Enhanced Recovery After Surgery: Perioperative Nursing Practice for Patients with Gastrointestinal Diseases (Postprint)

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Date: 2018-12-04T00:00:00+00:00

Abstract

Enhanced Recovery After Surgery (ERAS) refers to a series of evidence-based, optimized perioperative management measures designed to reduce or minimize the physiological and psychological traumatic stress in surgical patients, thereby achieving accelerated recovery. This concept was first proposed in 1997 by Danish scholar Kehlet[0, and has been gradually accepted by the medical community. It has been successfully applied to the perioperative management of major surgeries across multiple disciplines, including gastrointestinal, pancreatic, orthopedic, and thoracic surgery, benefiting numerous patients[z}0. However, due to concerns regarding its postoperative safety raised by some scholars, the implementation of ERAS in China has been suboptimal. Therefore, this study summarizes the nursing experiences and outcomes of ERAS in gastrointestinal surgery at Peking Union Medical College Hospital since its implementation, aiming to provide a reference for domestic colleagues.

Full Text

Enhanced Recovery After Surgery: Perioperative Nursing Practice and Outcomes in Patients with Gastrointestinal Diseases

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Keywords: Enhanced recovery after surgery; Gastrointestinal diseases

Enhanced Recovery After Surgery (ERAS) refers to a series of evidence-based perioperative management measures that reduce physiological and psychological trauma in surgical patients. First proposed by Danish scholar Kehlet in 2001 [**?**], ERAS has been successfully applied to perioperative management of major surgeries across multiple disciplines and is currently being gradually adopted, benefiting many patients [**?**]. This study summarizes the nursing experience in gastrointestinal surgery at Peking Union Medical College Hospital and analyzes patients' general clinical data and postoperative recovery outcomes under ERAS protocols, aiming to provide reference for domestic colleagues.

1. Objects and Methods

1.1 Study Subjects

Patients undergoing elective gastrointestinal surgery at the Department of General Surgery of our hospital from December 2017 to December 2018 were included. Inclusion criteria: (1) Aged 18-70 years with gastric/colorectal tumors or stromal tumors scheduled for surgery; (2) Patients able to cooperate with ERAS protocols. Exclusion criteria: (1) Emergency surgery; (2) >10-15% weight loss within 6 months; (3) Severe malnutrition (albumin <30 g/L); (4) Organ dysfunction or requiring postoperative ICU admission; (5) Cardiopulmonary disease; (6) Gastrointestinal obstruction; (7) Diabetes duration >10 years with poor control (blood glucose >10 mmol/L); (8) Combined psychiatric illness or severe anxiety/depression.

1.2 Development of Perioperative Nursing Protocol

Under the joint discussion of general surgeons, nutrition physicians, and nursing staff, a multidisciplinary team collaboratively developed and implemented ERAS perioperative nursing protocols.

1.3 Nursing and Observation Indicators

Observation time began when patients returned to the ward post-surgery, measured in hours. Indicators included: first ambulation time, urinary catheter and gastric tube removal time, first flatus time, enteral nutrition support route and type, pain scores, hospitalization costs, postoperative complications, and length of stay.

1.4 Statistical Analysis

SPSS 22.0 software was used for data processing. Categorical data were described using frequency and percentage. Measurement data were expressed as mean ± standard deviation. Between-group comparisons used independent samples t-test or non-parametric tests. $P<0.05$ indicated statistically significant difference.

2. Results

2.1 Basic Data

A total of 105 patients who underwent elective gastrointestinal surgery were included, with mean age (55.9±12.1) years, 62.9% male (66/105). Diagnoses included gastric malignancy (26.7%, 28/105), colorectal malignancy (46.7%, 49/105), and stromal tumors (26.7%, 28/105). Among them, 99 patients (94.3%, 99/105) underwent laparoscopic surgery.

Comparison between ERAS perioperative nursing protocol and traditional nursing protocol for gastrointestinal patients

2.2 Postoperative Recovery

Under ERAS protocol guidance, the 105 patients' postoperative recovery outcomes were as follows: first ambulation time was (15.42±2.24) hours; first flatus time was (38.26±21.82) hours; mean urinary catheter removal time was (24.18±8.90) hours; mean gastric tube removal time was (33.19±35.34) hours. All patients successfully urinated spontaneously after catheter removal with no urinary retention. First oral water intake time was (89.28±49.24) hours. Regarding enteral nutrition: 69 patients (65.7%, 69/105) did not have gastric tubes placed; 36 patients (34.3%, 36/105) had gastric tubes placed, with first tube feeding time of (27.21±20.14) hours. Among patients using enteral nutrition formulations, 83 (79.0%, 83/105) received whole-protein formulations and 22 (21.0%, 22/105) received short-peptide formulations. Overall gastrointestinal tolerance was good: 10 patients (9.5%, 10/105) experienced mild abdominal bloating; 10 patients (9.5%, 10/105) experienced abdominal pain that resolved after discontinuation.

2.3 Perioperative Pain Management

Among the 105 patients, 6 (5.7%, 6/105) had poor pain tolerance with pain scores 4, and received patient-controlled analgesia. The remaining patients were treated with non-steroidal analgesics as prescribed. Specific pain scores are shown in Table 12 .

2.4 Weight Changes

Patients' mean Body Mass Index (BMI) at admission was (23.56±3.11) kg/m², at discharge was (22.69±3.00) kg/m², and at follow-up was (23.38±4.21) kg/m², with no statistically significant differences (P>0.05).

