve injury patients treated by the senior author. Chart review was completed to determine fracture pattern, date of injury, time to surgical intervention, and neurologic outcomes as documented in post-operative clinic visits. The British Medical Research Council muscle strength grading system [6] was used to grade the motor function recovery and the British Medical Research Council Score of Sensory Recovery modified by Mackinnon and Dellon [5] was used to grade the sensory recovery for each patient. Time to surgery and neurologic recovery (motor and sensory scores) were recorded for each subject and correlation analysis was run between these variables. Spearman correlation coefficients are reported and α=0.05 was used to determine statistical significance.

Results

Sixteen subjects met inclusion criteria. Average age of subjects was 9.8 years at the time of injury. Mean time to surgical intervention was 245.8 ± 165.8 days with a range of 0-2190 days. There was a statistically significant correlation between shorter time to surgical intervention and patients’ neurologic outcomes (Spearman correlation coefficient r=-0.54, p=0.04)

Conclusion

Our study reveals that a shorter delay to surgery improves neurologic outcomes in pediatric patients with neurologic injury following supracondylar humerus fractures. While a larger scale study is needed to further validate our findings, this study may indicate the need for sooner referrals to nerve specialist when there is neurologic compromise following a pediatric supracondylar humerus fracture.

The main educational objective of my presentation would be:

Educational Objective: The aim of this study was to determine if time to surgical intervention affects clinical outcomes in nerve injuries following pediatric supracondylar humerus fractures.

Name: Elizabeth Newman Degree(s): MD
☐ Physician ☑ Resident

Affiliation: Wake Forest School of Medicine

Address: Medical Center Blvd

City/State/Zip: Winston-Salem, NC 27157

Phone: 336-716-3448 Fax: 336-716-3861

E-mail: enewman@wakehealth.edu

Please complete and return this form, along with the Conflict of Interest Disclosure form, no later than Friday, May 19 to:

North Carolina Orthopaedic Association
PO Box 27167, Raleigh, NC 27611
FAX: 919-833-2023

Or submit information electronically (preferred) to: nlowe@ncmedsoc.org