

A Study on the Effect of Staged Enteral Nutrition Health Education on the Rehabilitation of Patients with Upper Gastrointestinal Bleeding

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Abstract: *Objective:* To analyze the influence of stage-specific enteral nutrition health education on the rehabilitation outcomes of patients with upper gastrointestinal bleeding (UGIB). *Methods:* A total of 120 patients with UGIB, treated between August 2021 and August 2023, were randomly divided into two groups: the observation group and the control group. The control group received standard enteral nutrition nursing intervention, while the observation group received an additional stage-specific enteral nutrition health education intervention based on the control group's method. The intervention status of the two groups was then evaluated. *Results:* Before the intervention, the serum hemoglobin levels of the two groups were comparable ($P > 0.05$). After the intervention, the nutritional indicators in the observation group improved significantly and were higher than those in the control group ($P < 0.05$). Additionally, the observation group had shorter bed activity times and hospitalization periods, a lower rate of abandonment of nutritional preparations, and a higher quality of life compared to the control group ($P < 0.05$). *Conclusion:* The implementation of stage-specific enteral nutrition health education in the treatment of patients with UGIB helps accelerate the rate of recovery, improve nutritional indexes, and enhance the quality of life of patients.

Keywords: Phased enteral nutrition health education; Upper gastrointestinal bleeding; Rehabilitation effect

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1. Introduction

Currently, the prevalence of upper gastrointestinal bleeding is gradually increasing due to the influence of people's living habits and dietary structures. This condition involves a relatively large number of lesions, such as those in the esophagus and stomach, causing patients to vomit blood and adversely affecting their daily lives. The disease has many causative factors, complex etiological mechanisms, and a relatively rapid rate of progression. As the amount of bleeding increases, patients may suffer from malnutrition, which can lead to anemia and slow down recovery efficiency. Therefore, enteral nutritional support therapy is actively applied in the treatment of such patients to improve their nutritional indicators and shorten their recovery time.

During this process, patients experience significant pain and may even reach a point of intolerance, leading

some to abandon treatment, thus endangering their lives. Nursing staff should pay attention to the development of health education, deepen patients' understanding of enteral nutrition support, and improve patient cooperation. Conventional health education primarily involves a didactic approach, where patients receive information passively, significantly reducing the educational effect ^[1].

Using a phased health education model allows for the summarization and analysis of previous educational experiences, the evaluation of healthcare personnel and patients, assessment of cognitive levels and knowledge structures, optimization of educational content, adjustment of educational methods, and improvement of educational relevance. This promotes an enhanced cognitive structure for patients. This study analyzes the application value of staged enteral nutrition health education, provides support for improving the intervention plan for patients with upper gastrointestinal bleeding, and enhances patient recovery levels.

2. Materials and methods

2.1. General information

In this study, 120 patients suffering from upper gastrointestinal bleeding and treated between August 2021 and August 2023 were randomly divided into two groups: the observation group and the control group. The observation group had a male-to-female ratio of 11:9, a mean age of 46.96 ± 2.36 years, and a bleeding volume of 148.36 ± 40.01 mL. The control group had a male-to-female ratio of 17:13, a mean age of 47.01 ± 2.33 years, and a bleeding volume of 148.51 ± 39.86 mL. The basic data of the two groups were comparable, with $P > 0.05$.

Inclusion criteria: Patients suffering from upper gastrointestinal bleeding and requiring enteral nutrition therapy were selected.

Exclusion criteria: Patients with poor tolerance of enteral nutrition or the presence of psychiatric disorders were excluded.

2.2. Methodology

2.2.1. Control group

Patients in the control group received enteral nutrition nursing intervention. Conventional treatments included temporarily prohibiting patients from eating, implementing rehydration therapy, regulating patients' water and electrolytes, and providing anti-infective and hepatoprotective therapies to improve treatment levels ^[2]. Additionally, patients were given gastric acid secretion inhibitors and vasoconstrictor drugs, such as omeprazole and growth inhibitors. Enteral nutrition nursing interventions, including health education and psychological interventions, were implemented to manage adverse reactions during treatment.

2.2.2. Observation group

The observation group received a staged enteral nutrition health education model in addition to the control group interventions.

