

Review Article

The effect of rapid rehabilitation nursing intervention on the nursing satisfaction and quality of life of colon cancer surgery patients

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Abstract: This study aims to explore the effect of rapid rehabilitation nursing intervention on the nursing satisfaction and quality of life of patients undergoing colon cancer surgery. From July 2018 to December 2019, 69 patients with colon cancer who were treated in our hospital were selected as the study cohort, of which 31 patients receiving routine care were placed in the control group (CG), and 38 patients receiving rapid rehabilitation surgery nursing intervention were placed in the observation group (OG). The patients' operation conditions, quality of life, hospitalization times, nursing satisfaction, complications, nutritional status, and negative emotions were compared in the two groups. The anal exhaust times, postoperative first defecation times, wound healing times, hospitalization times, and the overall incidence of complications in the OG were significantly lower than they were in the CG ($P < 0.05$). The quality of life and nursing satisfaction scores in the OG were significantly higher than they were in the CG ($P < 0.05$). After the nursing, the patients' SDS and SAS scores were significantly lower than they were before the nursing in the two groups ($P < 0.05$). After the nursing, the patients' SDS and SAS scores in the OG were significantly lower than they were in the CG ($P < 0.05$). After the nursing, the HB, ALB, and TLC levels increased significantly in both groups, with statistically significant differences ($P < 0.05$). After the nursing, the HB, ALB, and TLC levels of the patients in the OG were significantly higher than they were in the CG. Rapid rehabilitation nursing for patients undergoing colon cancer surgery can improve nursing satisfaction and their quality of life, so it is worth implementing in clinical practice.

Keywords: Rapid rehabilitation nursing, nursing satisfaction, quality of life, colon cancer surgery, SDS and SAS scores

Introduction

Colon cancer refers to a malignant tumor of the colonic mucosal epithelium under the action of various carcinogenic factors such as the environment or heredity, and it is also the most common gastrointestinal tumor disease clinically [1, 2]. With the changes in people's living habits and diets, colon cancer's morbidity and mortality have also increased [3]. In recent years, colon cancer has become a more common malignant tumor clinically, and it is also the main cause of tumor-related deaths [4]. According to the latest statistics from the American Cancer Society in 2018, there will be 97,220 new cases of colon cancer in the United States, making it the fourth most common can-

cer, and 50,630 patients will die of colon cancer in the same year, making it the second most common cause of deaths from cancer [5].

Clinically, surgical treatment is usually adopted to remove colon cancer [6]. A large number of clinical studies have shown that the therapeutic effect of colon cancer patients can be effectively improved by strengthening postoperative nursing intervention. Therefore, appropriate nursing methods play a very important role in the prognosis and recovery of colon cancer patients [7]. The concept of rapid rehabilitation nursing is a concrete embodiment of the patient-centered humanistic nursing concept. It is a series of measures taken to reduce postoperative complications, promote rehabilitation,

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and reduce patient mortality [8]. With the gradual deepening and maturity of clinical research, rapid rehabilitation nursing intervention, as a new nursing mode, can improve the overall treatment effect, reduce patients' postoperative pain, greatly shorten the treatment time, and facilitate patient recovery. It has been widely used in various clinical operations [9, 10].

At present, there are few studies on the effect of rapid rehabilitation nursing in perioperative colon cancer surgery. In this study, we discuss the nursing effect of rapid rehabilitation nursing on patients undergoing colon cancer radical surgery by implementing different nursing methods for patients in the two groups, hoping to help improve the patients' clinical prognoses.

Methods and materials

Baseline data

From July 2018 to December 2019, 69 patients with colon cancer who visited the First People's Hospital of Wenling were selected as the research participants. In this study, all the patients were treated with a laparoscope to conduct adjuvant therapy. The 31 patients who received routine care were placed in the CG, and the 38 patients who received rapid rehabilitation surgery nursing intervention were placed in the OG. In the OG, there were 20 males and 18 females, ranging in age from 47 to 65 years old, with an average age of (52.87 ± 3.24) years old. There were 16 cases with stage I tumors, 12 cases with stage II tumors, and 10 cases with stage III tumors. In the CG, there were 15 males and 16 females, ranging in age from 47 to 67 years old. There were 13 cases with stage I tumors, 10 cases with stage II tumors, and 8 cases with stage III tumors. This study met the relevant requirements of the Medical Ethics Committee of the First People's Hospital of Wenling, and it was carried out in accordance with the Helsinki Declaration. All the participants volunteered to participate in this study.

