

Practitioner Experience and Risk of Nerve Injury in Interscalene and Supraclavicular Blocks: A Retrospective Review

Helina Feleke, B.S.¹; Aniko Szabo, PhD¹; Anne Castro, MD²
¹Medical College of Wisconsin Department of Anesthesiology, ²Medical College of Wisconsin Department of Anesthesiology

INTRODUCTION

- Nerve injury after regional anesthesia is a rare but potentially serious complication, the incidence of which has remained stable over past decades despite advances in procedural technology.
- Brachial plexus blocks constitute the highest percentage of injury, with interscalene blocks (ISB) posing above average risk (2.84%).⁴
- To our knowledge, no one has examined whether the training level and experience of an anesthesia trainee affects the risk of complications.

METHODS

- Cases = patients with complications (post-op neurologic dysfunction, infection, significant bleeding, LAST, failed block, or catheter dislodgement).
- Each case was matched with 3 controls based on procedure type, block type, attending, and a different resident doing the procedure closest to the case date.

RESULTS

- Of 1,018 patients, 28 (2.7%) had postoperative new or worsened neurologic symptoms, 20 (1.9%) of which resolved within 3 months after surgery and 8 of which persisted beyond 3 months after surgery (0.7%).
- Other (non-neurologic) complications: mild CNS symptoms consistent with potential LAST that resolved upon discontinuation of local anesthetic infusion (1 patient, 0.09%), catheter dislodgement (32 patients, 3.1%), and failed blocks (3 patients, 0.29%). No patients experienced an infection or significant bleeding.

DISCUSSION

- The rate of neurologic complications in this study was lower than previously reported in literature. Pre-existing neuropathy was the only significant factor associated with an increased risk of post-procedural complications.

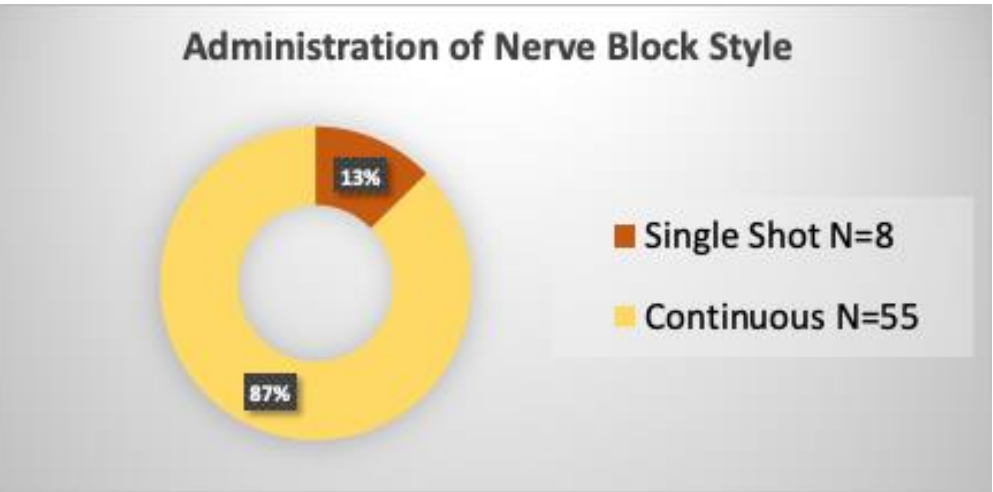
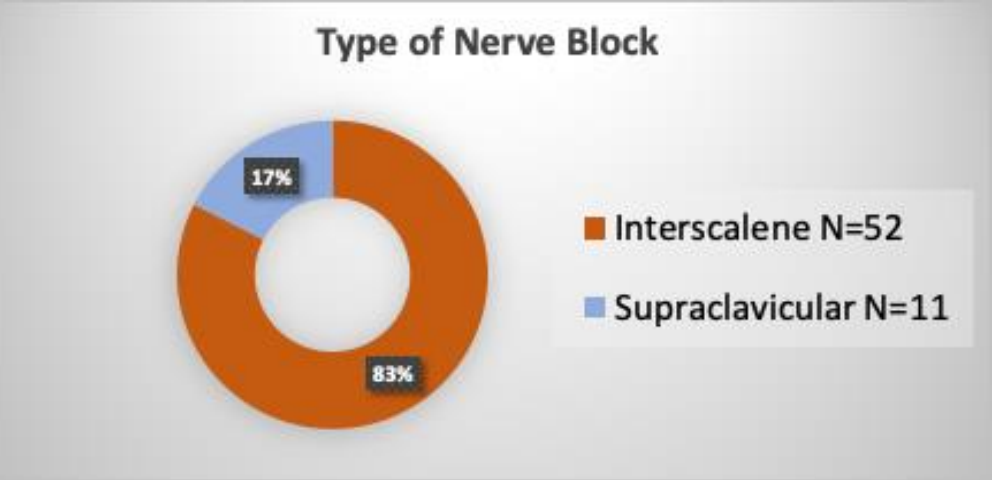


Pre-existing neuropathy is significantly associated with an increased risk of post-procedure nerve block complications. Practitioner experience did not increase risk of complications.



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DATA



Demographics (clinically significant complications*)				
Characteristic	Case, N = 31 ^a	Control, N = 89 ^a	Control (weighted), N = 31	p-value
Age	55 (45, 62)	57 (45, 67)	57 (46, 66)	0.65 ^a
BMI	30 (26, 38)	30 (26, 37)	30 (26, 37)	0.79 ^a
Gender				0.52 ^a
F	17 (55%)	54 (61%)	19 (62%)	
M	14 (45%)	35 (39%)	12 (38%)	
Pre-existing Neuropathy?				<0.001 ^a
No	17 (55%)	80 (90%)	28 (90%)	
Yes	14 (45%)	9 (10%)	3 (9.7%)	
Diabetes				0.49 ^a
No	21 (70%)	68 (76%)	24 (77%)	
Yes	9 (30%)	21 (24%)	7 (23%)	
Unknown	1	0		
ASA Classification				0.72 ^a
1	0 (0%)	3 (3.4%)	1 (3.8%)	
2	9 (29%)	23 (26%)	8 (26%)	
3	21 (68%)	60 (67%)	21 (67%)	
4	1 (3.2%)	3 (3.4%)	1 (3.2%)	
Training year of block proceduralist (resident)				0.47 ^a
CA-1	6 (19%)	11 (13%)	4 (13%)	
CA-2	7 (23%)	28 (32%)	10 (32%)	
CA-3	13 (42%)	25 (28%)	9 (29%)	
Fellow	5 (16%)	23 (26%)	8 (25%)	
Attending	0 (0%)	1 (1.1%)	0 (1.1%)	
Unknown	0	1		

*Clinically significant complications exclude catheter dislodgements

Predictors and their associated risk for clinically significant complications*:

Characteristic	Odds Ratio	95% Confidence Interval	p-value
Age	1.00	0.96, 1.05	0.84
BMI	1.00	0.95, 1.07	0.89
Gender			
F	--	--	
M	1.29	0.44, 3.80	0.64
Pre-existing Neuropathy?			
No	--	--	
Yes	6.28	1.93, 20.4	0.002
Diabetes			
No	--	--	
Yes	1.57	0.47, 5.17	0.46
ASA Classification			
1/2	--	--	
3	1.30	0.38, 4.37	0.68
4	1.31	0.06, 27.8	0.86
Training			
CA-1	--	--	
CA-2	0.45	0.09, 2.29	0.34
CA-3	0.99	0.22, 4.38	0.99
Attending/Fellow	0.28	0.05, 1.65	0.16

*Clinically significant complications exclude catheter dislodgements

