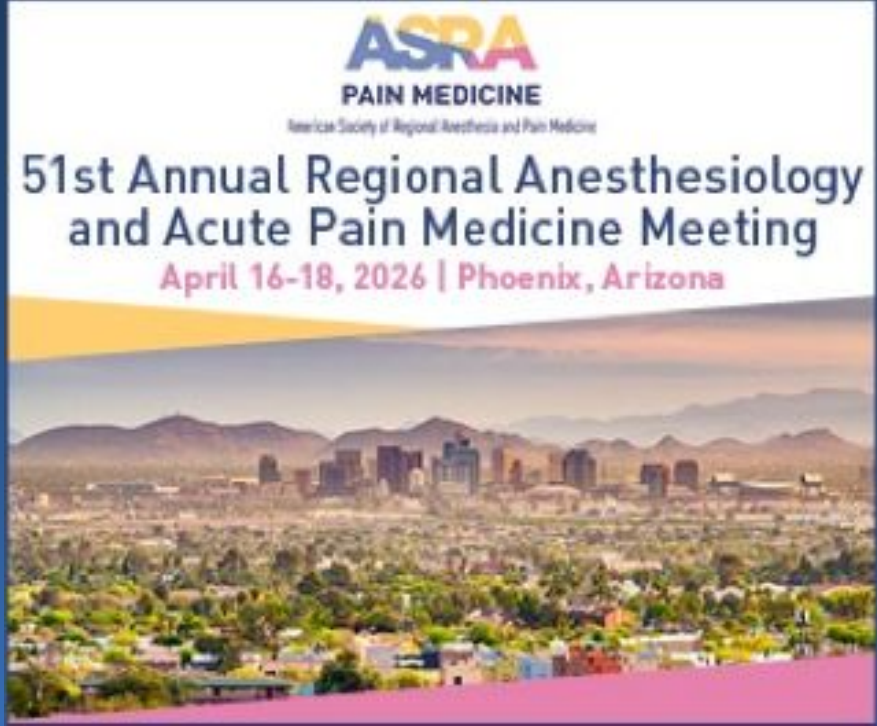




Preoperative Opioid Use is Associated with Higher Complications after Total Knee Arthroplasty

Bryan Yavari, B.S.¹, Aria Soltankhah, B.S.¹, Stanna Calderon, B.S.¹, Evan Lederman, M.D.^{1,2}, Anup Shah, M.D.^{1,2}

¹University of Arizona College of Medicine - Phoenix

²Banner Health



INTRODUCTION

- Total knee arthroplasty (TKA) is a common and effective intervention for end-stage knee osteoarthritis; however, postoperative outcomes vary widely (Murphy et al., 2025). Preoperative opioid exposure may reflect increased pain burden and has been associated with opioid-induced hyperalgesia, impaired functional recovery, and higher complication rates (Higgins et al., 2019).
- Despite increasing emphasis on opioid research, limited large-scale data evaluate the impact of opioid use prior to TKA. This study examines whether opioid use in the year preceding TKA is associated with increased postoperative complications within 12 months.

OBJECTIVE

- To evaluate whether opioid prescriptions within one year prior to primary total knee arthroplasty are independently associated with increased 12-month postoperative complications, including infection, respiratory failure, persistent pain, opioid dependence, and revision surgery.

METHODS

- A retrospective cohort study was conducted using the Banner Health TriNetX federated electronic health record network of all Banner hospitals. Adult patients (≥ 18 years) undergoing primary total knee arthroplasty were identified using the CPT code 27447.
- Cohort 1 included patients with documented opioid prescriptions (ATC code N02A) within one year prior to or on the index TKA, while Cohort 2 included patients without opioid prescriptions during that period.
- Outcomes were assessed from day 1 through day 365 following surgery and included postoperative knee pain, opioid dependence, infection, hemorrhage, respiratory failure, revision TKA, falls, myocardial infarction, and stroke.
- Propensity score matching (1:1) was performed using demographics and baseline comorbidities.