Inclusion criteria: The above patients were diagnosed with colon cancer through pathological examinations, the patients did not undergo abdominal surgery in the previous year, all the

patients were treated by laparoscopic surgery, their medical histories were complete, they practiced good nutrition and signed the informed consent forms.

Exclusion criteria: Severe renal function injury, comorbid with diabetes mellitus, comorbid with myocardial infarction and severe cerebral hemorrhage, pregnant or lactating women, mental or psychological diseases, hypertension and liver dysfunction, comorbid with hematological diseases or immune system diseases.

Research methods

In the CG, the patients were treated with the conventional nursing mode, including regular monitoring of the patients' vital signs, enhanced psychological nursing, recording the chief complaints and blood oxygen saturation levels of the patients on time, observing whether there was bleeding and exudate or not in the abdominal wound after the operation, recording the amount of liquid going in and out, regularly reviewing of the electrolytes, coagulation and blood routine, observing the drainage tubes and the patients' skin pressure and strengthening their life guidance, etc. In the OG, the patients received rapid rehabilitation surgical nursing intervention, with the following specific conditions: (1) Preoperative nursing: ① Since the patients were admitted to hospital, relevant knowledge educational manuals were issued to them or their families to explain the disease development and progression processes, the advantages and disadvantages of laparoscopic treatment and matters needing attention. The patients, their families, and the medical staff were assembled to watch videos related to the treatment of colon cancer. The medical staff taught patients how to recover and exercise after the operation in advance. In this process, the medical staff paid attention to encourage the patients, to increase the patients' confidence and courage to fight against the disease and to improve their clinical treatment compliance. ② Laparoscopic surgery did not require intestinal preparation for the colon cancer patients before surgery. The patient was given 5% glucose orally on the night before the surgery, and another 500 ml glucose was administered before the surgery for 2 hours. During the treatment, the patients' blood sugar changes were monitored closely to reduce damage to

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the gastrointestinal mucosal barrier caused by the surgery [3]. (2) Intraoperative nursing: ① During the operation, maintaining the patient's body temperature helped reduce postoperative complications. During the nursing process, the stability of the patient's body temperature was maintained. The operating room temperature was adjusted to 25°C, and the patient was covered with a thermal insulation blanket to prevent the loss of body heat during the operation. During the operation, the fluid required by the patient was heated. During the operation, the patient's limb exposure was minimized, and the patient's body temperature was maintained at 37°C. If the patient's body temperature decreased during the operation, it was necessary to use a thermal insulation blanket and a thermal insulation bag to increase the body temperature. ② Short-term anesthesia was used to anesthetize the middle and lower sternum of the patient to minimize the occurrence of stress reactions during operation. During the operation, nurses increased the inspection frequency and paid close attention to the general conditions, such as the patients' respiration, pulse, blood pressure, and blood oxygen saturation levels. Fluid inflow and outflow were recorded during surgery, and multiple venous pathways were established to maintain the stability of the internal environment [4]. (3) Postoperative nursing: ① After the operation, the nursing staff was directed to adjust the temperature of the ward in advance and set the room temperature at 25°C. The axillary temperature was measured every four hours to ensure that each patient's body temperature was about 37°C. ② Ropivacaine and sufentanil analgesic pumps were given to the patients within 48 hours after the operation. In addition to strengthening the communication with patients, the medical staff also suggested that the patients listen to some comfortable music to distract their attention and reduce their pain. The medical staff instructed the patients to breathe deeply, relax, and reduce their psychological stress. The medical staff instructed the patients to protect their abdomen when coughing to prevent pain caused by abdominal traction due to elevated abdominal pressure during coughing. ③ The medical staff strengthened their dietary care and encouraged the patients to eat liquid food until two hours before the onset of anesthesia before the surgery. At the same time, solid food should be prohibited for

