

# Application of Nursing Cooperation Path in Operating Room and Analysis of Complication Rate During Laparoscopic Hysterectomy

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**Abstract:** *Objective:* To explore the clinical benefits achieved by implementing the operating room nursing cooperation path for patients undergoing laparoscopic hysterectomy. *Methods:* 64 laparoscopic hysterectomy cases were divided into groups according to the order of admission. The control group received routine perioperative care. The observation group implemented the nursing cooperation path in the operating room on the same basis as the control group. The two groups' physiological responses, stimulus indicators, anxiety, and complication rates were compared. *Results:* The heart rate, blood pressure 0.5 hours after surgery, anxiety scores 1 day before and 3 days after surgery, and the total number of complications in the observation group were all lower than those in the control group ( $P < 0.05$ ). *Conclusion:* The development of a nursing cooperation path in the operating room can help patients undergoing laparoscopic hysterectomy reduce heart rate, blood pressure, stress responses, and the risk of complications, and is worthy of promotion.

**Keywords:** Laparoscopic hysterectomy; Operating room nursing cooperation path; Complications

**Online publication:** January 29, 2024

## 1. Introduction

The uterus is an important internal reproductive organ of women. It is a cavity organ located in the center of the pelvic cavity. It is responsible for the thickening and shedding of the endometrium during menstruation and the functions of nurturing embryos and fetuses during pregnancy<sup>[1]</sup>. Laparoscopic hysterectomy is mainly indicated for patients with severe uterine lesions that cannot preserve the uterus. It can significantly reduce the patient's pain and the risk of postoperative complications. However, the stress injury of the operation and the individual differences should be considered. The influence of cognitive differences, negative emotions, and other factors still needs to be fully combined with high-quality nursing models to improve patients' treatment enthusiasm, compliance, and prognosis<sup>[2]</sup>. The operating room nursing cooperation path is a new nursing model based on evidence-based medicine. It can fully integrate the patient's actual illness, status, and existing medical resources to formulate a set of the most scientific, systematic, and meticulous operating room nursing path charts; carrying out nursing work according to this path chart enables nursing staff to reduce work omissions

and errors, strengthen cooperation, and improve work efficiency. At the same time, it can better promote nurse-patient communication and respond to the patient's health needs in real time. Reasonable adjustments should be made to relevant nursing content to help patients obtain satisfactory rehabilitation results<sup>[3,4]</sup>. This study focuses on 64 cases confirmed to undergo laparoscopic hysterectomy. During perioperative nursing, the clinical benefits obtained after the key implementation of the operating room nursing cooperation path are explored.

## 2. Materials and methods

### 2.1. Materials

64 laparoscopic hysterectomy cases admitted from January 2020 to January 2023 were enrolled. Standard grouping was carried out based on the patient's admission time, with 32 cases in each group. In the control group, the age ranged from 30 to 62 years, with an average of  $46.25 \pm 8.92$  years; the disease duration ranged from 0.5 to 5 years, with an average of  $2.75 \pm 1.01$  years; in terms of the disease type, the ratio of adenomyosis to uterine fibroids to endometrial cancer was 10:15:7. In the observation group, the age ranged from 31 to 61 years, with an average of  $46.18 \pm 8.85$  years; the disease duration ranged from 0.5 to 4 years, with an average of  $2.25 \pm 0.96$  years; for the disease type, the ratio of adenomyosis to uterine fibroids to endometrial cancer was 11:16:5. The data between the groups were compared after normalization, and there was no significant difference ( $P > 0.05$ ).

**Inclusion criteria:** Patients who meet the relevant indications for laparoscopic hysterectomy; patients with no missing data; patients with clear consciousness and normal communication skills; patients with no previous mental, cognitive, or psychological problems; patients who are informed and voluntarily sign relevant documents. **Exclusion criteria:** Patients with severe dysfunction of the liver, kidney, and other organs, and other malignant tumors; patients with hematological and immune system diseases; patients with extremely low medical compliance behavior; patients with contraindications for surgery; patients with a history of disease in other aspects; patients who were transferred to another hospital midway; patients who dropped out of the study midway.

### 2.2. Methods

After admission to the hospital, both groups received routine perioperative nursing in an orderly manner, including following the doctor's instructions to carry out relevant examinations before surgery, verbally informing them of relevant health knowledge, and making relevant preoperative preparations, monitoring relevant vital signs during surgery, monitoring the patient closely and cooperate with the doctor to complete relevant surgical treatment. After the operation, the patients were transported and handed over in a timely manner; patients' condition was monitored closely after the operation, they were guided to a reasonable diet and encouraged to get out of bed as soon as possible; appropriate care and psychological comfort was provided to those with negative emotions. On this basis, the observation group adopted the operating room nursing cooperation path. The specific contents are as follows:

- (1) Establishing a nursing team: 1 head nurse and 3 nurses with medium and high-level professional titles were selected for the department. The head nurse served as the team leader and was responsible for organizing the learning and training activities for team members on the knowledge and skills related to the nursing cooperation path in the operating room, focusing on cultivating the nursing staff's awareness of laws and regulations, responsibility awareness, risk prevention awareness, communication skills, etc.

