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Original Article

Fast-track surgery in elderly patients undergoing colorectal cancer radical resection

Hong-Yan Kong [a], Ai-Ling Yang [a], Cai-Ya Ying [a], Zhen-Fang Kong [a], Ling-Ling Yuan [a], Shan-Shan Hu [b], Shun Zhang [c,*]

[a] Department of Anorectal Surgery, Ningbo No. 2 Hospital, Ningbo, China
[b] School of Medicine, Ningbo University, Ningbo, China
[c] Laboratory of Stem Cell, Ningbo No. 2 Hospital, Ningbo, China

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ABSTRACT

Purpose: To investigate the efficacy of applying fast-track surgery (FTS) to elderly patients undergoing radical resection of colorectal cancer.

Methods: Elderly patients undergoing radical resection of colorectal cancer received FTS ($n = 31$) or routine ($n = 31$) nursing care. The time to first anal exhaust, oral feeding and leaving the bed, duration of postoperative hospital stay and the incidence of complications were compared between the two groups.

Results: Patients receiving FTS nursing demonstrated significantly shorter times to exhaust, oral feeding and leaving the bed compared with those receiving routine nursing (all $p < 0.01$). Furthermore, there were significantly fewer incidences of postoperative pulmonary and urinary tract infections and intestinal adhesion in patients receiving FTS nursing (all $p < 0.05$).

Conclusion: Application of FTS in elderly patients undergoing radical resection of colorectal cancer facilitates an early rehabilitation after surgery, but places higher demands on nursing care.

1. Introduction

Fast-track surgery (FTS) incorporates a series of optimized initiatives in perioperative management based on evidence-based medicine in order to relieve or alleviate patients' physiological and mental stress, facilitate rehabilitation after surgery and shorten the hospital stay [1]. FTS has been shown to be effective in colorectal cancer patients [2,3]. As the incidence of colorectal cancer has been rapidly increasing in China along with the aging population, this study was aimed to evaluate the efficacy of FTS for the perioperative management of elderly patients receiving radical resections of colorectal cancer.

* Corresponding author.
E-mail address: worra123@163.com (S. Zhang).
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2. Design and methods

2.1. Patient selection

A total of 62 elderly patients hospitalized in the Ningbo No. 2 Hospital for elective radical resection of colorectal cancer were recruited between October 2011 and November 2012. Criteria for study inclusion were: confirmed pathological diagnosis of colorectal cancer from the resected specimen; no history of severe organ dysfunction; no adjuvant therapy prior to surgery (including chemotherapy and radiotherapy). Patients were excluded from the study if they underwent emergency surgery for intestinal obstruction or perforation. Informed consent was obtained before surgery after all patients fully understood the process of FTS and traditional routine nursing, and the patients were voluntarily divided into experimental and control groups. The study protocol was approved by the local Ethnics Committee.

2.2. Methods

2.2.1. Health education

Patients in the control group were provided with routine nursing care. Patients were informed about preoperative fasting time and the discomfort caused by surgery. The duty nurses instructed patients on how to take a deep breath and cough effectively, and described the relative safety and efficacy of surgery in plain language in order to calm the patients and ensure sound sleep.

Patients in the experimental group received the FTS program. A rapid rehabilitation care team was founded to perform the entire perioperative health education. In addition to routine nursing, patients in the FTS group received digital hierarchy pain assessment methods, and description of correct bodily sensations, oral Swiss' and Swiss-generation's prime role and precautions, as well as instruction on chewing-gum time, the proper use of a walker, and exercise activity planning. Patients were educated about FTS via the nurse–patient interaction and case guidance, along with group education for patients with the same date of surgery. A preoperative nursing assessment was made, which focused on the assessment of the patients' grasp of health education, special demands and social backgrounds. Nurses recorded the progression of FTS interventions each day prior to surgery.

2.2.2. Pain nursing

Patients in the control group were given tramadol (0.1 g; i.m.) based on their complaints after surgery. Pain levels and treatment were recorded by nurses who were also responsible for observing their patients closely, comforting them in a timely manner and providing comfortable beddings.

Patients receiving FTS were provided with self-controlled i.v. analgesia pumps for 72 h as well as distracted with hobbies, such as listening to music and/or the radio. Pain levels were evaluated and recorded by nurses according to the digital pain grading evaluation sheet, and the time at which patients turned around, got out of bed and coughed were recorded every day for a week. If the pain level was >6 points, the patients were given oral acetaminophen (Saridon) to maintain the pain level between 4 and 6 points.

2.2.3. Catheterization

With their cooperation, patients in the control group received preoperative indwelling gastric tubes and catheters, which were unobstructed after surgery. Moreover, abdominal cavity drainage tubes were kept unimpeded, and the colour, quantity and character change of the drainage fluid were observed closely. The drainage bags were replaced twice a week. The gastric tubes were removed after flatus. Catheters remained in place for 5–7 d and were opened intermittently to exercise bladder function.

Catheterization for FTS patients was conducted in the operating room. Postoperative catheter removal occurred 24–48 h in 24 patients (within 24 h after surgery in eight colon cancer patients) and after 48 h in two patients with prostatic hyperplasia. The catheter indwelling time in five patients with lower abdominal rectal and perineal resections was 5–6 d. During the time of catheter indwelling, nurses conducted perineal nursing two times daily and opened the catheters every 2 h, observing and recording the output of urine. Once the patients could sense a full bladder and wished to urinate, the catheters were removed; the time to urinate after extubation was between 5 and 30 min. All five patients with rectal and perineal resections urinated successfully after extubation. Three patients received abdominal cavity drainage tubes after surgery and additional care was provided as for control group patients. The drainage tubes were removed when the drainage fluid reduced 5–10 mL/d and the retention time was 1–3 d.

2.2.4. Bowel preparation

Patients in the control group were given routine preoperative mechanical cleansing enemas two times, one at 8:00 PM the night before surgery and another at 6:00 AM on the day of surgery. The colour and character of stool and the pain, bloating and discomfort of the abdomen were observed and recorded.

Patients in the FTS group were provided with three boxes of sulphate-free polyethylene glycol electrolyte powder and 2000 mL warm water the day before the operation to cleanse intestines by divided doses. Nurses provided detailed guidance to inform the patients to drink no more than 500 mL at a time, and advised them to perform abdominal massage with appropriate walking after drinking. The bloating and discomfort of the abdomen, nausea, and the colour and character of stool were mainly observed.

2.2.5. Dietary nursing

Control patients underwent 12-h-preoperative fasting (beginning at 8:00 PM the night before) and were forbidden to drink water at least 6 h before surgery (beginning at 10:00 PM due to uncertainty of operation time). After surgery, the patients were allowed to take liquid diet after first flatus, and were allowed small amounts of food that gradually transitioned to a normal diet. The patients were observed for any discomfort felt after eating.

Patients in the FTS group were allowed semi-liquid food the day before surgery. The patients were orally administered 600 mL Rui Su (patients with high blood sugar took Rui generation) at 9–10:00 PM on the night before surgery, and 400 mL