six hours before the anesthesia. It was advised to eat liquid food high in protein, high in calories, with less residue, easily digestible, and nutritious, such as porridge, steamed eggs, vegetable soup, and lotus root starch. These foods can reduce the patient's feces and help clean out the intestinal tract. If there is an obstruction, the patients should fast and supplement their nutrition through an infusion. After the operation, the patients were instructed to chew chewing gum to promote peristalsis in the gastrointestinal tract and the secretion of digestive juices. When the anal exhaust occurred and the intestinal sounds recovered, the patients were instructed to take fluid foods, increase their intake of vegetables and fruits, eat more meals each day but less food each time, increase their intake of high-quality protein, and avoid the intake of gas-producing foods, such as beans, to gradually overeat. (4) The medical staff regularly opened windows for ventilation, increasing the air circulation for 30 minutes each time to reduce the indoor air pollution, and they instructed the patient's family members to reduce the number of visits, mopped the floors with 500 mg/L chlorine-containing disinfectant, and replaced the sheets and quilt covers regularly to reduce the pollution in the ward. The medical staff strictly followed the principle of sterility, strengthened the nursing of the pipelines and used antibiotics to prevent infections and closely observe any changes in the patients' infection indicators. The medical staff also closely observed whether there was bleeding or exudate in the wounds and replaced the dressings in time to prevent the wound from becoming infected. (5) In the OG, the nasogastric tube was not retained after surgery. The nasogastric tube was not retained in the patients undergoing radical operations for colon cancer, and this helped promote the early recovery of the patients' intestinal function and reduce the occurrence of pulmonary complications.

Outcome measures

Comparison of the hospitalization between the two groups: the patients' first anal exhaust time, postoperative first defecation times, wound healing times, and the total hospitalization times were recorded in this study, and the relevant data were recorded and analyzed comprehensively.

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Table 1. Comparison of the surgical conditions and hospitalization times of the patients in the two groups

	Anal exhaust time	Postoperative first defecation time	Wound healing time
OG (n=38)	2.45±0.51	3.29±0.53	5.25±1.03
CG (n=31)	3.78±0.59	4.78±0.48	8.37±1.41
t	10.04	12.11	10.61
P	<0.01	<0.02	<0.01

The incidence of complications in the two groups: the comprehensive postoperative urinary tract infection, abdominal infection, and incision infection data and data from other adverse reactions were recorded and analyzed in the two groups.

Comparison of the quality of life between the two groups: after the intervention, the patients' quality of life (physical condition, emotional support, emotions, social management, family situation) was scored using the comprehensive quality of life assessment questionnaire (GQOL-74) [11].

Comparison of the patients' satisfaction in the two groups: the patients' satisfaction was investigated using a questionnaire. 100 was the highest score, among which 80-100 indicated very satisfied, 60-80 indicated satisfied, and <60 indicated not satisfied, with satisfaction = (very satisfied + satisfied)/total number ×100%.

The patients' negative emotions were evaluated using the Self-Rating Depression Scale [12] (SDS), which contained 20 items and 4 grade standards. The higher the grade is, the higher the score is, indicating a higher degree of depression. It is mainly suitable for adults with depressive symptoms. The Self-Rating Anxiety Scale [13] (SAS) scores reflected the patients' anxiety levels.

Statistical methods

SPSS 22 was used for the data analysis. The counting data were expressed in the form of rates. Chi-square tests were used for the comparisons. The measurement data were expressed as the mean ± standard deviation ($\bar{x} \pm s$), and t tests were used. A difference was statistically significant when $P < 0.05$.

Results

Comparison of the patients' surgical conditions in the two groups

The anal exhaust times, postoperative first defecation times and wound healing times of the patients in the OG were significantly lower than they were in the CG ($P < 0.05$) (Table 1).

