



# Application Value of Temperature Nursing in Operating Room in Patients Undergoing Laparoscopic Radical Resection of Colorectal Cancer

Yani Lin<sup>1,2</sup>, Xuezhen Feng<sup>2</sup>

<sup>1</sup> Zhejiang Chinese Medical University, Hangzhou 310053, Zhejiang, China

<sup>2</sup> Linhai Traditional Chinese Medicine Hospital, Taizhou 317000, Zhejiang, China

DOI: 10.32629/aj.n.v5i3.2822

**Abstract:** Objective: To explore the application value of temperature nursing in operating room in patients undergoing laparoscopic radical resection of colorectal cancer. Methods: A total of 72 patients who underwent laparoscopic radical resection for colorectal cancer in the hospital from January 2023 to March 2024 were randomly selected as the study objects and divided into the reference group (n=36) and the experimental group (n=36) according to the order of treatment time. The reference group took routine nursing, the experimental group took temperature nursing in the operating room, and then compared the temperature fluctuation range, postoperative recovery and incidence of chills between the two groups. Results: The temperature fluctuation range and the incidence of chills in the experimental group were lower than those in the reference group ( $P < 0.05$ ). The postoperative recovery of the experimental group was better than that of the reference group ( $P < 0.05$ ). Conclusion: The application of temperature nursing in operating room in patients undergoing laparoscopic radical resection of colorectal cancer can effectively maintain the stability of body temperature, reduce the risk of chills, and accelerate the postoperative rehabilitation process, which has great clinical application value.

**Keywords:** temperature nursing in operating room; laparoscopy; radical resection of colorectal cancer; chills incidence

## 1. Introduction

Colorectal cancer is a malignant tumor of digestive tract occurring in colon cancer and rectal cancer. The main clinical manifestations are abdominal pain, bloody stool, diarrhea or constipation, weight loss, etc. With the invasion and metastasis of cancer factors, patients' clinical symptoms may gradually worsen, seriously affecting their quality of life and survival expectation. At present, laparoscopic radical resection of colorectal cancer has become an important means to treat colorectal cancer [1]. Compared with traditional open surgery, laparoscopic surgery has the advantages of less trauma, faster recovery and shorter hospital stay, so it is widely used. Intraoperative hypothermia is one of the common complications of laparoscopic surgery, which can lead to adverse consequences such as unstable cardiovascular function, increased risk of bleeding, delayed recovery from anesthesia, and increased postoperative infection rate [2]. Therefore, 72 patients with laparoscopic radical resection of colorectal cancer were selected as the study objects in this paper, aiming to explore the application value of temperature nursing in the operating room and provide scientific basis and reference for clinical practice. The results are reported below.

## 2. Data and methods

### 2.1 General Information

A total of 72 patients who underwent laparoscopic radical resection for colorectal cancer in the hospital from January 2023 to March 2024 were randomly selected as the study objects, and were divided into the reference group (n=36) and the experimental group (n=36) according to the order of treatment time. The study was approved by the local ethics Committee. In the reference group, there were 20 male patients and 16 female patients; Their ages ranged from 42 to 76 years, with a mean of  $(57.81 \pm 3.35)$  years. There were 22 male patients and 14 female patients in the experimental group. Their ages ranged from 42 to 76 years, with a mean of  $(57.93 \pm 3.30)$  years. There was no statistical significance in the comparison of basic data between the two groups ( $P > 0.05$ ).

Inclusion criteria: ① Suitable for laparoscopic radical resection of colorectal cancer; ② Sign informed consent before operation; ③ Blood coagulation function is normal. Exclusion criteria: ① Presence of immune system deficiency; ② with major infectious diseases; ③ Medical records are incomplete or wrong.

## 2.2 Methods

The reference group received routine care: (1) Preoperative care: psychological counseling and surgical knowledge education were given to the patients, and fasting and water prohibition were instructed before surgery; One day before the operation, the patient was bathed in warm water to keep the skin clean, and the skin at the surgical site was checked for damage and infection. Routine sedatives and antibiotics were given half an hour before surgery to prevent infection. (2) Intraoperative care: including routine placement of surgical position, disinfection and aseptic operation of surgical site, monitoring of patients' vital signs with ECG monitor. (3) Postoperative care: including analgesic management, incision and drainage tube observation, early activity guidance, complication prevention, diet guidance, etc.