2.5 Postoperative Complications, Length of Stay, and Hospitalization Costs

Complication rates were 4.8% (5/105) in the ERAS group and 6.7% (7/105) in the traditional care group, with no statistically significant difference (P>0.05).

Complications included anastomotic leak and pulmonary infection. The ERAS group had significantly shorter postoperative hospital stay [(7.93±4.45) days vs (9.6±4.5) days] and lower total hospitalization costs [(42,472±19,028) yuan vs (51,510±18,462) yuan] compared with the traditional care group.

2.6 Patient Satisfaction

Patient satisfaction on discharge day was 98.75% in the ERAS group and 98.45% in the traditional care group. Through post-discharge telephone and WeChat follow-up, patients recognized the benefits of ERAS for perioperative recovery.

3. Discussion

3.1 ERAS Perioperative Nursing Protocol is Effective and Feasible

This study found that compared with the traditional nursing protocol group, the ERAS group did not have increased overall postoperative complication rates, while postoperative hospital stay was significantly shortened. The mean postoperative hospital stay of (7.93±4.45) days in this study is similar to the results of Hu Jinchen et al.' s [**?**] randomized controlled trial of ERAS protocols in gastric cancer patients. The application of ERAS protocols helps gastrointestinal patients achieve stable and rapid postoperative recovery.

3.2 Effective Perioperative Analgesia is the Foundation for Accelerated Postoperative Recovery

Since non-steroidal analgesics exert analgesic effects by inhibiting central prostaglandin synthesis with minimal side effects [**?**], this study used non-steroidal analgesics for perioperative pain management in patients with moderate to severe postoperative pain, with standardized pain assessment during medication. Pain scores were significantly lower than those reported by Wang Xiaojie et al. [**?**] (2.24±2.16 vs 3.97±2.12), greatly improving patients' ability to cough effectively and ambulate early, thereby avoiding a series of complications associated with bed rest [**?**].

3.3 Attention to Post-Discharge Patient Condition Can Improve Overall Nursing Effectiveness and Patient Satisfaction

Multiple international and domestic ERAS guidelines explicitly recommend postoperative patient follow-up and providing information support for question answering [**?**]. For gastrointestinal surgery patients, post-discharge nutritional assessment and dietary transition guidance are particularly critical due to factors such as surgical stress, perioperative fluid restriction, and limited early oral intake. This study provided postoperative nutritional guidance through face-to-face education at discharge and WeChat Q&A sessions after discharge. Follow-up revealed that the vast majority of patients had weight gain, demonstrating that attention to post-discharge status can improve overall nursing effectiveness.

4. Conclusion

ERAS protocols in gastrointestinal surgery can accelerate postoperative recovery, improve patient experience, and increase satisfaction. Nursing staff play a crucial role throughout the process by providing comprehensive medical care and post-discharge follow-up. However, it should be noted that this study lacked a standard non-randomized control group, and retrospective case analysis was used to match some traditional surgery group patients. Standardized multidisciplinary ERAS protocols are safe for application in gastrointestinal surgery.

References

[1] Wilmore DW, Kehlet H. Recent Advances: Management Of Patients In Fast Track Surgery [J]. BMJ Br Med J, 2001, 322: 473-476.

[2] Chinese ERAS Expert Group. Challenges and Countermeasures of Enhanced Recovery After Surgery in Colorectal Surgery Practice in China [J]. J Dig Oncol, 2016, 8: 68-71.

[3] Basic Surgery Nursing Work Guidelines [M]. People' s Medical Publishing House, 2016: 95-98.

[4] Preoperative Selection of Pain Assessment Methods and Postoperative Pain Management [J]. Union Medical Journal, 2013, 29: 3892.

[5] China' s Medical Technology Capability and Medical Quality Level Have Significantly Improved [J]. Union Medical Journal, 2018, 9: 303.

[6] Hu Jinchen, et al. ERAS-guided Laparoscopic-assisted Distal Gastrectomy for Gastric Cancer [J]. Chin J Gen Surg, 2011, 26: 837-840.

[7] Jin Xiaobo. Practice of ERAS Concept in Gastrointestinal Tumor Patients [J]. Parenteral & Enteral Nutrition, 2010, 17: 283-285.

[8] Effect of Early Urinary Catheter Removal on Urinary System Complications in Colorectal Surgery Patients [J]. J Nurs Sci, 2016, 31: 103-104.

[9] Effect Evaluation of Integrated Medical-Nursing Model in Perioperative Management of Colorectal Cancer Patients [J]. Practical Med J, 2015, 21: 1573-1577.

[10] Current Status of Postoperative Acute Pain Control Outcomes [J]. Practical Nurs J, 2014, 28: 3005-3006.

[11] Wang Xiaojie, et al. Pain Scores Far Lower Than [Study] (3.97±2.12) [J].

[12] Ljungqvist O. ERAS—enhanced recovery after surgery: moving evidence-based perioperative care to practice [J]. JPEN J Parenter Enteral Nutr, 2014, 38: 559-566.

[13] Mortensen K, Nilsson M, Slim K, et al. Consensus guidelines for enhanced recovery after gastrectomy [J]. Br J Surg, 2014, 101: 1209-1229.

[14] Chinese Research Hospital Association Robotic and Laparoscopic Surgery Professional Committee. Expert Consensus on ERAS for Gastric Cancer Surgery (2016) [J]. Chin J Dig Surg, 2017, 16: 14-17.

[15] Chinese Expert Consensus on Application of ERAS in Colorectal Surgery (2015) [J]. Chin J Dig Surg, 2015, 14: 606-608.

Note: Figure translations are in progress. See original paper for figures.