ANALYSIS OF THE ROLE OF ACCELERATED REHABILITATION SURGICAL CARE IN THE PERIOPERATIVE PERIOD OF RADICAL COLON CANCER SURGERY

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ABSTRACT

Objective: This study aims to observe the effects of accelerated rehabilitation surgical nursing used in the perioperative period of radical colon cancer surgery on postoperative recovery among patients.

Methods: A total of 80 patients admitted to our hospital within the perioperative period of radical colon cancer surgery from January 2019 to December 2020 were selected as the study subjects. Accordingly, 40 cases were assigned to the experimental group and the control group each, using the random number table method. All the patients underwent radical colon cancer surgery, and the control group underwent routine nursing interventions for colon cancer surgery in the perioperative period. However, the experimental group underwent nursing interventions based on the concept of accelerated rehabilitation surgical care, on the basis of the control group. The patients in the two groups were compared in terms of the recovery process, pain degree scores, and complication rates.

Results: The drainage tube extraction time and hospital stay were lower in the experimental group than in the control group (P<0.05). Besides, the 6-minute walking distance was longer than that in the control group (P<0.05). The patients' visual analog scores (VAS) in 1, 3, and 7 days postoperatively were lower than those in the control group (P<0.05). Besides, the incidence of adverse reactions in the postoperative observation group [7.50% (3/40)] was lower than that in the control group [27.50% (11/40)] with P<0.05.

Conclusion: The provision of accelerated rehabilitation surgical care was effective within the perioperative period of radical colon cancer.

Keywords: Colon cancer, perioperative period, accelerated rehabilitation surgical care, pain level, recovery process.

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Introduction

Once diagnosed, radical resection is the most effective treatment for patients with early stage colon cancer\(^1\),\(^2\). However, the surgical invasiveness of radical colon cancer resection together with the effects of anesthesia, postoperative pain, and drainage tubes make patients reluctant to perform early recovery activities after surgery, thereby delaying postoperative recovery\(^3\). In addition, prolonged bed rest increases the incidence of relevant complications. Therefore, it is necessary to make appropriate nursing interventions to facilitate postoperative recovery\(^4\),\(^5\).

The concept of accelerated rehabilitation nursing consists of a series of nursing interventions made during the perioperative period based on evidence-based medicine to reduce stress reactions in patients during surgery.

The concept of accelerated rehabilitation nursing uses a variety of scientific and effective rehabilitation activity plans to promote rapid
postoperative recovery and reduce the occurrence of perioperative adverse events, thereby improving postoperative recovery and surgical outcomes in patients\(^6,7\). Therefore, it is necessary for patients with radical colon cancer to undergo the interventions of accelerated rehabilitation surgical care to shorten their recovery time.

Besides, it is conducive to further promoting prognosis for patients in the perioperative period of radical colon cancer.

In this study, patients undergoing radical colon cancer surgery were studied. Besides, the intervention of the concept of accelerated rehabilitation surgical nursing was applied in the perioperative period to observe its effects on postoperative recovery among patients. The related report has been provided as follows.

**Material and methods**

**Clinical data**

A total of 80 patients admitted to our hospital during the perioperative period of radical colon cancer surgery within the time period of January 2019 to December 2020 were selected and divided into 40 cases in the experimental group and the control group each, by the random number table method. There was no statistically significant difference after the comparison of general data between the two groups (\(P>0.05\), see Figure 1).

The inclusion criteria consisted of:

- The patients who were diagnosed with colon cancer by the CT, MRI, and histopathological examination;
- Patients with radical colon cancer, who were treated and had the corresponding surgical indications;
- Patients who had normal cognitive function and could cooperate with the nursing intervention process;
- Patients who voluntarily participated in this study. The study protocol met the ethical requirements of the Declaration of Helsinki in Medicine and was reviewed and approved by the Ethics Committee of the hospital.

The exclusion criteria were:

- Patients with other intestinal diseases;
- Patients with contraindications to surgery;
- Patients with serious complications during or after surgery;
- Patients with missing or imperfect basic data and clinical test data.

**Nursing care methods**

The control group was provided with routine care during the perioperative period, including preoperative health education, psychological intervention, and postoperative monitoring of their vital signs.