The experimental group took temperature care in the operating room on the basis of routine nursing: (1) Preoperative: Before the patients entered the operating room, the nursing staff adjusted the ambient temperature of the operating room between 24°C and 26°C to ensure that the ambient temperature was appropriate. At the same time, warm oral liquid was given 30min before surgery at a temperature of about 37°C to prevent hypothermia caused by fasting and water prohibition before surgery. (2) During the operation: the body parts outside the surgical area of the patient are covered with thermal insulation blanket, only the surgical area is exposed, and the position of thermal insulation blanket is changed regularly to ensure that the external area of the surgical area is always in a state of thermal insulation; A special liquid heater was used to heat the intraoperative perfusion fluids, including normal saline and flushing solution, so that they were kept at 37°C before being injected into the patient to avoid cold liquids entering the body and causing temperature drop. For patients requiring endotracheal intubation, humidifiers with heating function are used to heat the inhaled gas to avoid irritation of the respiratory mucosa by cold air and dry gas. According to the actual situation of the patient, a small amount of exogenous warm drugs such as carbamate drugs were used to assist in maintaining body temperature; During the operation, the patient's body temperature was continuously monitored by a multi-point temperature monitoring device and recorded every 15min to detect and deal with abnormal body temperature in time. (3) Postoperative: Immediately transfer the patient to the resuscitation room, continue to use the heating blanket to maintain the postoperative body temperature, and monitor the body temperature every 30 minutes within 2 hours after surgery to ensure that the body temperature is stable in the normal range.

## 2.3 Observation Indicators

(1) Temperature fluctuation amplitude: The temperature changes of patients in the two groups were measured before surgery, 1h after surgery and at the end of surgery.

(2) Postoperative recovery: recovery time, intestinal recovery time and hospital stay.

(3) Incidence of chills: The patients with chills in the two groups and their proportion were counted.

## 2.4 Statistical Analysis

SPSS24.0 statistical software was used to analyze the data. Measurement data were represented by ( $\bar{x}\pm s$ ), T-test was performed, counting data were represented by (%), and  $\chi^2$  test was performed.  $P < 0.05$  meant that the difference was statistically significant.

## 3. Results

### 3.1 Comparison of temperature fluctuation amplitude between the two groups

There was no significant difference in preoperative body temperature between the reference group and the experimental group ( $P > 0.05$ ). The body temperature of the experimental group was higher than that of the control group at 1h and the end of the operation. The temperature fluctuation range of the experimental group was lower than that of the reference group ( $P < 0.05$ ), as shown in Table 1.

Table 1. Comparison of temperature fluctuation amplitude between the two groups ( $\bar{x}\pm s$ , °C)

Group	Number of cases	Before operation	Operation 1h	End of operation
Reference group	36	36.62±2.80	35.19±1.23	34.08±2.47
Experimental group	36	36.64±2.54	36.48±1.60	36.34±2.05
<i>t</i>		0.032	3.835	4.224
<i>P</i>		> 0.05	< 0.05	< 0.05

### 3.2 Comparison of postoperative recovery between the two groups

The postoperative recovery of patients in the experimental group was better than that in the reference group ( $P < 0.05$ ),

as shown in Table 2.

**Table 2. Comparison of postoperative recovery between the two groups (x±s)**

Group	Number of cases	Recovery time (min)	Intestinal recovery time (h)	Length of stay (d)
Reference group	36	42.64±18.77	33.51±2.95	14.27±3.33
Experimental group	36	24.06±12.29	17.72±2.54	8.14±2.49
<i>t</i>		4.969	24.337	8.846
<i>P</i>		< 0.05	< 0.05	< 0.05

### 3.3 Comparison of the incidence of chills between the two groups

The incidence of chills in the experimental group was lower than that in the reference group ( $P < 0.05$ ), as shown in Table 3.

