



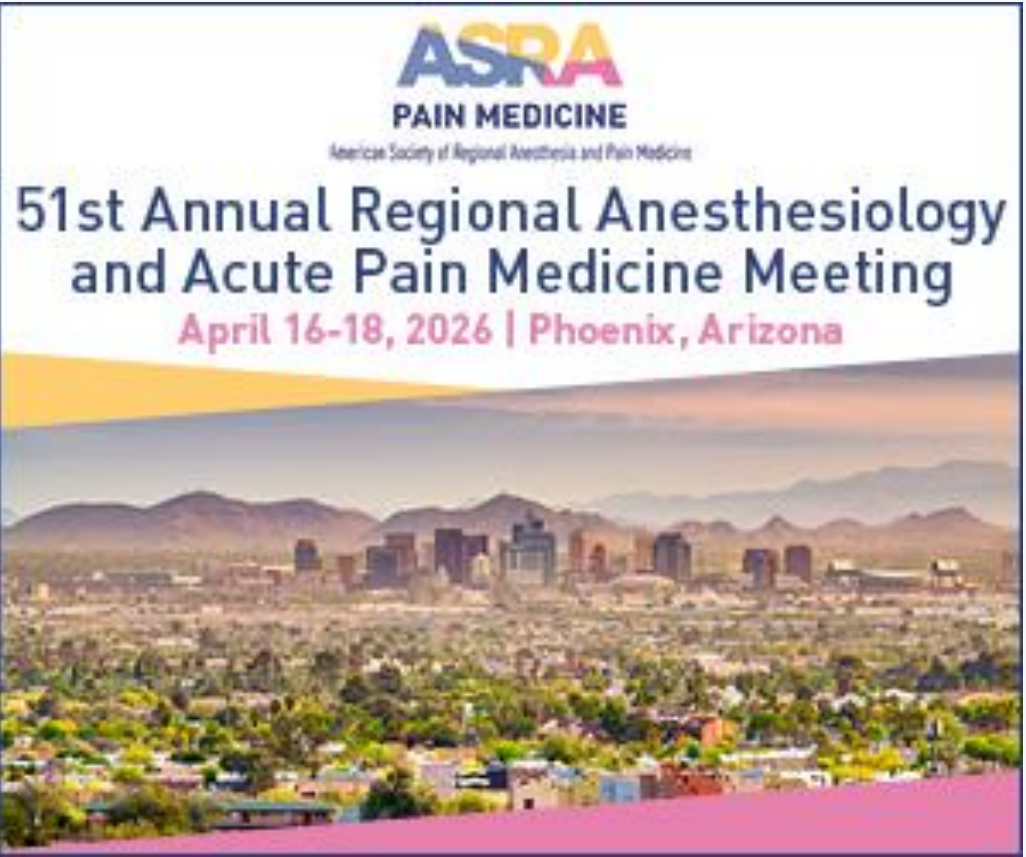
#2316875 Total Hip Arthroplasty Patients Requiring Acute Pain Service Consultations: A Registry Study

Maya Tailor, BA^{1,2}, Junying Wang, PhD^{1,2}, William Chan, M. Eng^{1,2}, Mary Kelly, DNP^{1,2}, Jennifer Terry, BBA³, Dae Kim, MD^{1,2,4}, Spencer Liu, MD^{1,2,4}, Stavros Memtsoudis, MD, PhD, MBA^{1,2,4}, Jiabin Liu, MD, PhD, FASA^{1,2,4}, Jashvant Poeran, MD, PhD^{1,2}, Seth Waldman, MD^{1,2,4}, Daniel Maalouf, MD, MPH^{1,2,4}, Yuhua Bao, PhD⁵, Faye Rim, MD, FAAPMR^{1,2,4}, Alexandra Sideris, PhD^{1,2,4}

¹Department of Anesthesiology, Critical Care, and Pain Management, Hospital for Special Surgery, New York, NY, USA; ²Pain Prevention Research Center, Department of Anesthesiology, Critical Care, and Pain Management, Hospital for Special Surgery, New York, NY, USA; ³Center for Analytics, Modeling, and Performance (CAMP), Hospital for Special Surgery, New York, New York, USA; ⁴Department of Anesthesiology, Weill Cornell Medicine, New York, NY, USA; ⁵Department of Population Health Sciences, Weill Cornell Medical College, New York, New York, USA



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INTRODUCTION

- At Hospital for Special Surgery, the **Perioperative Pain Service (POPS)** including the **Acute Pain Service (APS)**, manages severe postoperative pain in patients without pre-identified high-risk factors using patient-controlled analgesia (PCA).^{1,2}
- This study aimed to identify independent risk factors for APS consultation among total **hip arthroplasty (THA) patients** beyond those captured during standard preoperative screening.^{3,4}

METHODS

- After IRB approval (#2021-1899, #2022-2392), the first THA surgery dates from 1/10/2022 – 12/31/2024 were extracted from institutional datasets.
- These cohorts were compared:
 - THA patients receiving an APS consultation without preoperative consultation (APS group)
 - THA patients without any POPS consultations undergoing surgery (non-POPS group).
- Inclusion criteria:** primary THA procedures
- Exclusion criteria:** revision, bilateral, conversion, reimplantation, hardware removal, and patients <18 years old; APS patients with PCA initiation < 1 hour after PACU arrival

