

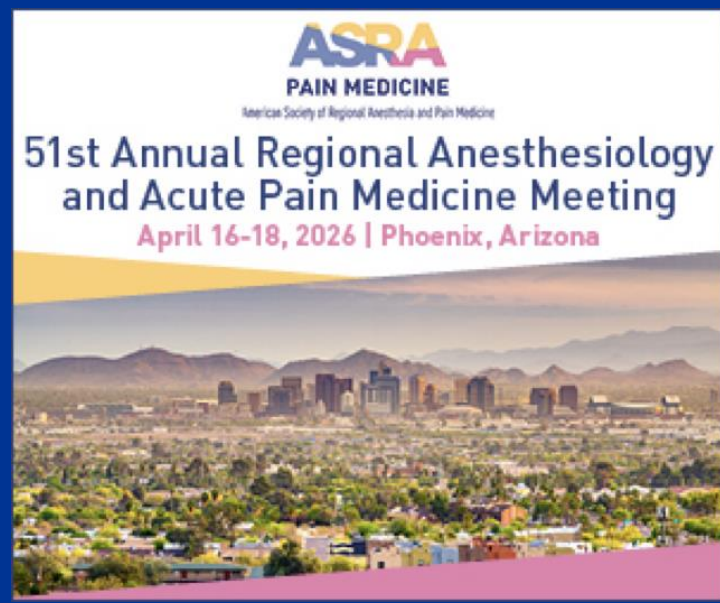


Effects of Brachial Plexus Blocks on Neurological Outcomes After Ulnar Nerve Decompression Surgery

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INTRODUCTION

- Ulnar neuropathy secondary to compression at the elbow, otherwise known as cubital tunnel syndrome, is a common pathology
- Peripheral nerve blocks are frequently requested for analgesia in these cases.
- Existing guidelines suggest potential increased risk in patients with pre-existing nerve injury (ASRA Guidelines).
- We conducted a prospective, observational database evaluation of outcomes after ulnar nerve release surgery.
- We hypothesized that neurologic outcomes would be similar between those who received brachial plexus blocks versus those who received other anesthetics.

METHODS

- Prospective database collected from surgical records of symptomatic patients undergoing ulnar decompression surgery at the elbow
- Patient demographics and comorbidities were recorded, along with surgical details and type of anesthesia/nerve block. This study was approved by the IRB (Study 24020072).
- The primary outcome of the study was the change in the McGowan score (0-3 based on severity of ulnar nerve symptoms/exam) from before to after surgery based on history and physical as well as EMG data if present
- This was compared between the block and non-block groups
- Other outcomes included complications of the block, chronic neurologic symptoms, and presence of any new postoperative neurological deficits
- Categorical variables were analyzed using chi-square tests or Fisher’s Exact Test as appropriate
- Continuous variables were analyzed using two-sample t-tests. The level of significance used was 0.05

RESULTS

- Within the study population, there were 32 patients who received a block and 106 who did not.
- Demographics and surgical/block variables are noted in Table 1
- For the primary outcome, there was no significant difference found between their preoperative McGowan scores (p = 0.2456), the postoperative scores, or the change in scores (Table 2)
- Other outcomes such as chronic neurologic symptoms and new nerve deficit were similar between the block and non-block groups (Table 2).

FIGURES/IMAGES

Variable	Variable Level	No block (n=32)	Block (n=106)	p-value
ASA Class	1	4 (12.5%)	4 (3.8%)	0.1507
	2	11 (34.4%)	47 (44.3%)	
	3	17 (53.1%)	55 (51.9%)	
Sex	F	9 (28.1%)	57 (53.8%)	0.0109
	M	23 (71.9%)	49 (46.2%)	
Cervical Disease diagnosed by EMG		6 (18.8%)	24 (22.6%)	0.6400
Hypertension		15 (46.9%)	56 (52.8%)	0.5547
Diabetes		11 (34.4%)	29 (27.4%)	0.4432
Peripheral vascular disease		4 (12.5%)	4 (3.8%)	0.084
Tobacco use within 5 years		6 (18.8%)	30 (28.3%)	0.2808
Excessive Alcohol Use		4 (12.5%)	1 (0.9%)	0.0104
Procedure of Ulnar Nerve	Decompression	31 (96.9%)	99 (93.4%)	0.2569
	Repair	1 (3.1%)	1 (0.9%)	
	Transposition and decompression	0 (0.0%)	6 (5.7%)	
Age		56.12 ± 14.93	57.66 ± 14.07	0.5946
BMI		30.18 ± 7.76	31.19 ± 6.74	0.4763

Table 1: Patient demographics in blocked vs non-blocked patients.

Variable	Variable Level	No block (n=32)	Block (n=106)	p-value
Preoperative neurologic deficit	None	0 (0.0%)	1 (0.9%)	0.386
	Motor	0 (0.0%)	2 (1.9%)	
	Sensory	18 (56.2%)	73 (68.9%)	
	Both	14 (43.8%)	30 (28.3%)	
Pre-Operative McGowan Score	0	0 (0.0%)	1 (0.9%)	0.2456
	1	18 (56.2%)	73 (68.9%)	
	2	14 (43.8%)	28 (26.4%)	
	3	0 (0.0%)	4 (3.8%)	
Postop Neurological status compared to baseline at time of follow-up visit	Improved	27 (84.4%)	97 (91.5%)	0.2414
	No change	5 (15.6%)	9 (8.5%)	
Post-Op McGowan Scale at time of surgical post-op visit	0	13 (40.6%)	65 (61.3%)	0.0935
	1	16 (50.0%)	36 (34.0%)	
	2	3 (9.4%)	4 (3.8%)	
	3	0 (0.0%)	1 (0.9%)	
Chronic neurological symptoms continued/developed > 6 months in limb		6 (18.8%)	18 (17.1%)	0.8341
Development of Chronic neuropathic pain-neuropathic pain >3 months in limb requiring evaluation	New Symptoms	2 (6.2%)	4 (3.8%)	0.2404
	Continued symptoms	7 (21.9%)	13 (12.3%)	
New Nerve Deficit		1 (3.2%)	3 (2.8%)	1.0000
Tourniquet Time (min)		30.06 ± 11.12	29.73 ± 18.73	0.9245
Surgical Follow-up Time (Days)		13.12 ± 2.66	14.04 ± 6.07	0.4109

Table 2: Comparison of blocked vs non-blocked patients in terms of various outcomes and surgical data.

DISCUSSION/CONCLUSION

- The results of this observational, database study suggest there is no difference in postoperative outcomes for patients undergoing decompression surgery for ulnar neuropathy based on anesthesia type.
- This data builds on previously performed retrospective studies with similar outcomes.
- Limitations include the potential bias of a non-randomized study, the subjective nature of the McGowan score, and limited sample size.
- Our data supports brachial plexus blockade for decompressive surgery involving ulnar nerve entrapment at the elbow.

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