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Analysis of Programmed Nursing Cooperation During Gastrointestinal Endoscopic Mucosal Dissection

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Abstract: *Objective:* To analyze the application value of programmed nursing combined with digestive endoscopic mucosal dissection. *Methods:* A total of 200 patients undergoing endoscopic mucosal dissection from February 2021 to February 2023 were included as samples. Randomized grouping was conducted, with Group A receiving programmed nursing cooperation and Group B receiving routine nursing. Nursing values were then compared. *Result:* Group A exhibited shorter operation and hospitalization times compared to Group B, with less intraoperative blood loss ($P < 0.05$). The SF-36 score for Group A was higher than that for Group B, and the postoperative complication rate in Group A was lower than in Group B ($P < 0.05$). *Conclusion:* The implementation of a programmed nursing coordination plan in gastrointestinal endoscopic submucosal dissection nursing proved effective in reducing endoscopic surgery bleeding volume, shortening the patient's disease course, and enhancing the patient's quality of life. This approach is efficient and feasible.

Keywords: Programmed nursing cooperation; Digestive endoscopic surgery; Mucosal dissection

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1. Introduction

Clinically, gastrointestinal diseases are predominantly addressed through surgical interventions. With the ongoing advancements in endoscopic technology, endoscopic mucosal dissection has gained prominence. In comparison to traditional surgery, endoscopic-assisted surgery stands out as a minimally invasive procedure, allowing surgeons to execute precise maneuvers with excellent outcomes. This approach is frequently employed in the management of patients with gastrointestinal tumors [1,2].

However, the actual execution of digestive endoscopic mucosal dissection demands a high level of nursing quality [3]. This article delves into the exploration of programmed nursing cooperation's value, utilizing a sample of 200 patients treated with gastrointestinal endoscopic mucosal dissection from February 2021 to February 2023.

2. Materials and methods

2.1. General information

A sample of 200 patients undergoing endoscopic mucosal dissection was collected from February 2021 to February 2023 and then randomly divided into two groups. Group A comprised 58 males and 42 females, ranging in age from 23 to 76 years, with an average age of 56.18 ± 2.43 years. Meanwhile, Group B consisted of 60 males and 40 females, aged between 23 and 77 years old, with an average age of 56.21 ± 2.47 years. No significant differences were observed in the demographic data of patients undergoing mucosal dissection in Groups A and B ($P > 0.05$).

2.2. Inclusion and exclusion standards

Inclusion criteria included patients with gastrointestinal tumors confirmed by endoscopy and pathological examination, informed consent, and indications for digestive endoscopic surgery.

Exclusion criteria included patients with organ lesions, combination with other gastrointestinal lesions, and poor compliance.

2.3. Methods

Group A's programmed nursing cooperation:

(1) Preoperative:

- Visit the patient one day before the operation, offering surgical guidance and informing them of the nursing plan.
- Communicate with the attending physician to understand the surgical method, path, and supplies, predict potential complications, and formulate an emergency plan.
- Provide preoperative psychological intervention to enhance communication, alleviate negative emotions, eliminate anxiety and fear, and reduce surgical complication risks.

(2) Intraoperative:

- Monitor pulse, breathing, and bleeding conditions during the operation; observe oral secretions to prevent suffocation.
- Placement of the good limb: For patients with dentures, remove them promptly, place mouth pads, and assist in lying on the left side. For patients under general anesthesia, place the good limb after extubation, move as gently as possible, and monitor vital signs at the same time.
- Cooperate with the staining operation: Prepare 10 mL of Lugol's test solution to stain the esophagus and 10 mL of methylene blue test solution to stain the gastrointestinal tract to ensure the staining agent is configured correctly and quickly. During the actual staining, when the operator's field of vision is aimed at the diseased area, the dye must be pushed out of the spray tube quickly and evenly.
- Assist in dissection: Fully understand the surgical instruments, accessories, and operating habits of the surgeon; maintain blade cleanliness with aseptic principles.
- Assist in wound treatment: Prepare hemostasis-related equipment. Blood vessels can be observed on the wound surface using hemostatic forceps to clamp large blood vessels, using an ultrasound knife for the electrocoagulation of small blood vessels, and administering necessary hemostatic drugs.