Firstly, an intervention team consisting of dietitians and experienced nursing staff was established, and group training was conducted to deepen the team members' understanding of nursing-related knowledge, enhance their professionalism, and ensure they fully grasped the relevant points and procedures for implementing nursing interventions. Attention was also given to establishing a responsibility mechanism, dividing team member functions, guiding team members in intervention decision-making, and improving the intervention program ^[3].

Secondly, one-on-one interviews were conducted with hospitalized patients to assess their recognition of the value of enteral nutrition, adjust the health education program based on their literacy levels, and enhance

their cooperation. In this process, team members summarized and analyzed previous nursing experiences, reviewed relevant literature, considered patient interview results, and communicated with patients to formulate a stage-by-stage enteral nutrition health education strategy.

In the first stage of enteral nutrition, a 5% glucose sodium chloride solution was injected into the patient's body. Patients were informed of the therapy's advantages and shortcomings, precautions, and adverse reactions, thereby improving cooperation and ensuring the implementation of therapeutic measures to enhance recovery rates^[4]. Multimedia technology, such as videos, supplemented by on-site guidance, was used to help patients master bed exercise training content, adjusting the training program to ensure appropriate intensity and frequency.

In the second stage of enteral nutrition, while applying enteral nutrition preparation, glucose sodium chloride solution was injected into the patient's body. Patients were informed about the treatment plan, the type and volume of enteral nutrition preparation, potential gastrointestinal discomforts, and glucose fluctuations. This alleviated patients' negative emotions and guided them in rehabilitative exercise training^[5]. Nursing staff monitored patients' urine volume, watched for symptoms such as polyuria, prevented hyperglycemia, administered drugs to promote gastrointestinal peristalsis, and timely supplemented electrolytes to improve gastric mucosa protection.

In the third stage of enteral nutrition, the focus shifted from enteral nutrition preparations to oral feeding. As the concentration of enteral nutrition preparation increases, patients might experience gastrointestinal discomfort. The nursing staff provided enteral nutrition powder, gradually adjusted the dietary structure to include a fluid diet, and guided patients to increase training intensity to alleviate clinical symptoms^[6].

Finally, before the end of each stage, patient needs were identified through interviews, and discussion sessions were organized for team members to adjust and improve treatment strategies for the next stage.

2.3. Observation of indicators

The rate of abandonment of nutritional preparations, i.e., patients' poor tolerance and unwillingness to continue enteral nutrition therapy, was statistically analyzed in both groups. The time spent out of bed and other relevant indicators were evaluated. Fasting venous blood was tested using a fully automated biochemical analyzer to confirm serum hemoglobin levels before and after the intervention.

2.4. Statistical analysis

Relevant data were processed using SPSS 22.0. Chi-squared tests were performed for count data and *t*-tests for measured data to confirm differences. A *P* value of less than 0.05 indicated a significant difference between the data.

3. Results

3.1. Nutritional indicators

As shown in **Table 1**, before the intervention, the serum hemoglobin levels of the two groups were equivalent ($P > 0.05$). After the intervention, the improvement in various nutritional indicators in the observation group was significant and higher than that of the control group ($P < 0.05$).

Table 1. Levels of nutritional indicators before and after the intervention in both groups

Groups	Time	Serum hemoglobin (g/L)	Albumin (g/L)	Prealbumin (mg/L)
Observation group (<i>n</i> = 60)	Pre-intervention	95.72 ± 11.26	30.02 ± 3.52	180.36 ± 31.85
	Post-intervention	123.53 ± 10.58	39.36 ± 3.18	220.03 ± 25.12
Control group (<i>n</i> = 60)	Pre-intervention	95.68 ± 11.23	29.96 ± 3.68	180.43 ± 31.62
	Post-intervention	110.33 ± 8.42	34.21 ± 2.89	205.29 ± 21.17
<i>t</i> / <i>P</i> observation group (before and after intervention)		13.624 / < 0.05	11.205 / < 0.05	10.209 / < 0.05
<i>t</i> / <i>P</i> control group (before and after intervention)		12.523 / < 0.05	10.518 / < 0.05	9.597 / < 0.05
<i>t</i> / <i>P</i> intergroup value (post-intervention)		9.865 / < 0.05	9.523 / < 0.05	8.637 / < 0.05

3.2. Effectiveness of the intervention

As shown in **Table 2**, the observation group had a lower rate of discarding nutritional preparations and a relatively shorter hospital stay ($P < 0.05$).