Comparison of the quality of life scores in the two groups

The quality of life scores in the OG were significantly higher than they were in the CG ($P < 0.05$) (Table 2).

Comparison of the hospitalization times in the two groups

The postoperative hospital stays of the patients in the OG were significantly shorter than they were in the CG, and the differences were statistically significant ($P < 0.05$) (Figure 1).

Comparison of the patients' nursing satisfaction in the two groups

Comparison of the patients' satisfaction with the nursing work in the two groups: the patients' nursing satisfaction was 76.32% in the OG, which was significantly higher than the CG (51.61%). The difference was statistically significant ($P < 0.05$) (Table 3).

Comparison of the complications in the two groups

In the OG, the total rate of complications was 7.89%, and the rate in the CG was 25.81%. The total rate of complications in the OG was significantly lower than it was in the CG, with a statistically significant difference ($P < 0.05$) (Table 4).

Comparison of the SDS and SAS scores before and after the nursing

There was no significant difference between the SAS and SDS scores in the two groups before the nursing. After the nursing, the patients' SDS and SAS scores in the two groups were significantly lower than they were before the nursing, and the difference was statistically significant ($P < 0.05$). After the nursing, the SDS

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Table 2. Comparison of the patients' quality of life scores in the two groups

	Physical condition	Emotional support	Emotions	Social management	Family condition
OG (n=38)	63.41±5.77	66.72±2.69	77.81±5.84	65.73±3.84	69.23±5.01
CG (n=31)	47.66±4.22	51.35±2.13	53.87±3.62	50.41±3.77	52.58±4.53
t	12.68	25.87	19.9	16.62	14.33
P	<0.01	<0.02	<0.01	<0.01	<0.01

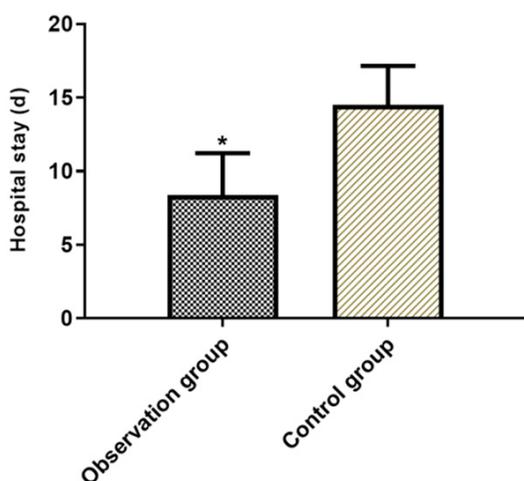


Figure 1. Comparison of the hospitalization times between the OG and CG. Compared with the CG, the hospitalization time in the OG was significantly shorter ($P < 0.05$). Note: compared with the CG, * $P < 0.05$.

and SAS scores of the patients in the OG were significantly lower than they were in the CG, and the difference was statistically significant ($P < 0.05$) (**Table 5; Figure 2**).

Comparison of the nutritional status indexes in the two groups before and after the intervention

Before the nursing, there was no significant difference in the HB, ALB, or TLC levels in the two groups. After the nursing, the patients' HB, ALB, and TLC levels were significantly increased in the two groups, with a statistically significant difference ($P < 0.05$). After the nursing, the HB, ALB, and TLC levels of the patients in the OG were significantly higher than they were in the CG, and the differences were statistically significant ($P < 0.05$) (**Table 6**).

Discussion

With the increasing awareness of people's health, the incidence rate of colorectal cancer

has gradually decreased in recent years, but it is still one of the four major diseases causing cancer-related death in human beings [14-16]. At present, surgical resection is still the fundamental treatment for colon cancer, but surgery will lead to physiological and psychological trauma-related stress in many patients. Therefore, comprehensive rehabilitation nursing is of great significance in promoting the recovery of patients after colon cancer surgery [17, 18].