RESULTS

Figure 1: Flowchart

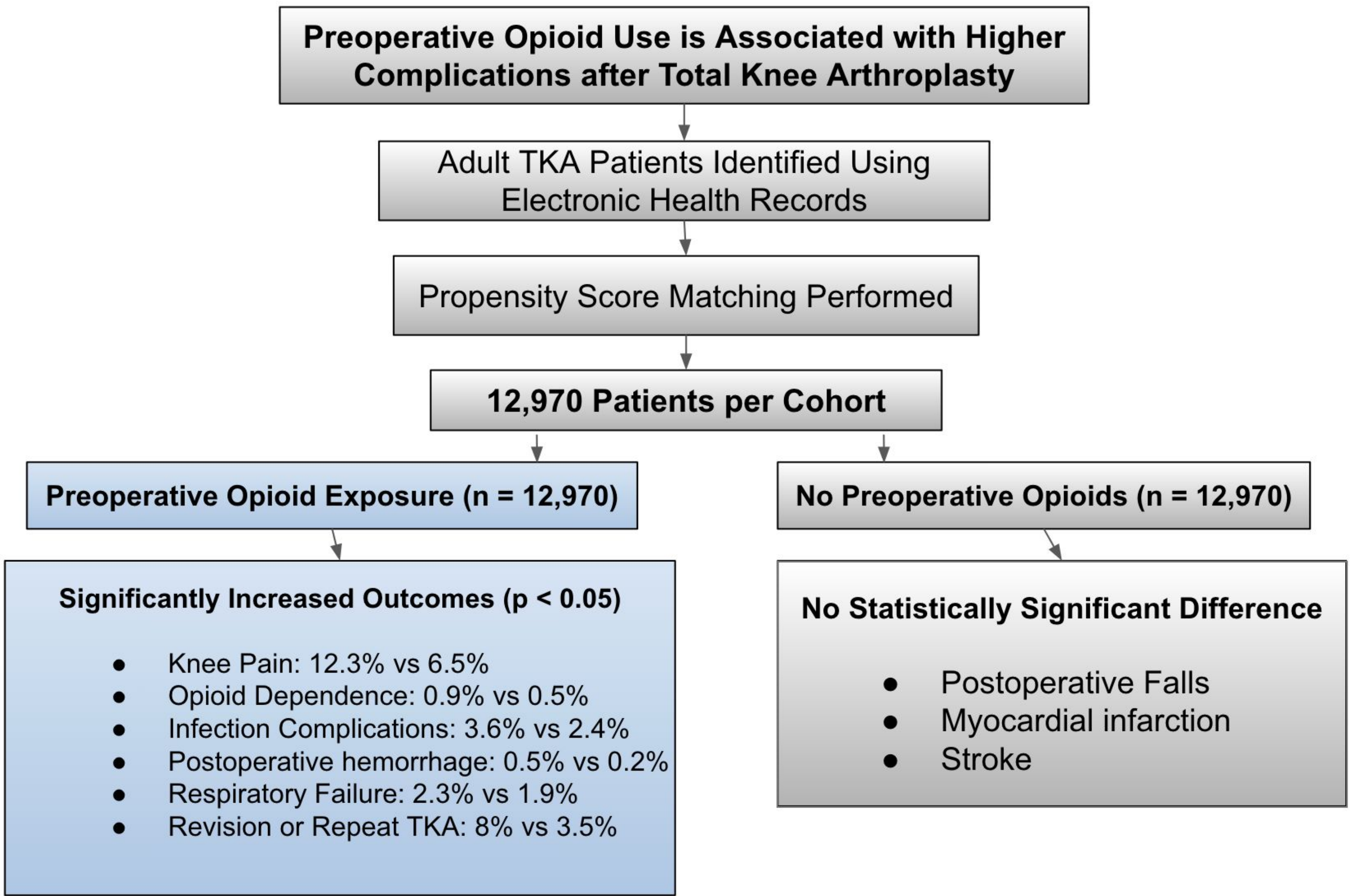


Figure 2: Table of outcomes for statistically significant results

Outcome	Opioid (%)	No Opioid (%)	RR (95% CI)	p-value
Postsurgical Knee Pain	12.3	6.5	1.905 (1.759-2.063)	<0.001
Opioid Dependence	0.9	0.5	1.835 (1.341-2.511)	<0.001
Infection Complications	3.6	2.4	1.512 (1.296-1.764)	<0.001
Postoperative hemorrhage	0.5	0.2	2.991 (1.804-4.958)	<0.001
Respiratory Failure	2.3	1.9	1.199 (1.006-1.430)	0.043
Revision or Repeat TKA	8	3.5	2.261 (2.031- 2.516)	<0.001

CONCLUSIONS

- Preoperative opioid use was associated with increased risks of postoperative pain, opioid dependence, infection, hemorrhage, respiratory failure, and revision total knee arthroplasty within one year of surgery.
- These findings suggest that opioid exposure prior to TKA may adversely influence recovery and surgical durability. Preoperative risk stratification and opioid reduction strategies may represent important targets for improving postoperative outcomes and reducing complications in patients undergoing total knee arthroplasty.
- These results emphasize the need for multidisciplinary perioperative planning involving anesthesia, pain management, and orthopedic teams for patients with prior opioid exposure.

REFERENCES

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