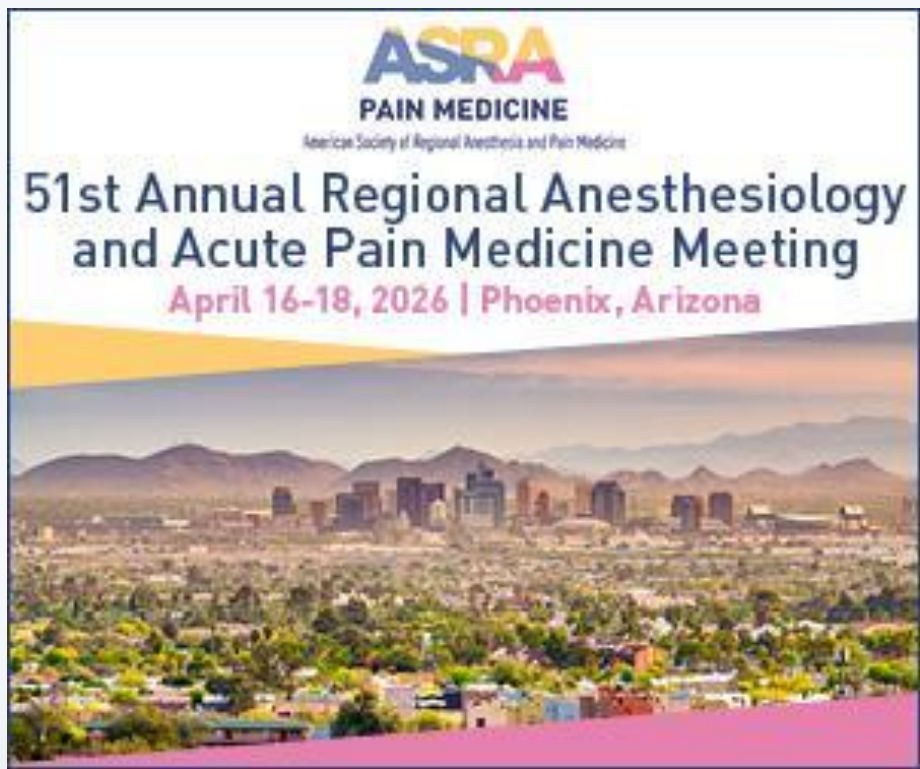




Evaluating Tolerable Pain Goals in Primary Total Joint Arthroplasty: Insights from a Single-Institution Cohort

Amal Javaid MD,¹ Juliet Rowe MPH,¹ Periklis Giannakis MD,¹ Mary Kelly DNP¹, Junying Wang PhD,¹ Jashvant Poeran MD PhD,¹ Jiabin Liu MD PhD,^{1,2} Alexandra Sideris PhD^{1,2}

¹Pain Prevention Research Center, Department of Anesthesiology, Critical Care & Pain Management, Hospital for Special Surgery, New York, NY ²Department of Anesthesiology, Weill Cornell Medicine, New York, NY



INTRODUCTION

- Tolerable pain is the maximum level of pain that a patient can endure
- Factors influencing tolerable pain are not well understood. Studies examining this construct in acute orthopedic pain are lacking.¹⁻⁴
- In this descriptive study, we evaluated patient and case characteristics and associated tolerable pain scores of patients undergoing total hip arthroplasty (THA) and total knee arthroplasty (TKA).

METHODS

- Retrospective single-institutional - Institutional Review Board (IRB #2024-2138).
- Included patients undergoing primary or revision THA or TKA (01/01/ 21 - 11/11/24).
- Tolerable pain goal is a patient-reported measure on a 0-10 NRS, collected as standard of care by nursing staff
- A tolerable pain score is recorded every time a patient’s NRS pain score is documented.
- Present analysis included the first tolerable pain score, collected in the post-anesthesia recovery unit (PACU). Other data extracted from the electronic health record included clinical and patient-specific factors such as demographics, pre-existing comorbidities, ASA status, and surgery type.
- Frequencies and percentages for tolerable pain scores were examined and associations between variables and tolerable pain scores were analyzed using p-values and standardized mean differences.