Table 1. Patient Demographics

Variable	Level	Non-POPS (N=12599)	APS (N=169)	P-Value
Sex, N (%)	Female	7144 (56.7%)	99 (58.58%)	0.6439
	Male	5455 (43.3%)	70 (41.42%)	
Ethnicity, N (%)	Hispanic or Latino	681 (5.41%)	13 (7.69%)	0.4429
	Not Hispanic or Latino	11607 (92.13%)	152 (89.94%)	
	Other	311 (2.47%)	4 (2.37%)	
Race, N (%)	Black or African American	839 (6.66%)	13 (7.69%)	0.5863
	American	1153 (9.15%)	12 (7.1%)	
	Other	10607 (84.19%)	144 (85.21%)	
	White or Caucasian			
Marital Status, N (%)	Not Partnered	2869 (22.77%)	46 (27.22%)	<.0001
	Other	279 (2.21%)	17 (10.06%)	
	Partnered	8632 (68.51%)	100 (59.17%)	
	Widowed	819 (6.5%)	6 (3.55%)	
Age At Surgery, median ± IQR	12599 vs 169	65.9 ± 13.52	60 ± 11	<.0001
BMI At Surgery, median ± IQR	12553 vs 169	27.8 ± 7.6	30.7 ± 10.2	<.0001

Not Partnered includes patients who report their marital status as single, divorced, or legally separated. Partnered includes patients who report their marital status as married or significant other.

Table 3. Surgical Factors and Postoperative Pain Scores

Variable	Level	Non-POPS (N=12599)	APS (N=169)	P-Value
Computer-Assisted Navigation, N (%)	Yes	1728 (13.72%)	38 (22.49%)	0.0023
Anterior Surgical Approach, N (%)	Yes	4077 (32.36%)	30 (17.75%)	0.0001
First NRS Score Recorded, median ± IQR	12599 vs 169	0.00 ± 0.00	3.00 ± 8.00	<.0001
Median PACU NRS Score, median ± IQR	12579 vs 169	3 ± 4.5	7 ± 2	<.0001
Highest PACU NRS Score, median ± IQR	12579 vs 169	7 ± 3	9 ± 2	<.0001
Normalized area under pain vs time curve within 24 hours out of OR, median ± IQR	12599 vs 169	3.08 ± 2.40	4.63 ± 2.04	<.0001
Normalized area under pain vs time curve within 48 hours out of OR, median ± IQR	12599 vs 169	3.11 ± 2.35	4.59 ± 2.20	<.0001
Last NRS Score of Hospital Stay	12599 vs 169	3.00 ± 5.00	5.00 ± 4.00	<.0001