Rapid rehabilitation nursing mainly refers to a new surgical concept. It mainly refers to the continuous optimization and combination of routine treatment measures in the perioperative period using evidence-based medicine to help patients recover as soon as possible [19, 20]. Rapid rehabilitation nursing improves and supplements traditional surgery to a certain extent to improve patient prognosis [21]. This study was designed to explore the nursing effects of rapid rehabilitation nursing and ordinary care intervention on patients undergoing radical resection of colon cancer. The results showed that the recovery times of exhaust and defecation, the wound healing times and post-operative hospitalization times of patients in the OG were less than they were in the CG, suggesting that the recovery process of patients in the OG after applying rapid rehabilitation nursing was significantly shortened, and the rehabilitation effect was relatively better. In the studies of Kehlet et al. [22], the concept of rapid rehabilitation was applied to perioperative nursing for the surgical treatment of colon cancer, and the safety, feasibility, and effectiveness of the rapid rehabilitation measures were confirmed by a large amount of evidence-based medical evidence. Subsequently, a large number of studies have found that the traditional perioperative treatment measures have certain defects and drawbacks, but the value of rapid rehabilitation treatment measures in the perioperative period has been affirmed. Studies by Xu et al. [23] have shown that rapid rehabilita-

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Table 3. Comparison of the patients' nursing satisfaction in the two groups

	Great satisfaction	Satisfactory	Fair	Dissatisfaction	Satisfaction
OG (n=38)	8 (21.05)	21 (55.26)	4 (10.53)	5 (13.16)	29 (76.32)
CG (n=31)	1 (3.23)	15 (48.39)	10 (32.26)	5 (16.13)	16 (51.61)
t					4.593
P					0.032

Table 4. Comparison of the complications in the two groups

	Wound infection	Abdominal infection	Urinary tract infection	Anastomotic leakage	Overall incidence
OG (n=38)	1 (2.63)	1 (2.63)	1 (2.63)	0 (0)	3 (7.89)
CG (n=31)	3 (9.68)	4 (12.9)	2 (6.45)	1 (3.23)	8 (25.81)
t					2.304
P					0.021

Table 5. Comparison of the SDS and SAS scores before and after the nursing

Grouping	SDS score		SAS score	
	Before nursing	After nursing	Before nursing	After nursing
OG (n=38)	63.42±8.62	52.45±8.62*	58.61±7.63	47.74±8.13*
CG (n=31)	62.26±7.87	57.41±7.81*	58.96±8.09	53.31±8.27*
t	0.578	2.479	0.185	2.809
P	0.565	0.016	0.854	0.007

Note: compared with before the nursing, *P<0.05.

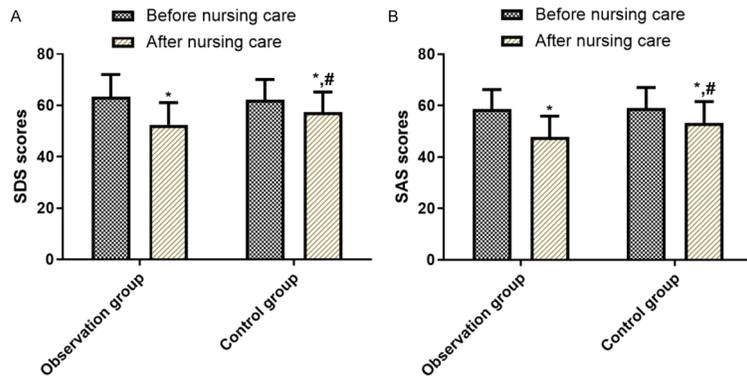


Figure 2. Comparison of the SDS and SAS scores before and after the nursing in the OG and CG. Comparison of the SDS scores in the OG and CG before and after the nursing (A). There was no significant difference in the SDS scores in the OG and CG before the nursing ($P>0.05$). After the different nursing care, the SDS scores of the patients were significantly reduced in the two groups ($P<0.05$), and the OG's scores were significantly lower than they were in the CG ($P<0.05$), and the degree of reduction was more significant. Comparison of the SAS scores in the OG and CG before and after nursing (B). There was no significant difference in SAS scores in the OG and CG before the nursing ($P>0.05$). After the different nursing care, the SAS scores of the patients were significantly reduced in the two groups ($P<0.05$), and the scores in the OG were significantly lower than they were in the CG ($P<0.05$), and the degree of reduction was more significant. Note: compared with before nursing, * $P<0.05$; compared with the OG after the nursing, # $P<0.05$.