(2) Formulating operating room nursing cooperation path table: An individualized operating room nursing cooperation path table was developed based on previous operating room nursing experience, relevant literature, the patient's actual condition, and personal circumstances, and it was flexibly adjusted and optimized according to the actual situation.

(3) Implementing the nursing cooperation path:

1 day before surgery: Nurses took the initiative to visit the patients and their families for friendly communication, patiently listen to their complaints and needs, and carefully inform them of the health knowledge related to the disease and surgery, focusing on the surgical process, anesthesia form, precautions, expected results, and possible occurrences of complications, etc., so that patients can be mentally prepared for the surgery; at the same time, they paid attention to the patient's emotional changes during the communication, scientifically assessed their mental health status, patiently guided the patient to express their concerns, and provided personalized psychological counseling in real time. Most of them listed cases of successful surgeries and guided patients to master meditation, suggestion, motivation, and other techniques to relieve bad psychological emotions in a timely manner.

The day of surgery: A dedicated person was sent to the ward to take the patient to the operating room, and provide appropriate encouragement and comfort on the way to reduce the patient's nervousness; after entering the operating room, nurses guided him or her into a correct and comfortable position, and took privacy protection and warmth measures, reasonably adjusted the temperature and humidity in the operating room in advance, pre-warmed relevant liquids during the operation, and continuously monitored the patient's body temperature to prevent hypothermia. They also cooperated with the anesthesiologist to standardize the relevant anesthesia work and open intravenous channels for the patient in a timely manner, and closely monitored relevant signs and the patient's physiological stress response, and any abnormalities were reported immediately; the risk of pressure injury was scientifically assessed before the operation, and based on the assessment results, the patient's position was adjusted during the operation based on the actual situation to prevent pressure injury; nurses paid attention to starting from low-pressure and low-temperature flow to create carbon dioxide pneumoperitoneum to prevent subcutaneous emphysema; when relieving pneumoperitoneum, it was ensured that all gas was drained and the timely application of sandbags was ensured to compress the puncture point. Additionally, all surgical instruments and items were made sure to be available before the operation; nurses cooperated with maneuvers during the operation, promptly counted the instruments and items after the operation, and carried out contaminated instruments recycling. After the patient regained consciousness, the patient was informed of the operation results in a timely manner to reassure him or her and safely escorted back to the ward, followed by good handing over of relevant nursing points.

1–3 days after surgery: Nurses timely implemented postoperative follow-up and continuous contact with patients to dynamically understand their recovery process. At the same time, appropriate health education and psychological counseling were provided to help patients deepen their awareness of medical compliance and improve their enthusiasm and compliance with treatment.

### 2.3. Observation indicators

- (1) Physiological stress indicators: The heart rate (HR), diastolic blood pressure (DBP), and systolic blood pressure (SBP) of the two groups 0.5 hours after surgery were observed and compared.
- (2) Anxiety: The Self-Rating Anxiety Scale (SAS) <sup>[5]</sup> was applied 1 day before surgery and 3 days after

surgery. If the score exceeded 50 points and was close to 100 points, it indicated the existence of anxiety, and its severity was becoming more and more unsatisfactory.

- (3) Complication rate: The incidence of complications that occurred during the perioperative period of the two groups, including hypothermia, pressure injury, subcutaneous emphysema, hypercapnia, etc., was observed, and the total values were compared.

## 2.4. Statistical analysis

Using SPSS25.0 for Windows software as the statistical basis, all the obtained data were divided by nature. If it belonged to measurement data, it was displayed as mean  $\pm$  standard deviation (SD), and a parallel *t*-test was performed; if it belonged to count data, it was displayed as %; at the same time, the chi-square test was performed. If the final *P* value was smaller than 0.05, it indicated that there was a statistically significant difference.

## 3. Results

### 3.1. Comparison of physiological stress indicators between the two groups

As shown in **Table 1**, the observed values of HR, DBP, and SBP in the observation group 0.5 hours after surgery were all lower than those in the control group, *P* < 0.05.

