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FIV-O, A NOVEL ADHERENCE SCORING SYSTEM DESIGNED TO EVALUATE ENHANCED RECOVERY PROTOCOLS IN COLORECTAL SURGERY.

M. Ghobrial, F. Dehkordi-Vakil, M. D. Jafari, M. J. Stamos, M. T. Brady, S. J. Mills, A. Pigazzi and J. C. Carmichael *Irvine, CA*.

Purpose/Background: The purpose of this study was to design and validate a measurement tool to predict the impact of enhanced recovery protocols (ERPs) on inpatient length of stay. The FIV-O score is based on three core enhanced recovery protocol principles: **F**eed early, **IV** fluid and **O**pioid restriction (FIV-O). ERPs have gained increasing popularity in recent years due to improved patient outcomes and significantly reduced length of stay after elective intestinal surgery. A typical ERP involves adoption of a bundle of measures to improve outcomes; however, there is no clarity on which of these measures most significantly benefits patient recovery. Our hypothesis is that early feeding, intravenous fluid restriction and opioid reduction are the three most important components of an ERP.

Methods/Interventions: A structured literature search was conducted using PubMed to identify all randomized controlled trials (RCT) regarding enhanced recovery in elective colon and rectal surgery from 1990 to January 2019. These studies were classified by type of surgery (laparoscopic or open), as this is an important independent indicator of length of hospital stay. The patient cohorts in each RCT were scored based on timing of early feeding (score 1-5), timing of discontinuation of IV fluids (score 1-3), and degree of non-narcotic pain management (score 1-3). The sum of the scores assigned for the three components was considered the "total adherence score". Spearman correlations and regression models were used to determine the relationship between each of the variables, total adherence score, and inpatient length of stay for each cohort.

Results/Outcome(s): A total of 17 RCTs had adequate information regarding their ERP to be included in the study. Overall, 577 lap patients and 655 open patients were included in this analysis. Spearman correlation between total adherence score and median length of hospital stay was statistically significant ($P < 0.05$) in both laparoscopic and open surgery. Regression model results indicate that total adherence score is a significant (-0.50; p-value = .0066) predictor of median length of hospital stay. For every one unit increase in the adherence score, the median length of hospital stay decreases by half a day (on average). Among the three component scores, pain management has the greatest effect on reducing the median length of hospital stay (-2.65; p-value = .0199), followed by early discontinuation of IV fluid (-2.02; p-value = .0003) and early feeding (-0.594; p-value = .054).

Conclusions/Discussion: The FIV-O total adherence score serves as a reliable tool to assess the quality of ERPs based on the inclusion of three core postoperative treatment components. We conclude that adherence to all three measures are important to decreasing length of stay both in laparoscopic and open surgery. Using the FIV-O score we found that pain management had the most significant effect on shortening length of stay.