

Adhesive Small Bowel Obstruction Protocol in Geriatric Patients

Jose A Aldana, MD, Javier E Rincon, MD, Ricardo A Fonseca, MD, Rohit K Rasane, MBBS, MS, Christina X Zhang, MD, Qiao Zhang, MS, Maya J Sorini, Kelly M Bochicchio, RN, MS, Grant V Bochicchio, MD, MPH, FACS, Obeid Ilabi, MD, FACS Washington University in St Louis, St Louis, MO



INTRODUCTION: Treatment options for adhesive small bowel obstruction (ASBO) in geriatric patients are: nonoperative management (NOM), operation, or operation after a trial of NOM. Before the ASBO protocol was initiated at our institution, management was based on surgeon preference. Our hypothesis was that with implementation of ASBO protocol, geriatric patients would have improved hospital outcomes.

METHODS: A prospectively maintained database (2008-2018) was queried for small bowel obstruction (SBO). Patients > 65 y were divided into 2 cohorts: before (2008-2013) and after (2015-2018) implementation of the protocol (BI and AI). Patients treated in 2014 were excluded, as protocol use was intermittent. Analysis was performed with Student’s *t*-test for continuous variables, and chi-square and Fisher exact test for categorical variables.

RESULTS: A total of 327 geriatric patients were identified with ASBO (BI=218, AI=109). AI patients were younger (76.6 vs 74.9 y, *p* = 0.049), with no difference in mortality, length of

stay (LOS), ICU LOS, or Charlson comorbidity index. For NOM, LOS was shorter (AI = 4.75 vs 3.79, *p* = 0.02). Operative intervention decreased (BI = 17.88% vs AI =12.84%, *p* = 0.24). Time from admission to operation was longer (BI = 2.3 vs AI = 7.2, *p* = 0.04), but mortality was not different (2.56% vs 21.43%, *p* = 0.05). Patients with successful NOM at index admission had no difference in operative intervention upon readmission (BI = 7.80% vs AI = 10.09%, *p* = 0.49). On logistic regression for mortality, operation (odds ratio [OR] 4.0, *p* = 0.06) and time-to-operation (OR 0.78, *p* = 0.16) were not independent risk factors, while age (in older geriatric patients), was (OR 1.16, *p* = 0.01) (Figure).

CONCLUSION: ASBO protocol in geriatric patients decreased LOS by 1 day, with a cost savings of \$1,727, without an increase in mortality. Patients had a trend toward lower surgical intervention; this requires further study.

Admitted on Friday for Acute Cholecystitis: Can the Operation Wait until Monday?

Michael T Scott, MD, David Walls, MD, Sinae Kim, PhD, Stanley Z Trooskin, MD, FACS Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ, Rutgers University School of Public Health, Piscataway, NJ



INTRODUCTION: Cholecystectomy is one of the most commonly performed abdominal operative procedures in the United States. However, few studies have examined outcomes and complications associated with delay in performing cholecystectomy after hospital admission. The effect of immediate vs delay in cholecystectomy was studied using a national database.

METHODS: The 2012-2016 NSQIP was queried for patients undergoing cholecystectomy for confirmed acute cholecystitis. Exclusion criteria included elective or outpatient surgery, preoperative length of stay (pre-LOS) > 7 days from admission, and any performance of concurrent procedure. Patients were stratified into 3 groups undergoing operation: <24, 24-72, and >72 hours after admission. Variables studied included length of postoperative stay (post-LOS); total hospital length of stay (total-LOS); operative time; laparoscopic or open operation; and complications, including venous thromboembolism (VTE), sepsis, surgical site infection, pneumonia, and readmission. Pre-LOS was compared with operative time, outcomes, and complications using multivariate logistic and linear regression models, controlling for age, BMI, diabetes, American Society of Anesthesiologists class, chronic steroid use, and wound class.

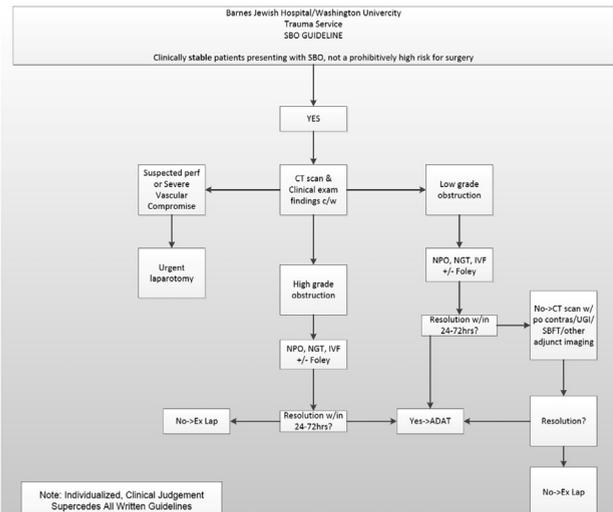


Figure. Small Bowel Obstruction Guideline

RESULTS:**Table.** Complications and Outcomes after Cholecystectomy Stratified by Preoperative Length of Stay (Pre-LOS)