(3) Postoperative:

- Transfer the patient back to the general ward after anesthesia expiration and stable vital signs, ensuring integrity and inspection of intraoperative pathological specimens.

- Provide basic care, instructing bed rest and reducing activity after surgery; monitor symptoms of abdominal pain, bloating, hematemesis, and melena; administer antacids and mucosal protective agents if necessary for digestive tract symptoms.
- Monitor blood sugar and blood pressure regularly for those with diabetes and hypertension, administer symptomatic drugs if necessary; observe wound healing, provide hemostatic drugs if necessary.
- Offer dietary care with a postoperatively fasting period, with tailored eating time based on the patient's wound healing status in the later period; gradual introduction of liquid (1-day post-surgery), semi-liquid (3-day post-surgery), and soft (14-day post-surgery) foods, avoiding spicy, greasy, and crude fiber foods. Diets of patients with a history of constipation should be strictly controlled, and drugs should be given to stimulate defecation if necessary.
- Prevent complications by closely monitoring abdominal symptoms (night sweats, abdominal distension and abdominal pain, hematemesis, and melena), and promptly notifying clinicians during complication occurrence. Simultaneously, create intravenous channels and prepare for blood transfusions if needed.
- Discharge guidance includes distributing brochures, advising against spicy and hard foods, and informing about the risk of delayed bleeding, requiring follow-up endoscopic examinations in 1 month, 3 months, and 6 months after surgery.

Group B routine care:

(1) Monitor the patient's vital signs throughout the perioperative period, keeping meticulous records.
(2) Implement a food and drink fast on the day of the operation and undertake necessary preoperative preparations.
(3) Execute various tasks as per the doctor's instructions during the operation, ensuring seamless cooperation to accomplish the procedure.
(4) Provide comprehensive information on relevant precautions post-operation and guide patients in adopting proper dietary practices.

2.4. Observation indicators

(1) Surgical indicators: Record the details of digestive endoscopic surgery, including the operation duration, hospitalization duration, and intraoperative blood loss.
(2) Quality of life: Assess the quality of life using the SF-36 score, measured on a scale ranging from 0 to 100 points, with a higher score indicating an improved quality of life for patients undergoing gastrointestinal endoscopic surgery.
(3) Complications: Record occurrences of abdominal pain, delayed bleeding, and perforation.

2.5. Statistical analysis

Data from patients treated with digestive endoscopy were processed using SPSS 21.0. Count indices were recorded in % (χ^2 test), while measurement indices were recorded in mean ± standard deviation (*t*-test). Statistical significance was considered at $P < 0.05$.

3. Results

3.1. Comparison of surgical indicators

Table 1 shows that Group A exhibited shorter operation and hospitalization times compared to Group B, with

less intraoperative bleeding ($P < 0.05$).

Table 1. Comparison of surgical indicators (mean ± SD)

Group	Operation time (min)	Length of stay (d)	Intraoperative blood loss (mL)
Group A ($n = 100$)	64.28 ± 1.86	8.81 ± 1.44	49.15 ± 0.36
Group B ($n = 100$)	87.69 ± 2.06	14.48 ± 2.15	76.26 ± 0.54
t	84.3463	21.9115	417.7201
P	0.0000	0.0000	0.0000

3.2. Comparison of quality of life

Following the nursing intervention, the SF-36 score of Group A surpassed that of Group B ($P < 0.05$). Notably, before nursing, there was no difference in SF-36 scores between Group A and Group B ($P > 0.05$), as shown in **Table 2**.

