Primary Repair of Upper Extremity Peripheral Nerve Injuries: An NSQIP Analysis from 2010-2016

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Introduction

- Primary repair of peripheral of nerves is a common technique used in reconstructive surgery
- Few studies have investigated 30-day adverse outcomes of these procedures in the upper extremities
- Using the NSQIP Database, our study sought to identify 30-day complication rates and help determine which patients may be at risk of developing them

Methods

- Retrospective analysis of NSQIP data from 2010-2016
- Cases selected if ICD9/ICD10 codes consistent with primary nerve repair of upper extremity
- Patients were grouped based on presence or absence of 30-day adverse outcomes for analysis
- Further analysis was done on patients with Isolated Peripheral nerve Injury versus those with multiple injuries

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Results

- 487,300 cases were reviewed
- 785 cases of upper extremity nerve repair
- 64% were male, mean age of 40 years
- Most common indication for surgery was injury to digits (54%)
- **30-day adverse events occurred in 23 cases (3%)**
- **Operation time was significantly longer in multiple injury group** compared to Isolated injury group (z=10.57, p<0.0001 by Wilcoxon Rank Sum Test)
- **Multiple Injury Patients were Significantly more likely to have 30-day adverse events** (p=0.0043 by Fisher's Exact Test)

Figure 1: Multiple vs. Isolated Injury Group

	Multiple Injury	Isolated Injury
Number of Patients	449	336
% of Total (n=785)	57%	43%
Median Operation Time (Minutes)	72	47.5
Operation Time Interquartile Range (Minutes)	51-111	32-65
Patients with 30-Day Complications	20	3

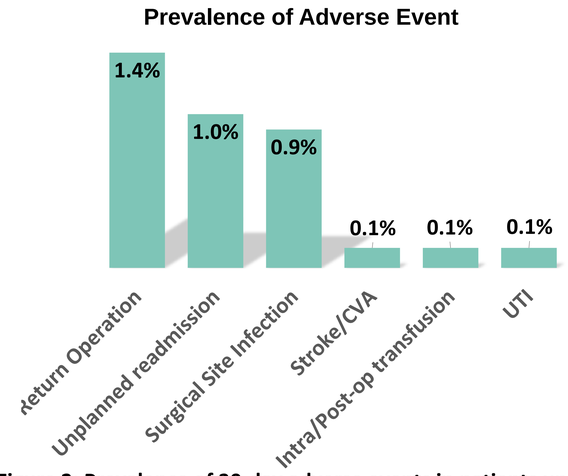

Figure 2: Prevalence of 30-day adverse events in patients undergoing primary repair of upper extremity peripheral nerve (n=785).

Conclusion

- Rate of 30-day complications after primary repair of upper extremity peripheral nerves appears to be low with an average annual incidence of <1% in the U.S.
- Return to operating room was necessary in 1.4% of observed cases and accounted for greater than one third of all 30-day complications
- 30-day adverse events were exceedingly rare in cases of isolated peripheral nerve injury
- Isolated peripheral nerve injury occurred in less than half of all cases
- Patients with multiple injuries and longer operation times were at greater risk of developing 30-day complications