



A Comparison of Colectomy Outcomes Utilizing Open, Laparoscopic, and Robotic Techniques

Elizabeth McCarthy MD, Benjamin Gough DO, Michael Johns DO, Sachin Vaid MD
ChristianaCare, Newark, DE

INTRODUCTION

- Comparison of clinical outcomes depending on operative approach for colectomy
- Hypothesis: robotic colon surgery will demonstrate improved clinical outcomes

MATERIALS AND METHODS

- Retrospective chart review of all patients undergoing colectomies performed by a fellowship-trained colon and rectal surgeon at a single community tertiary care center from 2015 through 2019
- Three cohorts based on operative approach: open, laparoscopic, and robotic
- 30-day outcomes were evaluated
- Statistical analysis with ANOVA for continuous variables and chi squared for categorical variables

Table 1					
Colectomy Demographics and 30-Day Outcomes					
	Open	Laparoscopic	Robotic	Total	p-value
Number of Operations	16	52	48	116	
Demographics					
Female (%)	62.5%	55.8%	47.9%	53.4%	0.5407
Age (years, median)	70.5	59.5	61.5	63.0	0.1760
BMI (median)	25.6	30.8	28.3	28.7	0.0297
ASA (median)	3	3	2	3	0.1434
Malignant (%)	31.0%	34.6%	56.3%	44.0%	0.1770
Outcomes					
Operative Time (minutes, mean)	185	176	162	172	0.3061
Estimated Blood Loss (milliliters, mean)	158	96	57	89	0.0235
Reoperation (n [%])	1 (6.3%)	1 (1.9%)	0 (0.0%)	2 (1.7%)	0.3703
Acute Kidney Injury (n [%])	3 (18.8%)	6 (11.5%)	1 (2.1%)	10 (8.6%)	0.0825
Anastomotic Leak (n [%])	0 (0.0%)	1 (1.9%)	0 (0.0%)	1 (0.8%)	
Major Complications	2 (12.5%)	2 (3.8%)	0 (0.0%)	4 (3.4%)	0.1983
Length of Stay (days, mean)	7.1	4.7	3.4	4.5	0.0001
Readmission (n [%])	3 (18.8%)	9 (17.3%)	4 (8.5%)	16 (13.8%)	0.3979
BMI = body mass index ASA = American Society of Anesthesiologists physical status classification All outcomes are for 30 days post-operatively					

CONCLUSIONS

- No statistically significant difference in 30-day morbidity or mortality
- Statistically significant decreased length of stay and estimated blood loss for robotic colectomies

RESULTS

- N=116 patients who underwent a colectomy
 - 14% (n=16) were open
 - 45% (n=52) were laparoscopic
 - 41% (n=48) were robotic
- No statistically significant difference in operative time, rate of reoperation, surgical site infection, readmission, or major complication
- The patients undergoing robotic colectomies demonstrated a statistically significant shorter length of stay (p=0.0001) and decreased estimated blood loss (p=0.0235)
- Median age = 63 years
- 53% Female
- Median ASA was 3
- Median body mass index was 28.67
- 44% had a malignant diagnosis on final pathology