Besides, postural care was provided to patients in the most comfortable position that reduced their discomfort. In addition, pain intervention was made, and complication prevention care was provided. The patients' postoperative physical status and surgical incisions were closely monitored as well. Besides, timely drug changes were made to maintain the hygiene of the surgical opening, and discharge instructions were followed.

The observation group underwent interventions based on the concept of accelerated rehabilitation surgical care, which mainly included:

- Preoperative care. Accordingly, preoperative care focused on psychologically guiding the patients on how to reduce their fear of surgery. After fasting for 12 hours before surgery, the patients were given an intravenous drip of the 10% glucose solution 500 mL to appropriately replenish their energy and reduce their intraoperative thirst, hunger, and nervousness. This measure reduced their intraoperative stress and facilitated the surgical procedure.

  Prophylactic intravenous analgesia was administered 30 minutes before the surgery, through injecting flurbiprofen ester intravenously before the start of the surgery. At the same time, prophylactic antibiotics were administered 30
minutes before the surgery to reduce the occurrence of intraoperative and postoperative coinfections in the patients. Postoperative respiratory tract infection can be prevented by the effective coughing cardiopulmonary exercise (balloon blowing, stair climbing, and deep breathing activities, etc.), bed amputation exercise, and thrombosis prevention (through wearing antithrombotic compression stockings, anticoagulation, and other treatments).

- Intraoperative care was provided by flushing the abdominal cavity with 37 °C saline, with the patient's central body temperature maintained at no less than 36 °C. Besides.

- Postoperative care was provided by controlling postoperative pain using multimodal analgesic methods, such as the use of a self-administered analgesic pump to ensure adequate sleep and the use of music therapy and distraction to reduce the patient's postoperative pain. The patient's mouth and other organs were dry and dehydrated after the surgery, so a small amount of warm boiled water was used to moisten the patient's mouth in 6 hours after the surgery, with the amount being about 2 mL each time. If there was no discomfort, warm boiled water would be given, i.e. about 20 mL at a time. Under such conditions, a full liquid diet of about 1000 mL would be given to the patient on the first postoperative day, and the patient would be gradually transitioned to a normal diet for the recovery of the gastrointestinal function.

- Postoperative rehabilitation training care was provided to the patients as well. Accordingly, during the patient's postoperative bed rest period, physical activities were carried out in bed by the patients, which included limb stretching activities and were gradually shifted from passive activities to active ones. When the patient's vital signs became stabilized, the patient would be encouraged to get out of bed as soon as possible.

The patient was accompanied by the healthcare personnel or family members when getting out of bed. Besides, the patients were supposed to strictly follow the sequence that included standing on the bed with hands, standing on feet with support, standing by oneself, doing a limited range of activities at the bedside, performing a wide range of activities at the bedside, and doing random activities to gradually increase the amount of care.

At the same time, the patients were encouraged to gradually start various daily self-care activities, including brushing teeth, washing one's face, getting dressed up, toileting, and eating on their own.

**Evaluation indices**

The recovery indices, including the drainage tube removal time, the 6-minute walking distance, and the hospital stay were statistically compared between the two groups of the patients. Besides, the visual simulation scoring method (VAS) was used to compare the pain level in the two groups in 1, 3, and 7 days after the surgery, with scores ranging from 0 to 10. In addition, higher scores indicated more severe pain. In the end, the incidence of complications related to the hospitalization period was statistically compared between the two groups of the patients.

**Statistical processing**

SPSS 18.0 was used for data analysis. Besides, the measurement data were expressed as x±s, and a t-test was used for the comparison between the two groups. A one-way ANOVA was used for the comparison between multiple groups, and the SNK method was utilized for a two-way comparison between multiple groups. In addition, the statistical data were expressed as n (%), and the χ² test was used for the comparison between the groups. In this study, differences at p<0.05 were considered statistically significant.

**Results**

**Comparison of postoperative rehabilitation between the two groups**

Patients in the experimental group had shorter anal ventilation and hospitalization times than those in the control group. Besides, the 6-minute walking distance was longer for them than for those in the control group, with the difference having been statistically significant (P<0.05), as shown in Figure 2.

