Comparative Analysis of Opioid Use after Robotic vs. Open Retromuscular Ventral Hernia Repair

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Purpose

A potential benefit of minimally invasive surgery is reduction in pain and improved recovery, but this benefit has not yet been clearly identified in abdominal wall reconstruction. The goal of this study is to compare opioid use following robotic vs. open ventral hernia repair.

Methods

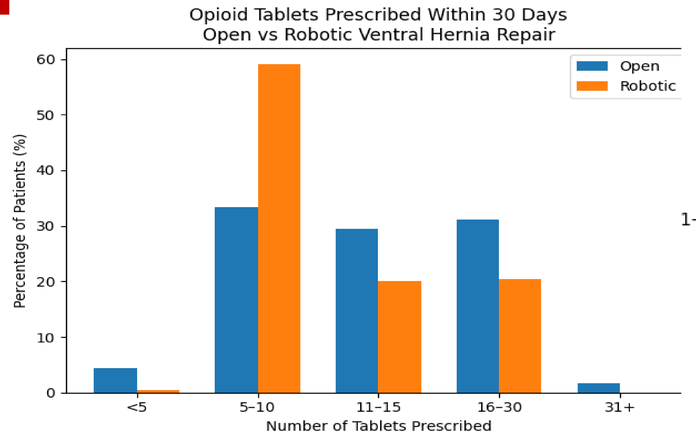
- ACHQC queried 2019 to 2025 for robotic and open retromuscular (RM) ventral hernia repair with a 30-day opioid module
- Exclusion – Preop chronic opioid use
- Primary outcome: patient reported opioid use at 30 days.

Secondary Outcomes

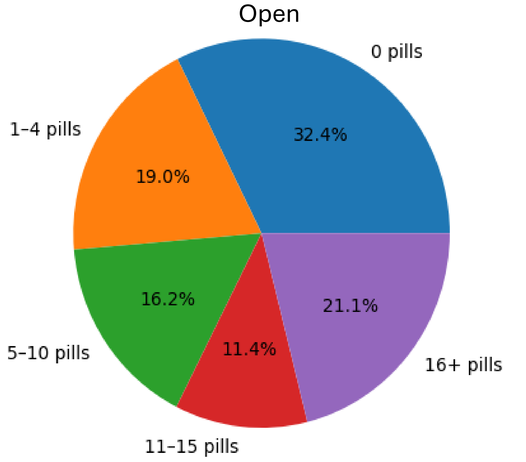
- Robotic
  - Shorter LOS for (1.4 vs. 4.9 days, p<0.001)
  - Lower readmission rates (1.9% vs. 6.9%, p<0.001)
  - Fewer SSIs (0.7% vs. 7.3%, p<0.001)
  - Similar rate of SSO (12.5% vs 13.3%, p=0.612)
  - Lower risk of SSO requiring intervention (1.4% vs 3.8%, p<0.004).

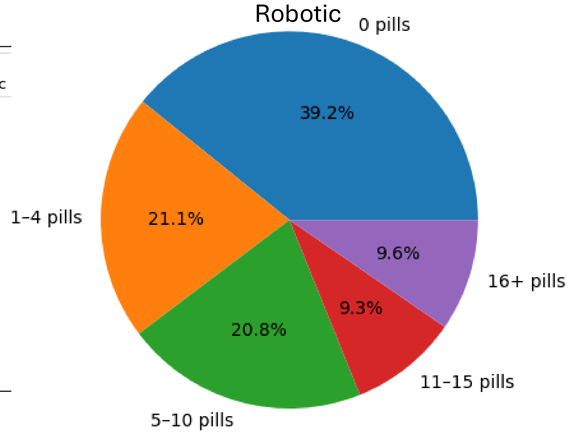
Patient Characteristics by Surgical Approach

Characteristic	Open (n = 1,418)	Robotic (n = 592)	p-value
Body mass index (kg/m^2)	32.5 ± 6.2	33.9 ± 7.3	<0.001
Recurrent hernia	700 (49.4%)	210 (35.5%)	<0.001
Prior mesh	495 (34.9%)	125 (21.1%)	<0.001
Prior component separation	110 (7.8%)	8 (1.4%)	<0.001
Hernia width (cm)	13.5 ± 6.2	8.7 ± 4.9	<0.001



Patient-Reported Opioid Use Within 30 Days After Retromuscular Ventral Hernia Repair





Multivariable Logistic Regression for Number of Opioid Pills Taken Within 30 Days (0–4) vs. ≥5

Risk Factor	Reference Group	Risk Group	Odds Ratio (95% CI)	P-value
Race/Ethnicity	White	Non-white	1.35 (1.01, 1.80)	0.041*
BMI (kg/m^2)	per unit	Greater BMI	1.03 (1.01, 1.04)	<0.001*
COPD	No	Yes	1.52 (1.03, 2.23)	0.034*
Recent use of opioids	No	Yes	2.91 (1.76, 4.79)	<0.001*
Hernia width	per unit	Greater width	1.04 (1.02, 1.05)	<0.001*
Opioids prescribed at discharge	No	Yes	2.60 (1.90, 3.56)	<0.001*
Surgical approach	Open	Robotic	0.80 (0.65, 0.99)	0.049*

Conclusions

- Robotic VHR requires significantly lower opioid consumption compared to open approach.
- 60.3% of robotic patients consumed less than 5 pills, compared to 51.4% of open.
- A policy of low opioid prescribing should be considered for the majority of patients.