Observation of the Effect of Rapid Recovery Surgical Nursing on Postoperative Ovarian Cancer Patients and Its Impact on Pain Levels

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Abstract: *Objective:* To observe the application effect of rapid recovery surgical nursing in patients with ovarian cancer and its impact on pain levels. *Methods:* Forty cases of ovarian cancer patients admitted from December 2019 to December 2022 were selected as the subjects of this study and divided into two groups using a double-blind method. The number of cases was the same; one group served as the control group, receiving routine care, while the other served as the observation group, receiving rapid recovery surgical care. Postoperative gastrointestinal function recovery indicators, postoperative pain, and postoperative complications between the two groups were compared. *Results:* The first postoperative exhaust, defecation, and out-of-bed activity times of the 20 patients with ovarian cancer in the observation group were shorter than those of the patients in the control group, and the motilin level 48 hours after surgery was higher than that of the patients in the control group ($P < 0.05$). The pain score of the observation group 48 hours after surgery (1.33 ± 0.21 points) was lower than that of the control group ($P < 0.05$). Additionally, the postoperative complication rate of the observation group was 5.00%, which was lower than that of the control group ($P < 0.05$). *Conclusion:* Providing rapid reovery surgical care for patients with ovarian cancer can help restore postoperative gastrointestinal function, relieve pain, reduce complications, and promote early recovery.

Keywords: Ovarian cancer; Rapid recovery surgical care; Pain levels

1. Introduction

Ovarian cancer ranks among the three major malignant tumors affecting women. The primary clinical approach to treating ovarian cancer involves surgery in combination with radiotherapy and chemotherapy. However, this treatment regimen often subjects patients to considerable pain and places a heavy physical and mental burden on them, thereby hindering postoperative recovery. In light of evolving medical paradigms, clinical practice has increasingly emphasized the provision of scientific treatment plans and compassionate nursing care to facilitate early patient recovery. Rapid recovery surgical nursing represents a novel nursing model grounded in evidence-based medical practices. By employing scientific nursing techniques during the perioperative period, it aims

to alleviate patients' physical and mental stress responses and expedite their recovery [1,2]. This study aims to evaluate the efficacy of rapid recovery surgical care in patients with ovarian cancer and analyze its impact on pain levels, with a current cohort of 40 patients under observation.

2. Materials and methods

2.1. General information

Forty cases of ovarian cancer patients were screened for inclusion in this study, covering the admission period from December 2019 to December 2022. They were then randomly assigned into two groups using the double-blind method, with each group comprising 20 cases. Statistical analysis of the data from both groups was conducted (**Table 1**), yielding a conclusion that $P > 0.05$.

Table 1. General information (mean ± SD)

Group	Age (years)	Tumor diameter (cm)	Highly differentiated / lowly differentiated	Serous carcinoma/non-serous carcinoma	FIGO stage (IIIC / IV)	Surgical & pathological stage (I / II)
Control group	54.20 ± 8.23	7.26 ± 2.24	9/11	11/9	16/4	9/11
Observation group	54.34 ± 8.15	7.29 ± 2.20	8/12	12/8	17/3	10/10
t / χ^2	0.054	0.043	0.102	0.102	0.173	0.100
P	0.957	0.966	0.749	0.749	0.677	0.752

Inclusion criteria:

(1) Patients diagnosed with ovarian cancer following pathological examination.

(2) Patients meeting the surgical treatment criteria, having been informed about the surgery, and having signed the surgery consent form.

(3) Patients who have not undergone relevant treatment previously.

(4) Patients with a clear medical history and complete information.

Exclusion criteria:

(1) Patients with concurrent serious conditions such as liver and kidney failure.

(2) Patients with bleeding disorders and infectious diseases.

(3) Patients with psychiatric or psychological disorders.

(4) Patients with an expected survival period of less than 6 months.

(5) Patients on long-term use of analgesics.

2.2. Methods

2.2.1. Control group: routine care

Upon admission, the assigned nurse conducts vital sign measurements, assesses the patient's condition, provides standard admission guidance, arranges preoperative examinations, and administers medications as prescribed. Patients initiate fasting 12 hours prior to surgery and cease drinking 4 hours beforehand. Adequate preoperative preparations are made, followed by scheduled surgery. Postoperatively, vital signs are monitored, and patients' conditions are observed. Intravenous fluid volume is maintained at 3–4 L on the day of surgery, then reduced to 2–3 L/day. After bowel movement, patients transition to a semi-liquid diet and begin upper limb movement upon regaining consciousness. Epidural anesthesia and analgesia pumps are provided for pain relief

48 hours post-surgery. Urinary catheters are removed 3 to 5 days post-operation, and patients gradually resume ambulation.