Pre-LOS	<24 h (n = 12,968, 26.3%)	24-72 h (n = 26,758, 54.3%)	>72 h (n = 9,594, 19.5%)
Operative time, average mins (p value)	54.0 (reference)	54.8 (p=0.15)	59.3 (p<0.01)
Post LOS, average days (p value)	0.95 (reference)	0.78 (p<0.01)	1.17 (p<0.01)
Total LOS, average days (p value)	0.85 (reference)	2.01 (p<0.01)	4.9 (p<0.01)
Open cholecystectomy, odds ratio (p value, 95% CI)	1.0 (reference)	0.91 (p=0.02, 0.85-0.98)	1.28 (p<0.01, 1.17-1.39)
Venous thromboembolism, odds ratio (p value, 95% CI)	1.0 (reference)	1.30 (p=0.25, 0.83-2.02)	1.83 (p=0.01, 1.14-2.95)
Postoperative sepsis, odds ratio (p value, 95% CI)	1.0 (reference)	0.94 (p=0.69, 0.68-1.29)	1.53 (p=0.02, 1.08-2.17)
Organ space infection, odds ratio (p value, 95% CI)	1.0 (reference)	1.09 (p=0.54, 0.83-1.43)	1.20 (p=0.26, 0.87-1.65)
Pneumonia, odds ratio (p value, 95% CI)	1.0 (reference)	1.13 (p=0.35, 0.87-1.46)	0.95 (p=0.75, 0.71-1.28)
Readmission within 30 days, odds ratio (p value, 95% CI)	1.0 (reference)	1.02 (p=0.72, 0.92-1.12)	1.25 (p<0.01, 1.12-1.40)

Pre-LOS, preoperative length of stay; Post-LOS, postoperative length of stay; Total-LOS, total length of stay.

CONCLUSION: Patients undergoing operation for acute cholecystitis >72 hours after admission had significantly longer post-LOS and total LOS, were more likely to have an open rather than laparoscopic procedure, and were more likely to have complications including sepsis and VTE. They also had more readmissions. This study suggests that early cholecystectomy after admission seems warranted and that patients admitted on a Friday should not wait until Monday to undergo the operation.

Analysis of Outcomes for Elective Inpatient Robotic-Assisted, Laparoscopic, and Open General Surgery in the United States, 2010-2015

Usman Aslam, MPH, MS, Raelina S Howell, MD, Collin EM Brathwaite, MD, FACS, Gina Adrales, MD, MPH, FACS

Johns Hopkins Medicine, Baltimore, MD; New York Institute of Technology College of Osteopathic Medicine, Glen Head, NY; NYU Winthrop Hospital, Mineola, NY

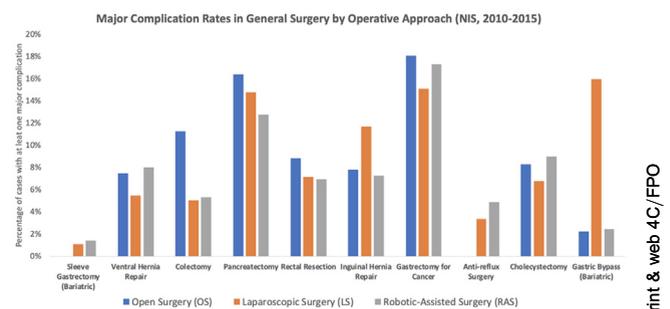


INTRODUCTION: With many purported advantages, robotic-assisted surgery (RAS) has expanded use in the United States. Few studies have compared clinical outcomes of RAS with laparoscopic surgery (LS) or open surgery (OS) for commonly performed elective robotic general surgery. The aim of this study was to evaluate the morbidity and mortality associated with RAS compared with OS and LS.

METHODS: Adult patients who underwent elective inpatient gastric bypass (GB), sleeve gastrectomy (SG), ventral hernia repair (VHR), colectomy, pancreatectomy, rectal resection (RR), inguinal hernia repair (IHR), nonbariatric gastrectomy (NBG), antireflux surgery, and cholecystectomy were identified using the Healthcare Cost and Utilization Project-National Inpatient Sample (HCUP-NIS), 2010-2015. Unadjusted and adjusted odds ratios (ORs) comparing RAS with OS and LS were calculated for in-hospital outcomes of mortality and major/minor complications.

RESULTS: Of 466,660 patients, 53.2% underwent OS, 43.2% LS, and 3.5% RAS. Major morbidity was highest for pancreatectomy (16.4% OS, 14.8% LS, 12.8% RAS, $p = 0.029$). Compared with OS, morbidity for colectomy was significantly lower for RAS (odds ratio [OR] 0.44, $p < 0.05$) and robotic RR (OR 0.78, $p < 0.05$). In-hospital mortality was significantly lower for RAS in pancreatectomy (OR 0.18, $p = 0.044$), colectomy (OR 0.3, $p < 0.05$), and RR (OR 0.42, $p = 0.025$) compared with OS. After adjustments, the odds of in-hospital mortality were lower for colectomy (OR 0.4, $p < 0.05$), (Figure).

CONCLUSION: While our data was limited in granularity, this study demonstrates that RAS is a favorable option over OS for general surgeons performing colorectal resection and over LS in elective IHR. The results are mixed for robotic NBG, which may be due to the heterogeneity of disease.

**Figure.**