



Evaluation of Peripheral Nerve Block and Neurologic Outcomes in Distal Upper Extremity Nerve Trauma – An Interim Report

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INTRODUCTION

- Practice advisories on neurologic complications caution against the use of PNB in patients with pre-existing nerve dysfunction.
- Previous retrospective analysis demonstrated that PNB provided the same, if not better recovery of nerve function compared to GA.

METHODS

- Data from September 2021 to November 2024. Nerve outcomes were determined by follow-up surgical notes. Analysis performed with chi-square or fisher's exact test.

Inclusion Criteria

18 years or older

Acute trauma to hand, wrist, and forearm

Reparative procedure of upper extremity nerve below elbow less than 4 weeks

Exclusion Criteria

Amputation

Prior nerve injury in the same limb or systemic neuropathy

Lost to follow-up before evidence of recovery

AIM AND FINDINGS

Table 1: Comparing patients receiving RA vs no RA. Comorbidities include HTN, DM and pre-existing nerve dysfunction

	Variable	Variable Level	No regional (n=45)	Regional (n=121)	p-value
1	Age		39.91 (15.18) - (20, 78)	49.71 (17.82) - (19, 93.642)	0.0034
2	Gender	Female	10 (22.7%)	52 (43.3%)	0.0159
		Male	34 (77.3%)	68 (56.7%)	
3	Any comorbidity	No	30 (66.7%)	59 (49.2%)	0.0446
		Yes	15 (33.3%)	61 (50.8%)	
4	Any improvement	No	10 (22.2%)	25 (20.7%)	0.8265
		Yes	35 (77.8%)	96 (79.3%)	
5	Length of Surgery		160.14 (138.05) - (18, 698)	98.6 (51.97) - (19, 308)	<0.0001

Table 2: Comparing patients with improvement vs no improvement in symptoms

	Variable	Variable Level	No improvement (n=35)	Improvement (n=131)	p-value
1	Age		42.01 (16.2) - (20, 69)	48.57 (17.85) - (19, 93.642)	0.0682
2	Gender	Female	10 (29.4%)	52 (40.0%)	0.257
		Male	24 (70.6%)	78 (60.0%)	
3	Any comorbidity	No	15 (44.1%)	74 (56.5%)	0.1972
		Yes	19 (55.9%)	57 (43.5%)	
4	Regional anesthesia	No	10 (28.6%)	35 (26.7%)	0.8265
		Yes	25 (71.4%)	96 (73.3%)	
5	Length of Surgery		142.06 (88.09) - (39, 386)	107.98 (86.75) - (18, 698)	0.0435

- Primary Aim:** Compare the rate of improvement in neurologic outcomes after surgery for acute nerve injury between patients who receive peripheral nerve blocks for anesthesia and those who receive other types of anesthesia
- Primary Outcome:** Documented evidence of neurologic improvement at surgical follow up
- Secondary Outcome:** Association of demographic variables in neurologic recovery
- Findings:** Between patients who received a regional block and no regional block, there were differences in gender, age and surgery length

There was no significant difference between improvement in patients who received a block vs those that did not

Comparing the patients with no improvement versus any improvement, the only variable with a significant difference between the groups is length of surgery

DISCUSSION

- Patients who received nerve blocks had similar recovery outcomes to those that did not. However, surgeons may still be cautious when deciding who should receive regional anesthesia and this hesitation may be due to severity of trauma and physician preference.
- Limitations of this study include skewed group selections and lack of randomization. There was also a lack of standardization in surgical documentation and follow-up notes.

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