2.2.2. Observation group: rapid recovery surgical care

Pre-operative care: Building upon routine care, health education activities are intensified. One-on-one education is conducted one day prior to surgery, incorporating oral explanations and video materials to detail preoperative preparations, surgical procedures, and related precautions, instilling confidence through numerous successful case examples and promoting patient cooperation. Common postoperative complications and rehabilitation methods are introduced beforehand, emphasizing humanistic care, encouraging patient interaction, utilizing role model effects, and fostering family support to enhance patient well-being. A post-operative rehabilitation exercise manual is provided, highlighting the significance of early post-operative exercise. Fasting and drinking times are shortened to 6 and 2 hours pre-surgery, respectively. The evening before surgery, patients ingest 3 capsules of anabolic nutrient solid drink mixed with 600 mL of water, followed by 2 capsules of anesthesia mixed with 400 mL of water in the subsequent 2 hours.

Post-operative care: Building upon routine care, postoperative fluid replenishment is limited to less than 2 L. Upon awakening, early mobilization is encouraged, beginning with passive bed exercises to facilitate gastrointestinal function recovery, enhance cardiopulmonary function, and prevent thrombotic complications. The following day, patients perform lower limb calf muscle exercises ten times and knee bend exercises five times. During bed rest, ankle pump exercises are instructed, with hourly position changes, simultaneous coughing, and application of local heat to the shoulder blades. Patients are guided to press the incision during coughing to reduce pain and prevent incision dehiscence. Attention diversion methods are employed to alleviate pain. On the first postoperative day, active upper and lower limb exercises, breathing exercises, and periumbilical massages are conducted from 9 a.m. to 12 p.m. and from 3 p.m. to 6 p.m., each repeated three times for five minutes. Two hip lifts for five minutes each and bed-sitting exercises for ten minutes each are also performed twice daily. On the second post-operative day, three periumbilical massages for five minutes each time, one bed-sitting exercise, one bedside-sitting exercise, and one bedside-standing exercise were performed twice daily. The sitting exercises last 10 to 20 minutes, and the standing exercise lasts 5 to 10 minutes. Indoor ambulation with family support is encouraged, with intermittent lying, sitting, and standing exercises for 30 seconds. Early oral stimulation is encouraged with xylitol gum two to three pieces at a time every two hours post-surgery to stimulate saliva secretion and gastrointestinal peristalsis until bowel movement resumes. The head of the bed is elevated at 30° when chewing. Patients commence liquid intake, such as rice soup, 24 hours post-surgery, limited to approximately 100 mL, progressing to semi-liquid foods like porridge after bowel movement, with daily intake gradually increasing to normal levels. Adequate fluid intake is encouraged post-surgery, with blood count review 24 hours post-surgery, and urinary catheter removal if no abnormalities are detected.

2.3. Observation indicators

(1) Comparison of postoperative gastrointestinal function recovery indicators: This includes the time of first flatus, defecation, and mobilization, as well as the motilin level 48 hours post-surgery, measured using enzyme-linked immunosorbent assay (ELISA).

(2) Comparison of pain levels at 6 and 48 hours after surgery: The Visual Analog Scale (VAS) was utilized for assessment [3], with scores ranging from 0 (no pain) to 10 (severe pain).

(3) Comparison of postoperative complications: Common complications such as intestinal obstruction, infection, and abdominal distension were assessed.

2.4. Statistical methods

Data analysis was performed using SPSS version 25.0 statistical software. Categorical data and continuous variables were expressed as [n (%)] and mean ± standard deviation (SD), respectively. The χ^2 test was applied for categorical data, and the t-test was used for continuous variables. A significance level of $P < 0.05$ was considered statistically significant.

3. Results

3.1. Postoperative gastrointestinal function recovery indicators

As seen from **Table 2**, the first postoperative flatus, defecation, and mobilization of patients with ovarian cancer in the observation group were shorter than those of the patients in the control group. The motilin level 48 hours after surgery was higher than that of the patients in the control group ($P < 0.05$).

