Associations Between Patients’ Primary Spoken Language and Perioperative Outcomes After Hip Fracture

Avanish Yendluri, Mateo Restrepo Mejia, Brocha Stern[1], Charles Laurore, Rodnell Busigó Torres, Steven John Yacovelli, Jashvant Poeran[2], Jeremy Podolnick, David Forsh

[1]Icahn School of Medicine At Mount Sinai, [2]Hospital For Special Surgery, Department of Anesth

INTRODUCTION:

Although hip fractures frequently present to emergency departments (EDs) and orthopedic teams, the associations between a patient's primary spoken language (PSL) and perioperative outcomes remain unclear. We aimed to identify the association between PSL and hospital length of stay (LOS), 90-day readmission, non-home discharge, 30-day return to ED, 90-day complications (venous thromboembolism [VTE], infection, or bleeding), and in-hospital death following hip fracture operative management.

METHODS:

A retrospective cohort study was performed using institutional data for patients who underwent inpatient non-elective hip fracture surgery between January 1, 2016-March 31, 2023 in a multi-hospital academic institution. Mixed-effects generalized linear models measured associations between PSL (English, Spanish, other non-English) and outcomes, adjusting for covariates; adjusted odds ratios (ORs) are reported for binary outcomes and adjusted mean differences are reported for continuous outcomes.

RESULTS:

The cohort included 3,718 patients (86.0% English, 7.5% Spanish, 6.5% other non-English). In multivariable analyses, patients with other non-English PSL had a significantly longer length of stay (vs. English) by an average of 0.78 days (95% CI: 0.17-1.33, P=0.012), with no significant difference for Spanish versus English (-0.21 days, 95% CI -0.69-0.28, P=0.402). Patients with Spanish PSL (vs. English) had higher odds of sustaining a 90-day complication (OR=2.15, 95% CI 1.02-4.54, P=0.045), but there was no difference for other non-English vs. English (OR=0.55, 95% CI 0.13-2.29, P=0.410). No significant associations were identified for 30-day ED visits, 90-day readmissions, discharge disposition, and in-hospital death.

DISCUSSION AND CONCLUSION:

Other non-English and Spanish PSL may be significantly associated with length of stay and 90-day combined complications, respectively, among patients who underwent surgery for a hip fracture. These findings affirm the impact of language barriers on perioperative outcomes, but further research is needed to evaluate the clinical significance of these findings on long-term outcomes.

Variable	Category	English (n=3197)	Spanish (n=280)	Other (n=241)	P-value [a]
		n (%)	n (%)	n (%)	
Hospital Length of Stay (Median, IQR)		6 (4-9)	7 (5-9)	7 (5-10)	<0.001
Discharge Disposition[b]	Home	576 (18.4%)	53 (19.3%)	38 (16.2%)	0.65
	Hospice	17 (0.5%)	3 (1.1%)	2 (0.9%)	.
	Inpatient Post-Acute or Other Acute	2531 (81.0%)	218 (79.6%)	195 (83.0%)	.
30-Day Emergency Department Visit	Yes	292 (9.1%)	26 (9.3%)	32 (13.3%)	0.10
90-Day Readmission	Yes	635 (19.9%)	54 (19.3%)	56 (23.2%)	0.436
90-Day Complications	Yes	42 (1.3%)	9 (3.2%)	2 (0.8%)	0.04^
In-Hospital Death	Yes	42 (1.3%)	6 (2.1%)	2 (0.8%)	0.40^

*Between-group differences assessed using the chi-square test (or Fisher exact test [^]) for categorical variables and Kruskall-Wallis test for continuous variables.

	Spanish vs. English			Other vs. English		
Outcome Variable	Adjusted Mean Difference[a] or OR[b]	95% CI	p-value	Adjusted OR[b] or Mean Difference[a] or OR[b]	95% CI	p-value
Hospital Length of Stay[a]	-0.21	(-0.69-0.28)	0.40	0.78	(0.17-1.33)	0.01
Non-Home Discharge[b]	0.77	(0.54-1.09)	0.15	0.78	(0.51-1.14)	0.19
30-day Emergency Department Visits[b]	0.85	(0.55-1.31)	0.46	1.26	(0.84-1.88)	0.26
90-day Readmissions[b]	0.89	(0.64-1.23)	0.47	1.12	(0.81-1.54)	0.51
90-day Combined Complications[b]	2.15	(1.02-4.54)	0.045	0.55	(0.13-2.29)	0.41
In-Hospital Death[b]	1.25	(0.51-3.01)	0.63	0.44	(0.11-1.86)	0.27

Models adjusted for age, sex, insurance, American Society of Anesthesiologists Classification status, Charlson Comorbidity Index score, obesity status, tobacco use, and surgery type. Models for 90-day combined complications and in-hospital death adjusted for age, American Society of Anesthesiologists Classification status, and Charlson Comorbidity Index score.