tion nursing for patients undergoing colorectal cancer can effectively improve patients' psychological states, reduce complications and pain, and promote postoperative rehabilitation. Rapid rehabilitation nursing has a positive role in promoting rehabilitation and a great application value, in accordance with our findings. At the same time, this study showed that the incidence rate of total complications in the OG was 7.89%, which was less than in the CG (25.81%). This showed that the application of rapid rehabilitation nursing in radical resection of colon cancer could better reduce the patients' complications. In the OG, the Hb, ALB, and TLC levels were significantly increased, and the increase in the OG was more significant than it was in the CG ($P<0.05$). This might be because the patients in the OG were given intestinal laxatives and intestinal antibiotics at 1 day before surgery, which prevented adverse intestinal damage and had a better preventive effect on malnutrition and anastomotic leakage. The patients who underwent radical resection of colon cancer did not even need to undergo repeated cleaning enemas before surgery, which had a better preventive effect on anastomotic leakage and other complications. This was the basis for the rapid rehabilitation nursing used by the patients in the OG in this study, which helped avoid the hypoglycemia symptoms of the

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Table 6. Comparison of the nutritional status indexes in the two groups before and after the intervention

Grouping	Hb (g/L)		ALB (g/L)		TLC ($\times 10^9$ /L)	
	Before nursing	After nursing	Before nursing	After nursing	Before nursing	After nursing
OG (n=38)	98.41 \pm 5.46	106.41 \pm 6.27*	27.57 \pm 3.21	35.45 \pm 3.92*	2.38 \pm 0.63	3.26 \pm 0.67*
CG (n=31)	98.13 \pm 5.03	115.36 \pm 6.32*	27.28 \pm 3.09	29.82 \pm 3.06*	2.41 \pm 0.51	2.73 \pm 0.79*
t	0.219	5.877	0.379	6.533	0.214	3.016
P	0.827	<0.001	0.706	<0.001	0.831	<0.001

Note: compared with before the nursing, *P<0.05.

patients. In the OG, the nasogastric tubes were not indwelling, which effectively reduced the occurrence of pulmonary complications. At the same time, the risk of complications such as anastomotic leakage was not significantly different from that of the patients with indwelling nasogastric tubes [24]. Rapid rehabilitation nursing advocates that patients can resume eating within 24 hours after surgery, which not only improves their nutritional status, but it also avoids the occurrence of intestinal paralysis, and it has a better promoting effect on the patients' recovery of their intestinal function. Preoperative education of rapid rehabilitation nursing enables patients to overcome anxiety and fear, and it has a better promoting effect on the treatment compliance of patients. Comparing the psychological status of patients in the two groups, it was found that there was no statistical significance between the SAS and SDS scores of the patients in the two groups before the nursing. After the nursing, the patients' SDS and SAS scores in the two groups were significantly lower than they were before the nursing. After the nursing, the patients' SDS and SAS scores in the OG were significantly lower than they were in the CG. Preoperative education of rapid rehabilitation nursing enabled the patients to overcome anxiety and fear, and it had a better improvement effect on the psychological status of the patients after their treatment. Comparing the nursing satisfaction scores of the patients in the two groups, it was found that the nursing satisfaction rate of the patients in the OG was 76.32%, which was significantly higher than the rate in the CG (51.61%), indicating that rapid rehabilitation nursing is conducive to improving patient nursing satisfaction.

Although this study revealed the application value of rapid rehabilitation nursing intervention in colon cancer patients, its effects on the

long-term quality of life and adverse reactions were not analyzed. Therefore, there are some limitations to the study, and it is hoped that they can be addressed in future research.

To sum up, rapid rehabilitation nursing for patients undergoing colon cancer surgery can improve the patients' nursing satisfaction, improve their quality of life, and has a better application value, so it is worthy of applying in clinical practice.

Disclosure of conflict of interest

None.

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