Table 2. Postoperative gastrointestinal function recovery indicators (mean ± SD)

Group	Number of subjects (n)	First postoperative flatus (h)	First postoperative defecation (h)	First postoperative mobilization (h)	Motilin levels 48 hours after surgery (pg/mL)
Control group	20	43.26 ± 6.24	59.52 ± 12.15	48.27 ± 4.16	175.20 ± 43.31
Observation group	20	36.17 ± 3.30	49.47 ± 5.18	38.15 ± 3.20	229.74 ± 55.05
t	-	4.492	3.403	8.623	3.482
P	-	0.000	0.002	0.000	0.001

3.2. Postoperative pain

Table 3 shows that there was no significant difference in the pain scores of both groups 6 hours after surgery ($P > 0.05$), but lower pain scores in the observation group as compared to the control group 48 hours after surgery ($P < 0.05$).

Table 3. Postoperative pain conditions (mean ± SD, points)

Group	Number of subjects (n)	6 hours after surgery	48 hours after surgery
Control group	20	3.01 ± 0.52	1.56 ± 0.27
Observation group	20	2.93 ± 0.41	1.33 ± 0.21
t	-	0.540	3.007
P	-	0.592	0.005

3.3. Postoperative complications

Table 4 reveals that the incidence rate of postoperative complication in the observation group was lower ($P < 0.05$).

Table 4. Postoperative complications [n (%)]

Group	Number of subjects (n)	Intestinal obstruction	Infection	Abdominal bloating	Hyponatremia	Total
Control group	20	2 (10.00)	1 (5.00)	2 (10.00)	1 (5.00)	6 (30.00)
Observation group	20	0 (0.00)	0 (0.00)	1 (5.00)	0 (0.00)	1 (5.00)
χ^2	-	-	-	-	-	4.329
P	-	-	-	-	-	0.037

4. Discussion

Ovarian cancer, a relatively common malignancy in women, ranks highest in mortality among gynecological malignancies. Surgery, when indicated, should be promptly performed as the thoroughness of the initial surgery impacts postoperative lymph nodes and distant metastases. Surgical procedures, particularly those involving pelvic and abdominal lymph node dissection, inherently pose trauma and may compromise intestinal function, potentially leading to postoperative gastrointestinal dysfunction [4,5]. Furthermore, the use of general anesthesia and anesthetic drugs during surgery can also influence gastrointestinal motility to some extent. Gastrointestinal dysfunction exacerbates pain, diminishes appetite, disturbs sleep, and impedes postoperative recovery [6]. Thus, reinforcing nursing interventions is essential to facilitate patients' faster and better recovery.

Conventional nursing methods, often characterized by outdated perspectives and simplistic approaches, yield only average nursing outcomes. The introduction of rapid recovery surgical nursing to gynecology in 2001 revolutionized nursing practices [7], advocating for scientifically informed and rational nursing measures. In this study, 20 patients in the observation group received rapid recovery surgical care, leading to more favorable postoperative gastrointestinal function indicators. Rapid recovery surgical care promotes early postoperative oral intake, where patients chew gum upon awakening to stimulate gastrointestinal peristalsis, a practice known as "fake eating" [8]. Early consumption of liquid food 24 hours after surgery accelerates bowel movement, supplements nutrients, and aids in maintaining nitrogen balance, thereby mitigating infection risks. Moreover, through structured rehabilitation exercises, patients gradually regain physical strength. Motilin, a gastrointestinal hormone, plays a crucial role in stimulating the secretion of pepsin and the mechanical movement and physiological electromyographic activity of the upper gastrointestinal tract, increasing the blood flow of the gastric mucosa, affecting gastric movement, and stimulating and slowing down gastric emptying [9,10]. Early oral intake under the influence of food stimulates motilin secretion, further accelerating gastrointestinal recovery. Rapid recovery surgical care advocates for early mobilization and prescribes specific exercise regimens, effectively promoting gastrointestinal function restoration, enhancing toxin elimination [11,12], and consequently alleviating pain. Comparison of postoperative pain between groups revealed a lower pain score in the observation group at 48 hours post-surgery, alongside a 5% lower postoperative complication rate. This can be attributed to the early oral intake and mobilization, along with controlled fluid management advocated by rapid recovery surgical care. These measures facilitate gastrointestinal function restoration, improve patients' self-care ability [13], and positively influence their psychological well-being, ultimately reducing pain and preventing complications.

In conclusion, rapid recovery surgical nursing represents a scientifically advanced nursing model that significantly contributes to the postoperative recovery of ovarian cancer patients by enhancing gastrointestinal function, reducing complications, and alleviating pain. Its efficacy in this context is particularly promising.

Disclosure statement

The authors declare no conflict of interest.

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