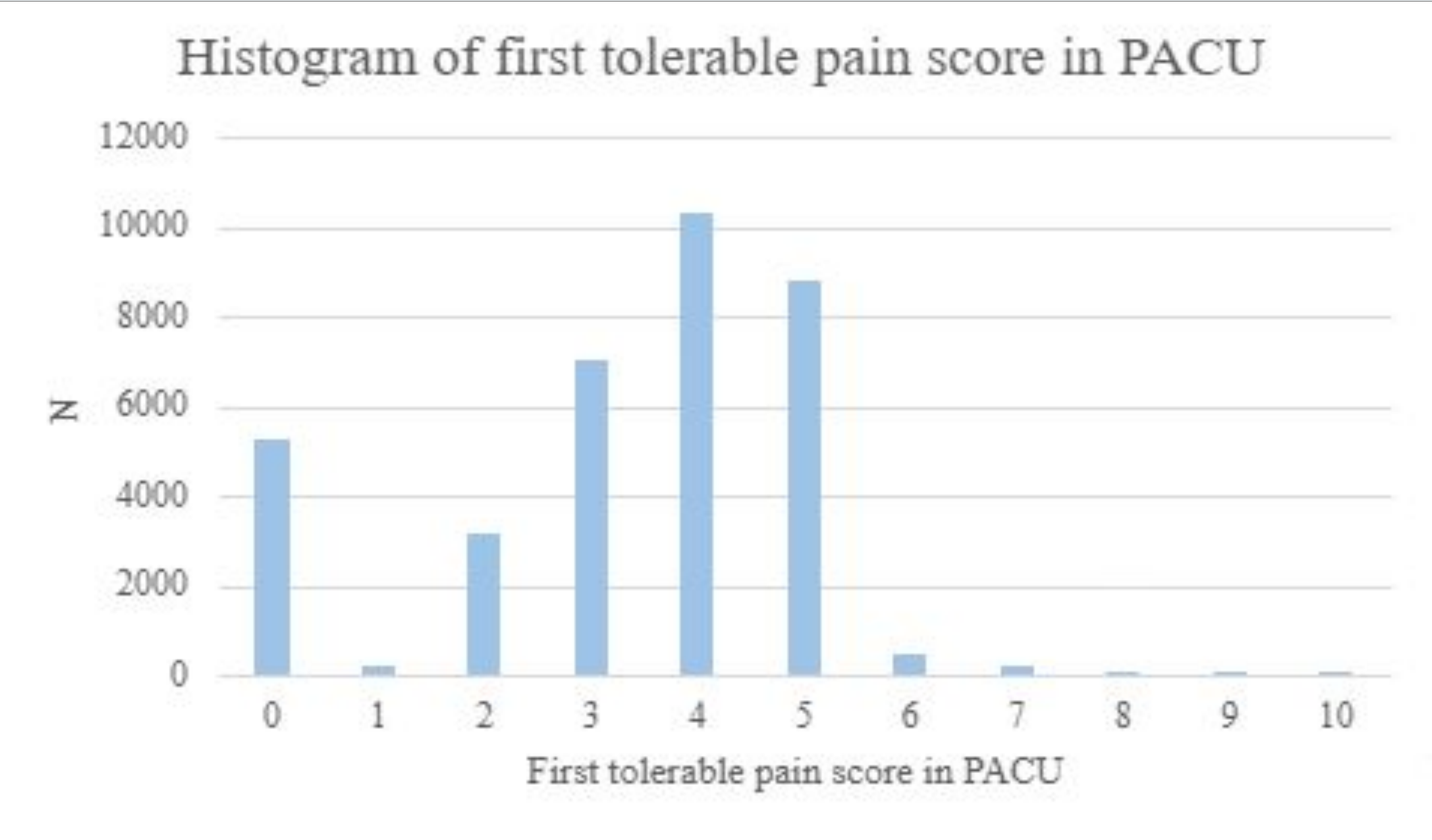


Figure 1. Histogram of first reported tolerable pain score in the PACU.

Table 1. Significant associations between tolerable pain (dichotomized using NRS 4 as cutoff) and study variables.

	Tolerable pain < 4 (n=16886)		Tolerable pain >=4 (n=21357)		SMD	p-value
	Median	IQR	Median	IQR		
Age	67.46	[60.75, 74.23]	66.59	[60.19, 73.22]	0.076	<0.001
	N	%	N	%		
Sex: Female	10063	59.59	12367	57.91	0.03	0.001
Sex: Male	6823	40.41	8990	42.09		
Preop SNRI Use: No	16157	95.68	20139	95.14	0.03	0.012
Preop SNRI use: Yes	729	4.32	1038	4.86		
Preop Fibromyalgia Diagnosis: No	16723	99.03	21089	98.75	0.03	0.01
Preop Fibromyalgia Diagnosis: Yes	163	0.97	268	1.25		
Chronic pain consult: No	16179	95.83	20275	94.99	0.05	<0.001
Chronic pain consult: Yes	704	4.17	1070	5.01		

RESULTS

- Among 38,243 unique patient charts, tolerable pain (range: 0-10) was categorized into: low (<4; n=16,886) and moderate to high (>=4; n=21,357).
- Distribution of patient reported tolerable pain scores reported in PACU are shown in **Figure 1**.
- Based on p-values, factors associated with a higher tolerable pain score included male sex, younger median age, preoperative diagnosis of fibromyalgia, chronic pain patients requiring an inpatient consult, and preoperative use of SNRIs (**Table 1**).
- Tolerable pain scores did not appear to be associated with race, ethnicity, ASA score, pre-op diagnosis of depression/anxiety, or pre-operative SSRI or benzodiazepine use.
- Based on standardized mean differences, no group differences appeared to be meaningful (all <0.10).

DISCUSSION

- This descriptive analysis highlights potential novel factors associated with higher tolerable pain scores among patients undergoing THA and TKA.
- Notably, pre-existing complex or chronic pain was associated with higher, not lower, tolerable pain immediately after surgery.
- Ongoing analyses are exploring pain trajectories in patients with varying pain tolerances, as well as the relationship between patient-reported tolerable pain, nursing-assessed postoperative pain scores and pain management strategies, including opioid consumption.

