

# Thresholds for Preoperative Opioid Use in Arthroscopic Rotator Cuff Repair that Negatively Influence Postoperative Clinical Outcomes

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# Disclosures

Albert Lin, MD, FAAOS (Pittsburgh, PA)

AAOS: Board or committee member

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American Shoulder and Elbow Surgeons: Board or committee member

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Arthroscopy: Editorial or governing board

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Medicine: Board or committee member

Knee Surgery, Sports Traumatology, Arthroscopy: Editorial or governing board

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# Introduction

- Preoperative opioid use is risk factor for complications and poor outcomes following rotator cuff repair (RCR)
- **Objective:**
  - **Determine preoperative opioid use thresholds that negatively influence postoperative outcomes following arthroscopic RCR**
- **Hypothesis:**
  - **Identified thresholds of preoperative opioid use would demonstrate inferior clinical outcome scores in groups with higher preoperative opioid use**

# Methods

- Consecutive patients undergoing arthroscopic RCR from 2018-2020
- Preoperative opioid use in year prior to surgery obtained from state PDMP
  - Morphine milligram equivalents (MME) conversion
- Patient acceptable symptom state (PASS) proportion calculated at 6 months
  - VAS Pain, ASES score
- Multivariate analysis and receiver operator characteristic (ROC) analysis performed

# Results

- 763 patients (47.6% male)
- Mean age 60.2 years
- 275 (36%) had an opioid exposure within one year prior to RCR
- No association between the number of days from opioid prescription to surgery



# Results

- Preoperative opioid use cohort had lower mean ASES (8 pts) and higher VAS pain (1 pt) levels ( $p < 0.001$ )
- At 6 months postoperatively, 40.0% (131/328) of opioid naïve and 26.7% (46/172) opioid users reached PASS for ASES ( $p = 0.003$ )
- At 6 months postoperatively, 58.7% (223/380) of opioid naïve and 40.2% (80/199) opioid users reached PASS for ASES ( $p < 0.001$ )

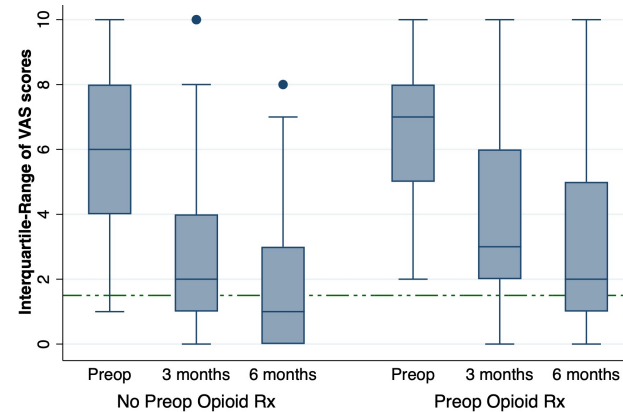


Figure 1: VAS trends by preoperative opioid status; green dash = PASS value

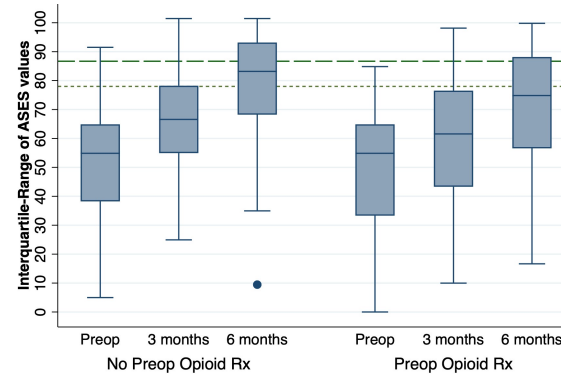


Figure 2: ASES trends by preoperative opioid status; green dash = PASS value

# Results

- Probability of achieving PASS for VAS decreased by 1.8% for every 100 MME used preoperatively (p=0.004)
- Threshold of 500+ MME preoperatively identified as predictor for failure to meet PASS for VAS and ASES postoperatively

**Figure 3:** Multivariate predictors of achieving VAS PASS

	Odds Ratio	95% CI	P Value
<b>Preoperative Opioid Use (MME)</b>			
< 200 MME	1	[Reference]	[Reference]
200-500 MME	0.70	(0.48 – 1.03)	0.074
500+ MME	0.45	(0.31 – 0.66)	<0.001
<b>Follow Up Duration<sup>†</sup></b>	1.00	(0.99 – 1.00)	0.010
<b>Patient Sex</b>			
Male	1	[Reference]	[Reference]
Female	0.80	(0.65 – 0.97)	0.027

**Figure 4:** Multivariate predictors of achieving ASES PASS

	Odds Ratio	95% CI	P Value
<b>Preoperative Opioid Use (MME)</b>			
< 200 MME	1	[Reference]	[Reference]
200-500 MME	0.75	(0.49 – 1.14)	0.173
500+ MME	0.69	(0.50 – 0.95)	0.024
<b>Follow Up Duration (Months)</b>	1.07	(1.06 – 1.08)	<0.001
<b>Patient Sex</b>			
Male	1	[Reference]	[Reference]
Female	0.76	(0.61 – 0.96)	0.020

# Results

- ROC analysis with MME categories of 0-200, 200-500, and >500 MME yielded an area under the curve of 0.74 for PASS ASES and 0.78 for PASS VAS (figure 5)

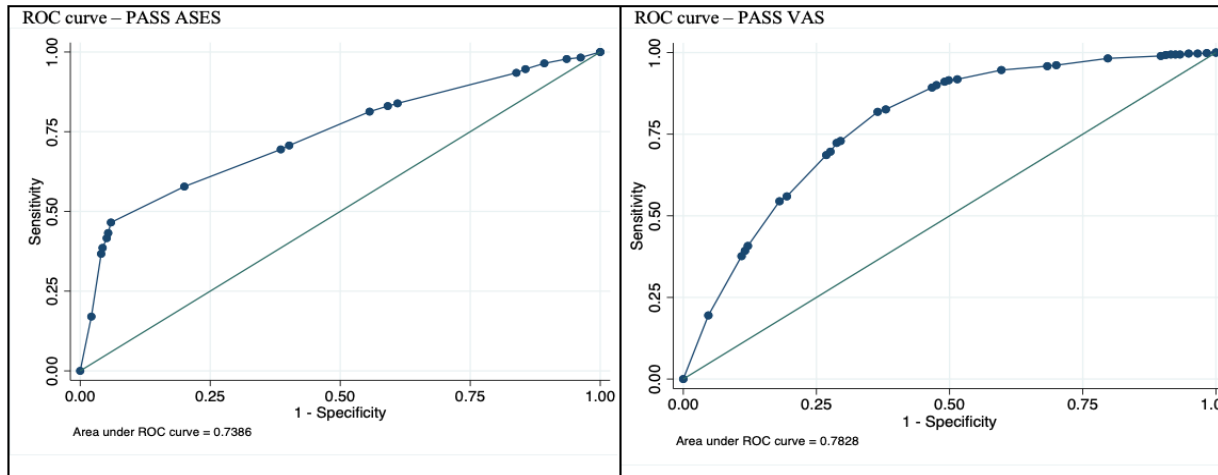


Figure 5: ROC curves for ASES and VAS PASS



# Conclusion

- Preoperative opioid use is a risk factor for diminished clinical outcome scores and higher pain following RCR in the early postoperative setting
- Higher preoperative opioid use (500+ MME) resulted in inferior clinical outcomes
- Providers can use preoperative MME thresholds when educating and counseling patients on outcomes following arthroscopic RCR

# References

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