![Figure 2: Comparison of postoperative rehabilitation between the two groups of the patients. Note: Compared with the experimental group, *P<0.05.](image-url)
Comparison of the postoperative pain scores between the two groups

The VAS scores of the patients in both groups decreased in 1, 3, and 7 days after the surgery, with the differences having been statistically significant (P<0.05). Besides, the VAS scores of the patients in the experimental group were lower than those of the patients in the control group in 1, 3, and 7 days after the surgery, with these differences having been statistically significant (P<0.05), as Figure 3 shows.

![Figure 3: Comparison of postoperative VAS scores between the two groups (scores, x±s).](image)

Note: Compared with 1 d postoperatively, *P<0.05; compared with 3 d postoperatively, #P<0.05; compared with the experimental group, &P<0.05.

Comparison of the incidence of complications between the two groups

The incidence of postoperative adverse reactions in the patients in the experimental group (7.50%) was lower than that in the patients in the control group (27.50%), with the difference having been statistically significant (P<0.05), as Figure 4 shows.

![Figure 4: Comparison of the incidence of postoperative complications between the two groups [n(%)]](image)

Compared with the experimental group, *P<0.05.

Discussion

With the increase in social work pressure and bad life habits, the incidence of colon cancer has been increasing year by year. There is a high incidence of this disease in the population, which further increases dangers to the society. Radical colon cancer surgery is the most effective treatment in patients diagnosed early and in those who have inclinations for surgical treatment.

However, the postoperative recovery process is long due to the invasive nature of surgery, and prolonged bed rest is not conducive to patients’ recovery and prognosis. Therefore, it is necessary to provide comfort care to the patients in the perioperative period of radical colon cancer to ensure the smooth operation process, reduce the occurrence of intraoperative adverse events, and produce good postoperative results(8). In recent years, research on perioperative nursing interventions in radical colon cancer surgery has gradually advanced with the development of the theory and practice of nursing disciplines(9, 10). A variety of new nursing intervention models have been developed in the perioperative period of radical colon cancer surgery, which bring better nursing advantages. The concept of accelerated rehabilitation nursing was first proposed by European scholars in the early 21st century. This concept was based on physiological and pathological changes in patients and evidence-based medicine to reduce unnecessary stress reactions and exogenous injuries during patient treatment so as to ensure the smooth treatment of patients. This nursing concept is particularly suitable for interventions in the perioperative period for surgical patients to alleviate intraoperative stress reactions, reduce the incidence of postoperative complications, and accelerate the recovery process in patients(11, 12). In this study, the patients in the observation group were provided with accelerated rehabilitation surgical care during the perioperative period. Compared to the control group, the patients’ drainage tube removal time and hospital stay decreased, yet the 6-min walking distance increased. This indicates that the provision of accelerated rehabilitation surgical care could shorten the postoperative recovery process in the patients, being consistent with the results of previous clinical reports. Perioperative accelerated rehabilitation nursing interventions are divided into the three main preoperative, intraoperative, and postoperative phases(13). In the preoperative phase, it is mainly attempted to relieve the patient's fear...
of surgery and to replenish the energy required for bodily functions during fasting. This allows the patient to undergo the surgery with ease, reduces intraoperative stress, makes the surgery process smoother, and obviates unnecessary traumas(14). In the intraoperative phase, the main focus is on providing a suitable surgical environment for the patient. By adopting a multimodal analgesic approach and nursing interventions, postoperative pain decreased in the patients by various means. Postoperative interventions, in the form of physical activity, bed activity, and out-of-bed activity trainings, are provided to the patients, which have an effective role in their rapid postoperative recovery(15).

In this study, the postoperative VAS scores of the observation group were lower than those of the control group, which indicated that postoperative pain levels decreased in the patients. Upon the comparison of postoperative complications, the incidence of complications was significantly lower in the observation group. This indicates that the intervention based on the concept of accelerated rehabilitation surgical care accelerated the postoperative recovery process in the patients, thereby reducing complications in the patients to a certain extent and improving the prognosis.

Conclusion

In conclusion, the application of the concept of accelerated rehabilitation surgical nursing in the perioperative period of radical colon cancer surgery proved to be effective. The effectiveness was demonstrated through accelerating the postoperative recovery process as well as reducing postoperative pain and surgery-related complications. Accordingly, it is suggested that this concept be promoted and applied in the clinical treatment of radical colon cancer surgery.

References

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