**Table 3. Comparison of the incidence of chills between the two groups [n (%)]**

Group	Number of cases	Number of people	Incidence rate
Reference group	36	9	25.00
Experimental group	36	2	5.56
$\chi^2$			5.257
<i>P</i>			< 0.05

## 4. Discussion

The occurrence of colorectal cancer is mainly related to genetic factors, dietary habits, lifestyle and inflammatory bowel disease, etc. With the increase of bad lifestyle habits such as high-fat and low-fiber diet, lack of exercise, long-term smoking and drinking, the incidence of colorectal cancer is on the rise globally [3]. At present, laparoscopic radical resection of colorectal cancer is a common treatment for patients with colorectal cancer. However, during the operation, due to the use of anesthetic drugs, the low ambient temperature of the operating room, the restriction of the operating position and the large amount of intraoperative infusion, the patient's body temperature is easy to drop. If the intraoperative body temperature can not be effectively controlled in time, it will have adverse effects on the surgical effect and the recovery of patients. Routine nursing mainly focuses on symptom relief and disease control, and generally lacks body temperature management measures, so it is difficult to effectively prevent patients with intraoperative hypothermia. Temperature nursing in the operating room refers to the targeted maintenance and regulation of the patient's body temperature through a series of measures during the operation, so as to reduce the occurrence of intraoperative hypothermia and ensure the safety of patients and surgical effect [4].

The results of this study showed that the temperature fluctuation range of patients in the experimental group was significantly lower than that in the reference group ( $P < 0.05$ ), which was mainly attributed to the fine management of patients' temperature by temperature nursing in the operating room. Specifically, preoperative preheating measures can keep patients in a warm environment when they enter the operating room and reduce the temperature drop caused by environmental changes. During the operation, heating blanket, infusion liquid heating, airway insulation, and thermal medicine were used to avoid the sudden drop of body temperature caused by cold liquid entering the body. These measures work together to ensure a stable body temperature and reduce intraoperative fluctuations. In addition, the postoperative recovery of the experimental group was better than that of the reference group ( $P < 0.05$ ). The reason is that stable body temperature not only helps to maintain the metabolic balance of patients, reduce the occurrence of postoperative metabolic disorders, and make postoperative blood circulation more stable, which is conducive to wound healing and postoperative recovery. Finally, the incidence of chills in the experimental group was lower than that in the reference group ( $P < 0.05$ ), mainly due to the comprehensiveness and systematicness of temperature nursing in the operating room. Chills are often a direct consequence of intraoperative hypothermia, and effective temperature care in the operating room significantly reduces the occurrence of postoperative chills by effectively reducing intraoperative hypothermia.

In summary, the application of temperature nursing in the operating room in patients undergoing laparoscopic radical resection of colorectal cancer can effectively maintain the stability of their body temperature, reduce the risk of chills, and accelerate the postoperative rehabilitation process, which has great clinical application value.

## References

---

- [1] Liu Y,Wang X X,Li L Y, et al. Clinical effect of laparoscopic radical resection of colorectal cancer based on propensity score matching[J]. World journal of gastrointestinal surgery, 2024, 16(1): 124-133.
- [2] Pan Y,Yi M. Effect of refined management in operating room nursing on surgical efficiency and nursing satisfaction during laparoscopic radical resection of colon cancer[J]. American journal of translational research, 2024, 16(2): 506-514.
- [3] Biao L,Chuanhui Y,Haiying L. Laparoscopic Radical Resection of Colorectal Cancer in the Treatment of Elderly Colorectal Cancer and Its Effect on Gastrointestinal Function[J]. Frontiers in Surgery, 2022, 9840461-840461.
- [4] Y. H,G. Q. The Effect of Perioperative Injection of Lidocaine and Nursing Intervention on the Immune Functions of Patients Receiving Radical Resection for Colorectal Cancer[J]. INDIAN JOURNAL OF PHARMACEUTICAL SCIENCES, 2019, 81(4): 1-6.