

Disparities In Neuraxial Anesthesia Administration Based on Primary Spoken Language of Hip Fracture Patients



PRESENTER:
Jashvant Poeran, MD PhD

BACKGROUND:

- Disparities related to race/ethnicity, insurance status, and other socioeconomic factors have been documented across all areas of medicine, including various orthopedic subspecialties in terms of care processes and outcomes
- Limited research exists examining the role of primary spoken language in perioperative processes across orthopedic surgery
- Our group has previously described differences in the receipt of neuraxial (NA) versus general anesthesia among total joint arthroplasty recipients
- Our **objective** is to determine if patients’ primary spoken language (English versus non-English) is associated with odds of receiving NA versus general anesthesia among surgical hip fracture cases

METHODS

Design: Retrospective Cohort Study

Data Set: 2016 – 2023 Mount Sinai health system database

Surgical subtypes:

- Total hip arthroplasty
- Partial hip arthroplasty
- Open reduction internal fixation
- Closed reduction percutaneous pinning

Variables: Primary spoken language was categorized as: **English**, **Spanish**, and **other non-English**.

Statistical Analysis: Mixed-effects logistic regression evaluated the association between patients’ primary spoken language and NA (versus general anesthesia) use, adjusting for sociodemographic and clinical factors. We report adjusted odds ratios (OR) and 95% confidence intervals (CIs). Statistical significance is determined at p<.05

In contrast to our findings in an elective joint arthroplasty cohort, patients’ primary spoken language was not associated with neuraxial anesthesia receipt in this non-elective cohort.

Unadjusted Odds Ratios

Other Language vs. English

OR 0.71; 95% CI 0.49-1.04; p=0.08

Spanish vs. English

OR 0.89; 95% CI 0.66-1.18; p=0.42

Adjusted Odds Ratios

Non-English vs. English

OR 0.82; 95% CI 0.64-1.04; p=0.11

0.0 0.5 1.0 1.5

Favors General Anesthesia

Favors Neuraxial Anesthesia

Figure 1. ORs for the association between type of anesthesia (neuraxial vs. general) and primary spoken language. OR for sensitivity analysis shown (bottom), in which Spanish and other subgroups are pooled and compared to English group. Adjusted for age, sex, race/ethnicity, insurance type, procedure type (CRPP, ORIF/IM, THA Hemiarthroplasty), fracture type (intracapsular/extracapsular), American Society of Anesthesiologists physical status classification score, Charlson comorbidity index, obesity, dementia and smoker status

Variable	Category	English		Spanish		Other		Total
		N	%	N	%	N	%	
Gender	FEMALE	1671	66.0997	182	69.4656	99	68.2759	1952
	MALE	857	33.9003	80	30.5344	46	31.7241	983
Race	Asian	55	2.1756	.	.	40	27.5862	95
	Black	276	10.9177	2	0.7634	1	0.6897	279
	Hispanic	181	7.1598	168	64.1221	1	0.6897	350
	Unknown	113	4.4699	10	3.8168	1	0.6897	124
	Other	260	10.2848	61	23.2824	24	16.5517	345
	White	1643	64.9921	21	8.0153	78	53.7931	1742
Hospital	MSH	515	20.3718	38	14.5038	14	9.6552	567
	MSM	1117	44.1851	127	48.4733	36	24.8276	1280
	MSQ	433	17.1282	77	29.3893	84	57.931	594
	MSW	463	18.3149	20	7.6336	11	7.5862	494
ASA Status	1	19	0.7516	4	1.5267	.	.	23
	2	581	22.9826	33	12.5954	15	10.3448	629
	3	1567	61.9858	186	70.9924	108	74.4828	1861
	4	361	14.2801	39	14.8855	22	15.1724	422
Neuraxial (No)	0	1622	64.1614	174	66.4122	100	68.9655	1896
Neuraxial (Yes)	1	906	35.8386	88	33.5878	45	31.0345	1039

Table 1. Patient characteristics (abbreviated) including gender, race, hospital,), American Society of Anesthesiologists physical status, and Neuraxial anesthesia use

REFERENCES

1. Veronese N, Maggi S. Epidemiology and social costs of hip fracture. Injury. 2018;49(8):1458-1460. doi:10.1016/j.injury.2018.04.015

2. Tzimas P, Samara E, Petrou A, Korompilias A, Chalkias A, Papadopoulos G. The influence of anesthetic techniques on postoperative cognitive function in elderly patients undergoing hip fracture surgery: General vs spinal anesthesia. Injury. 2018;49(12):2221-2226. doi:10.1016/j.injury.2018.09.023

3. Li T, Li J, Yuan L, et al. Effect of Regional vs General Anesthesia on Incidence of Postoperative Delirium in Older Patients Undergoing Hip Fracture Surgery: The RAGA Randomized Trial [published correction appears in JAMA. 2022 Mar 22;327(12):1188]. JAMA. 2022;327(1):50-58. doi:10.1001/jama.2021.22647

4. Neuman MD, Feng R, Carson JL, et al. Spinal Anesthesia or General Anesthesia for Hip Surgery in Older Adults. N Engl J Med. 2021;385(22):2025-2035. doi:10.1056/NEJMoa2113514

5. Morris MT, Morris J, Wallace C, et al. An Analysis of the Cost-Effectiveness of Spinal Versus General Anesthesia for Lumbar Spine Surgery in Various Hospital Settings. Global Spine J. 2019;9(4):368-374. doi:10.1177/2192568218795867

6. Sowers M, Jacob R, Chandler K, et al. Operative room time comparison between general and spinal anesthesia in total hip arthroplasty: an institutional study [published online ahead of print, 2023 Jan 25]. Arch Orthop Trauma Surg. 2023;10.1007/s00402-023-04775-4. doi:10.1007/s00402-023-04775-4

7. Hwang SM, Lee JJ, Jang JS, Gim GH, Kim MC, Lim SY. Patient preference and satisfaction with their involvement in the selection of an anesthetic method for surgery. J Korean Med Sci. 2014;29(2):287-291. doi:10.3346/jkms.2014.29.2.287

8. Shapeton A, O'Donoghue M, VanderWielen B, Barnett SR. Anesthesia Lost in Translation: Perspective and Comprehension. J Educ Perioper Med. 2017;19(1):E505. Published 2017 Jul 1.

 Charles Laurore BA/MS¹, Avanish Yendluri BS¹, Mateo Restrepo Mejia BS¹, Brocha Stern PhD¹, Chang Park MD², Garrett Burnett MD², Jashvant Poeran MD/PhD¹, David Forsh MD¹

1 Department of Orthopaedic Surgery, Mount Sinai Health System, New York, New York, USA
2 Department of Anesthesiology, Perioperative and Pain Medicine, Mount Sinai Health System, New York, New York, USA



Mount
Sinai

49th Annual Regional Anesthesiology and Acute Pain Medicine Meeting

March 21-23, 2024 | San Diego, CA

ASRA PAIN MEDICINE