Table 2. Effectiveness of interventions in the two groups

Groups	Nutritional preparations discarding rate	Postoperative off-bed time (d)	Length of hospital stay (d)
Observation group (<i>n</i> = 60)	4 (6.67)	5.62 ± 1.46	8.23 ± 1.64
Control group (<i>n</i> = 60)	12 (20.00)	6.72 ± 1.67	9.63 ± 1.71
χ^2 / <i>t</i>	12.654	8.314	7.457
<i>P</i>	0.001	0.008	0.017

3.3. Quality of life

As shown in **Table 3**, after the intervention, the quality of life scores of the patients in the observation group were higher ($P < 0.05$).

Table 3. Quality of life scores before and after the intervention in both groups (mean ± SD, points)

Groups	Physical		Mental		Social		Functional	
	Before	After	Before	After	Before	After	Before	After
Observation group (<i>n</i> = 60)	56.48 ± 5.62	88.98 ± 6.32	58.61 ± 4.72	86.64 ± 4.14	60.35 ± 5.62	86.03 ± 4.62	65.42 ± 5.32	81.72 ± 4.10
Control group (<i>n</i> = 60)	56.42 ± 5.67	66.42 ± 5.71	58.63 ± 4.75	68.66 ± 4.24	60.63 ± 5.41	70.23 ± 4.82	65.45 ± 5.29	68.41 ± 4.46
<i>t</i>	0.128	16.125	0.326	17.062	0.862	15.656	1.129	12.425
<i>P</i>	0.945	0.001	0.792	0.001	0.407	0.001	0.222	0.001

4. Discussion

In gastroenterology, the incidence of upper gastrointestinal bleeding is relatively high, the onset is rapid, and the prognosis is often poor, which directly affects the daily lives of patients and can be life-threatening. Generally, when treating such patients, fasting is required. As bleeding increases, the nutritional status of patients

deteriorates, increasing the likelihood of malnutrition and delaying recovery. Therefore, healthcare personnel must focus on improving the nutritional status of these patients, such as through enteral nutritional support therapy, to enhance the quality of their prognosis ^[7]. However, during enteral nutrition support therapy, patients may experience gastrointestinal discomfort due to various factors, reducing their tolerance and potentially leading to treatment resistance or abandonment, thus significantly diminishing the therapeutic effect ^[8]. Hence, it is crucial to develop health education and nursing interventions, analyze the patient's condition, and consider past nursing experiences. By identifying shortcomings in health education and adjusting strategies, we can optimize patient care, establish a stage-by-stage enteral nutrition health education system, and improve the reliability of education, encouraging patients to actively participate in enteral nutrition therapy and enhance their recovery.

The results of this study showed that after the intervention, the observation group had a lower rate of discarding nutritional preparations and a shorter hospital stay. This may be because conventional health education modes do not analyze the specifics of enteral nutrition support or fully address the treatment needs of patients. The education programs are often inadequate, failing to help patients understand the importance of enteral nutrition support. Consequently, if patients experience intolerance, they may abandon nutritional preparations, slowing their recovery and prolonging hospitalization. The phase-specific enteral nutrition health education mode analyzes all aspects of enteral nutrition treatment, adjusts the education program promptly, informs patients of the treatment's advantages and shortcomings, strengthens patient understanding, improves cooperation, and reduces the time patients spend bedridden ^[9].

This study found that after the intervention, the nutritional indicators of the observation group improved significantly, and their quality of life was higher. This may be attributed to the phase-specific enteral nutrition health education mode, which, through interviews and improved understanding of patient needs, adjusts the treatment plan and informs patients of possible adverse reactions. This reduces patient anxiety and depression, enhances cooperation, and improves nutritional status. Additionally, guiding patients in rehabilitation exercises improves gastrointestinal peristalsis, and comfort during enteral nutrition support, meets nutritional needs, boosts immunity, and accelerates the recovery of bleeding sites, thereby improving the quality of life ^[10].

In conclusion, for treating patients with upper gastrointestinal bleeding, a phased enteral nutrition health education strategy should be implemented to enhance the relevance of education. This helps patients fully understand the necessity of enteral nutrition support, increases their cooperation, promotes the implementation of treatment plans, improves nutritional status, and enhances recovery efficiency.

Disclosure statement

The author declares no conflict of interest.

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