Table 2. Comparison of quality of life in patients before and after undergoing gastrointestinal endoscopic mucosal dissection (mean ± SD, points)

Group	Physical health		Mental health		Physiological functions		Social functions	
	Before	After	Before	After	Before	After	Before	After
Group A ($n = 100$)	66.36 ± 2.16	81.43 ± 3.15	65.23 ± 2.11	82.59 ± 3.08	66.16 ± 2.25	81.36 ± 3.09	65.41 ± 2.25	82.44 ± 3.15
Group B ($n = 100$)	66.38 ± 2.18	75.36 ± 3.09	65.21 ± 2.13	74.41 ± 2.87	66.18 ± 2.27	75.43 ± 2.87	65.39 ± 2.23	74.36 ± 2.91
t	0.0652	13.7562	0.0667	19.4304	0.0626	14.0614	0.0631	18.8414
P	0.9481	0.0000	0.9469	0.0000	0.9502	0.0000	0.9497	0.0000

3.3. Comparison of complications

Table 3 shows that the postoperative complication rate for Group A was 2.00%, significantly lower than the 9.00% observed in Group B ($P < 0.05$).

Table 3. Comparison of complications of gastrointestinal endoscopic mucosal dissection [n (%)]

Group	Stomach ache	Delayed bleeding	Perforation	Incidence rate
Group A ($n = 100$)	1 (1.00)	1 (1.00)	0 (0.00)	2 (2.00)
Group B ($n = 100$)	5 (5.00)	4 (4.00)	1 (1.00)	9 (9.00)
χ^2	-	-	-	4.7138
P	-	-	-	0.0299

4. Discussion

Compared with other surgical options, endoscopic gastrointestinal mucosal dissection offers the advantages of a straightforward operation and minimal trauma. It can diminish the risk of perioperative complications, shorten postoperative hospitalization time, and exhibit efficacy equivalent to that of open surgery [4,5]. Digestive endoscopic mucosal dissection, by completely removing the lesion at once, lowers the risk of surgical recurrence post-stabilization of the patient's condition, showcasing the superiority of minimally invasive

treatment [6].

In recent years, there has been a widespread promotion and application of digestive endoscopic mucosal surgery. Concurrently, there have been continuous updates to endoscopic equipment and surgical instruments, accompanied by a growth in surgeons' surgical experience, contributing to an increased cure rate for digestive system diseases [7]. However, during the actual treatment of gastrointestinal endoscopic mucosal dissection, nursing intervention is imperative to ensure the successful completion of the operation. Routine nursing, primarily centered on postoperative rehabilitation intervention, has its limitations. The programmed nursing cooperation model represents a modern nursing plan that mandates responsible nurses to execute nursing operations based on pre-established nursing procedures, thereby reducing the nursing cooperation error rate and ensuring the efficacy of the surgery [8].

Based on the data analysis in this article, Group A's operation time and hospitalization duration were significantly shorter than those of Group B, and the intraoperative bleeding was also less ($P < 0.05$). This suggests that programmed nursing cooperation has the potential to decrease bleeding during mucosal dissection and expedite the patient's recovery. Analyzing the reasons, effective collaborations between doctors and nurses during programmed nursing can swiftly identify and address patient bleeding, thereby reducing intraoperative bleeding. Minimally invasive surgery, being less traumatic, contributes to a faster postoperative recovery, thereby shortening the patient's hospital stay.

Another set of data revealed that Group A's SF-36 score was higher than that of Group B ($P < 0.05$), and the postoperative complication rate for Group A was 2.00%, notably lower than Group B's 9.00% ($P < 0.05$). This suggests that programmed nursing cooperation can mitigate surgical complications and enhance the patient's quality of life. Examining the reasons, programmed nursing, coupled with a focus on comprehensive perioperative care and preoperative assessment, enables responsible nurses to comprehend and alleviate patients' negative emotions. This, in turn, improves the programmed nursing plan, enhancing the quality of intraoperative and postoperative services and ultimately contributing to the effectiveness of disease recovery [9].

In summary, the integration of programmed nursing combined with endoscopic mucosal dissection not only shortens the operation time and reduces the disease duration but also diminishes the postoperative complication rate, enhances the patient's quality of life, and holds significant promotional value.

Disclosure statement

The author declares no conflict of interest.

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