Characteristics of APS vs. Non-POPS Patients

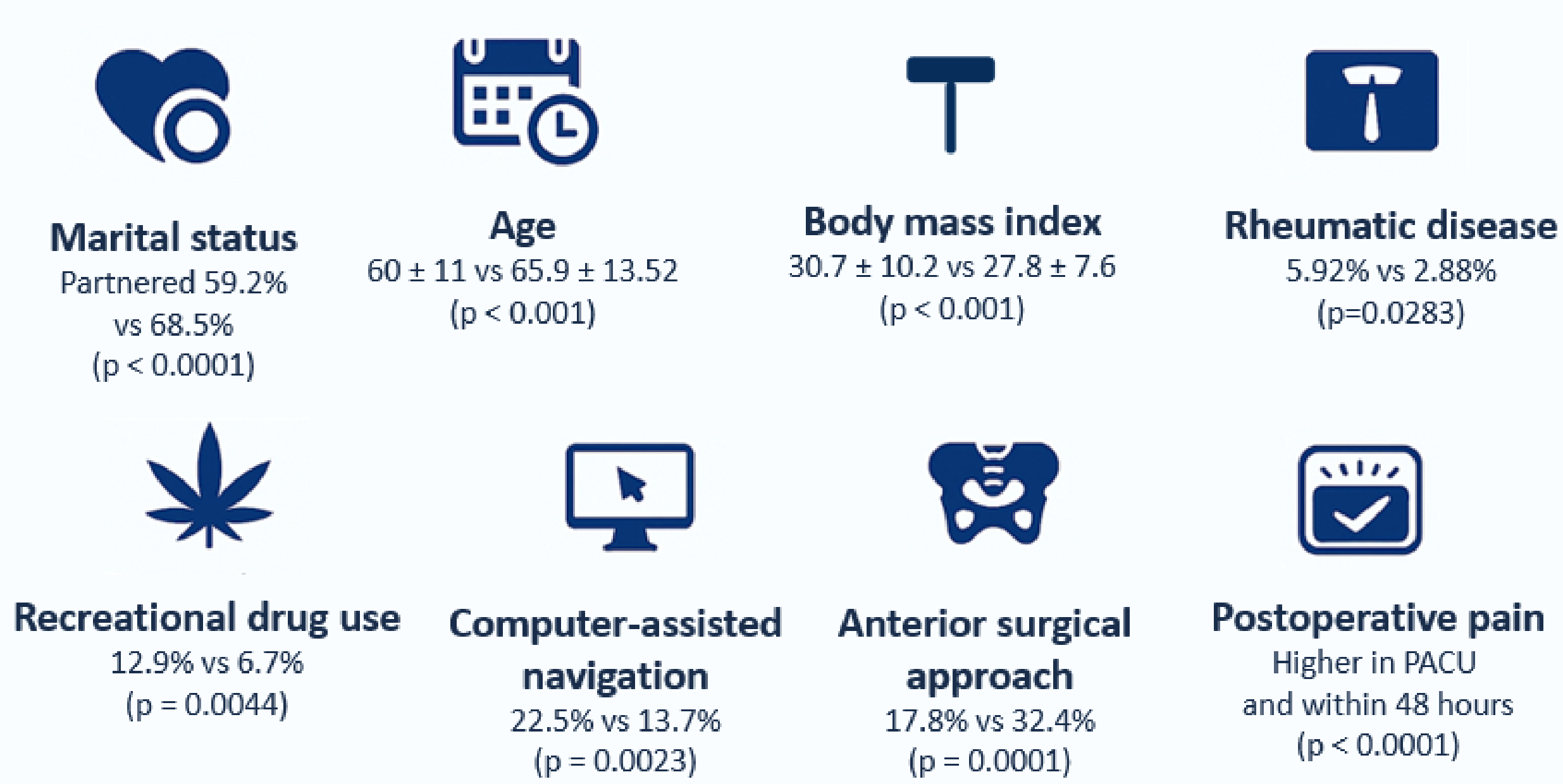


Table 2. Comorbidities and Substance Use Factors

Variable	Level	Non-POPS (N=12599)	APS (N=169)	P-Value
Charlson Comorbidities, N (%)	0	9038 (71.74%)	112 (66.27%)	0.1900
	1	2363 (18.76%)	39 (23.08%)	
	2	785 (6.23%)	9 (5.33%)	
	3+	413 (3.28%)	9 (5.33%)	
Elixhauser Comorbidities, N (%)	0	8566 (67.99%)	112 (66.27%)	0.3475
	1	1346 (10.68%)	24 (14.2%)	
	2	1296 (10.29%)	19 (11.24%)	
	3+	1391 (11.04%)	14 (8.28%)	
Other Comorbidities, N (%)	Anxiety	919 (7.29%)	12 (7.1%)	1.0000
	Chronic Kidney Disease	348 (2.76%)	5 (2.96%)	1.0000
	Fibromyalgia	4 (0.03%)	0 (0%)	1.0000
	Headache	110 (0.87%)	2 (1.18%)	0.6626
	Nerve Disorders	28 (0.22%)	0 (0%)	1.0000
	Obstructive Sleep Apnea	649 (5.15%)	13 (7.69%)	0.1612
	Sleep Disorders	153 (1.21%)	2 (1.18%)	1.0000
	Substance Use, N (%)			
Alcohol Use		7758 (61.58%)	93 (60%)	0.7483
	Recreational Drug Use	843 (6.69%)	20 (12.9%)	0.0044
	Smoking	586 (4.65%)	13 (7.69%)	0.0657
	Nicotine	169 (1.34%)	1 (0.59%)	0.5229

Elixhauser Comorbidities: Rheumatic Disease was higher in the APS group (5.92% vs 2.88%, p=0.0283).

RESULTS

- Marital status** was found to be significantly associated with likelihood of being in the non-POPS versus APS groups (p<0.0001).
- Patients in the APS group had significantly **lower median age** (60 ± 11 vs 65.9 ± 13.52, p<0.001) and **higher median body mass index** (30.7 ± 10.2 vs 27.8 ± 7.6, p<0.001) (Table 1).
- There were no significant differences between groups in terms of Charlson or Elixhauser Comorbidities except for **rheumatic disease** (5.92% vs 2.88%, p=0.0283) (Table 2).
- The APS group had a significantly **higher** percentage of patients with **recreational drug use** compared to non-POPS patients (12.9% vs 6.7%, p=0.0044) (Table 2).
- Computer-assisted navigation** was used in a significantly **higher** percentage of patients in the APS group compared to non-POPS patients (22.5% vs 13.7%, p=0.0023), and an **anterior surgical approach** was used in a significantly **lower** percentage of patients in the APS group (17.8% vs 32.4%, p=0.0001) (Table 3).
- The clinical need for APS consultations was demonstrated through **higher postoperative pain scores in the APS group compared to the non-POPS group**, with p<0.0001 for PACU pain scores, and within 48 hours postoperatively (Table 3).

DISCUSSION

APS patients are younger, have higher: body mass index, percentage of patients reporting recreational drug use and with rheumatic disease, percentage of surgeries with computer-assisted navigation, and lower percentage of partnered patients and with an anterior surgical approach compared to the cohort of THA patients not utilizing POPS services. Next steps include incorporating a multivariable analysis using a machine learning approach.

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Full Abstract