**Table 1.** Comparison of physiological stress indicators (mean  $\pm$  SD)

Group	Number of cases (n)	HR (times/min)	DBP (mmHg)	SBP (mmHg)
Control group	32	93.68 $\pm$ 15.42	83.87 $\pm$ 14.65	125.96 $\pm$ 29.24
Observation group	32	80.14 $\pm$ 12.18	75.25 $\pm$ 10.39	113.01 $\pm$ 20.39
<i>t</i>	-	3.898	2.715	2.055
<i>P</i>	-	0.001	0.009	0.044

### 3.2. Comparison of anxiety scores between the two groups

As presented in **Table 2**, the anxiety scores of the observation group 1 day before surgery and 3 days after surgery were lower than those of the control group, *P* < 0.05.

**Table 2.** Comparison of SAS observation results (mean  $\pm$  SD, minutes)

Group	Number of cases (n)	SAS score	
		1 day before surgery	3 days after surgery
Control group	32	59.33 $\pm$ <b>5.14</b>	52.14 $\pm$ <b>4.78</b>
Observation group	32	45.14 $\pm$ <b>3.51</b>	37.12 $\pm$ <b>2.89</b>
<i>t</i>	-	12.897	15.211
<i>P</i>	-	0.001	0.001

### 3.3. Comparison of complication rates between the two groups

In **Table 3**, the total number of complications in the observation group was significantly lower than that in the control group, *P* < 0.05.

**Table 3.** Comparison of total complications [n (%)]

Group	Number of cases (n)	Hypothermia	Pressure injury	Subcutaneous emphysema	Hypercapnia	Total value
Control group	32	2 (6.25)	2 (6.25)	3 (9.38)	1 (3.13)	8 (25.00)
Observation group	32	0 (0.00)	1 (3.13)	1 (3.13)	0 (0.00)	2 (6.25)
$\chi^2$	-	-	-	-	-	4.267
<i>P</i>	-	-	-	-	-	0.039

#### 4. Discussion

Total hysterectomy, as the name suggests, refers to surgery to completely remove the uterus. It mainly targets the symptoms of severe uterine lesions such as adenomyosis and uterine fibroids. This surgical treatment can significantly improve the patient's clinical symptoms and help prolong their survival. However, surgery is essentially an "invasive operation," and it is difficult to avoid causing varying degrees of physiological damage to the body and related complications after surgery <sup>[6]</sup>. In addition, total hysterectomy will result in significant psychological fluctuations in patients. Relevant surveys have found that most patients have large cognitive errors or level differences about total hysterectomy. They are not only worried that the loss of the uterus will affect their physical health but also believe that this will cause physical imperfection and affect their family harmony and happiness. Under the influence of the above incentives, a considerable number of patients experience varying degrees of anxiety and pessimism, depression, and other negative emotions during the perioperative period; if these negative psychological emotions are allowed to manifest and accumulate, it will have a significant impact on the patient's physical and mental health, reduce their enthusiasm for treatment, and make the overall rehabilitation effect fail to meet satisfactory standards. Therefore, it is necessary to carry out timely, comprehensive, high-quality nursing interventions for patients undergoing hysterectomy <sup>[7,8]</sup>.

Operating room nursing is an important part of perioperative care. The quality of its care is closely related to the patient's treatment outcome and the level of prognostic quality. Therefore, it needs to be highly valued. However, the conventional perioperative nursing model emphasizes the preoperative and postoperative links. Intraoperative care focuses on monitoring vital signs by the relevant operating room systems and regulations and cooperating with the doctor's pace to deliver surgical instruments, items, and other nursing measures in a standardized manner. However, the nursing connection and cooperation are generally not up to ideal standards, especially the prevention of related risks and hazards, which is relatively insufficient. Therefore, it is necessary to explore a high-quality operating room nursing method <sup>[9]</sup>. According to the results of this article, compared with the control group, the observation group had lower heart rate and blood pressure 0.5 hours after surgery, SAS scores, and total complications 1 day before surgery and 3 days after surgery. It is suggested that the nursing cooperation path in the operating room has high application value. The analysis of its nursing advantages includes the following points:

- (1) Regular training can help nursing staff improve their professional capabilities and comprehensive quality, prompt them to pay more attention to preventing relevant risks and hazards during nursing work, and value friendly communication with patients, which is also conducive to improving the nurse-patient relationship.
- (2) The personalized operating room nursing coordination path table formulated around the patient can align with and solve the actual health needs of the individual, helping patients avoid intraoperative-related complications, thereby better improving the prognosis.

- (3) The 1-day preoperative visit, psychological comfort before entering the operating room, and the implementation of various high-quality nursing measures during the operation can help patients relieve negative emotions and avoid obvious physical and mental stress reactions<sup>[10]</sup>.

## 5. Conclusion

In summary, implementing the operating room nursing cooperation path for patients undergoing laparoscopic hysterectomy can reduce their physiological and psychological stress reactions and, at the same time, lower the probability of related complications, which has a high promotion value.

## Disclosure statement

The author declares no conflict of interest.

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