

Primary Spoken Language and Disparities in Continuous Peripheral Nerve Block Receipt for Shoulder Surgery: A Retrospective Review

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BACKGROUND

- Continuous catheter-based regional anesthesia has been associated with improved pain scores and reduced opioid use
- Language-based disparities in care have been shown to impact care, including provision of regional anesthesia techniques
- Continuous catheter techniques require significant perioperative communication and non-English primary spoken language may contribute to disparities in receipt of continuous catheter techniques for shoulder surgery.

STUDY AIM

- Evaluate the impact of primary spoken language on provision of continuous catheter techniques for patients undergoing shoulder surgery

METHODS

- This study received an exemption from institutional review board approval from the Mount Sinai Program for the Protection of Human Subjects/IRB.
- Study Design:** Retrospective analysis of data from institutional data warehouse
- Setting:** Large urban academic medical system
- Inclusion Criteria:** Adult patients undergoing total shoulder arthroplasty or arthroscopic shoulder surgery between 2019-2023 receiving a regional anesthesia block
- Exclusion Criteria:** Patients who did not receive a regional anesthesia block, emergency procedures, patients without primary language designation, or combined procedures
- Primary Outcome:** Receipt of continuous catheter regional anesthesia technique
- Statistical Analysis:** Descriptive statistics using Kuskal-Wallis and Chi Square where appropriate. Multiple variable logistical regression to measure the association between primary spoken language and receipt of continuous catheter techniques.

RESULTS

- See table 1 for study demographics and table 2 for primary outcome data.
- The most common non-English language was Spanish (92.2%), Cantonese (1.5%), and Polish (1.5%). Bengali, Russian, Arabic, Bisinaya, Mandarin, Edo, Japanese, and Romanian all accounted for less than 1%.
- Multiple variable logistic regression demonstrated non-English speaking patients were less likely to receive a continuous catheter-based regional anesthetic (**OR 0.32**, 95% CI 0.22-0.47).

	English (n=2,046)	Non-English (n=205)	P-value
Mean Age (SD)	58.8 (15.3)	65.7 (10.7)	<0.001
Sex, n(%)			<0.001
-Female	958 (46.8%)	144 (70.2%)	
-Male	1,088 (53.2%)	61 (29.8%)	
Race/Ethnicity			<0.001
-Black	302 (14.8%)	1 (0.5%)	
-Hispanic	504 (24.6%)	185 (90.2%)	
-White	1,092 (53.4%)	9 (4.4%)	
-Other	148 (7.2%)	10 (4.9%)	
Mean BMI (SD)	28.8 (6.0)	29.3 (4.9)	0.05
ASA Score, n(%)			0.32
-1-2	1,366 (66.8%)	127 (62.0%)	
-3	643 (31.4%)	75 (36.6%)	
-4	37 (1.8%)	3 (1.5%)	
Insurance Status, n(%)			<0.001
-Commercial	907 (44.3%)	31(15.1%)	
-Medicaid	144 (7.0%)	42 (20.5%)	
-Medicare	714 (34.9%)	112 (54.6%)	
-Worker's Comp	157 (7.7%)	12 (5.9%)	
-Other	124 (6.1%)	8 (3.9%)	
Smoking Status, n(%)			<0.001
-Yes	164 (8.0%)	8 (3.9%)	
-No	1,794 (87.7%)	174 (84.9%)	
-Unknown	88 (4.3%)	23 (11.2%)	
Anticoagulation Use, n(%)			0.46
-Yes	752 (36.8%)	70 (34.1%)	
-No	1,294 (63.2%)	135 (73.2%)	
Shoulder Surgery Type, n(%)			0.36
-Total Arthroplasty	611 (29.9%)	55 (26.8%)	
-Arthroscopic	1,435 (63.2%)	150 (73.2%)	
Patient Class, n(%)			0.85
-Ambulatory	1,549 (75.7%)	154 (75.1%)	
-Inpatient	497 (24.3%)	51 (24.9%)	
Service Year, n(%)			0.88
-2019	322 (15.7%)	37 (18.0%)	
-2020	382 (18.7%)	36 (17.6%)	
-2021	456 (22.3%)	46 (22.4%)	
-2022	422 (20.6%)	44 (21.5%)	
-2023	464 (22.7%)	42 (20.5%)	

Table 1:Overall sample demographics

TABLES

	English (n=2,046)	Non-English (n=205)	P-value
Continuous catheter technique, n%			<0.001
-Yes	1,533 (74.9%)	82 (40.0%)	
-No	513 (25.1%)	123 (60.0%)	

Table 2:Receipt of continuous catheter technique as stratified by primary spoken language

CONCLUSIONS

- Non-English primary spoken language is associated with reduced receipt of continuous catheter-based regional anesthesia for shoulder surgery at a large urban academic medical system
- Reasons for this disparity may be associated with communication difficulties, patient understanding or preference, or unforeseen reasons
- Further investigation into how to improve this disparity are needed

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