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Research on the Application Effect of Predictive and Targeted Nursing in Patients with Liver Cirrhosis Complicated with Upper Gastrointestinal Bleeding

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Abstract: *Objective*: To investigate the application effect of predictive and targeted nursing in patients with liver cirrhosis complicated with upper gastrointestinal bleeding, and to evaluate its impact on clinical indicators, psychological state, and quality of life of patients. *Methods*: A total of 102 patients with liver cirrhosis complicated with upper gastrointestinal bleeding who were hospitalized from January 2023 to December 2023 were selected and divided into a control group (51 cases) and an observation group (51 cases) according to the random number table method. The control group received routine care, while the observation group received further strengthening of preventive care and targeted care on the basis of routine care. Clinical indicators (time to stop bleeding, length of hospital stay, incidence of rebleeding), psychological states (Self-Rating Anxiety Scale (SAS), Self-rating Depression Scale (SDS) scores), and quality of life (Short Form SF-36 score) were compared between the two groups. *Results*: The hemostasis time and hospital stay in the observation group were shorter than those in the control group, and the incidence of rebleeding was also lower than that in the control group, which was statistically significant ($p < 0.05$). After the intervention, the SAS and SDS scores of the observation group were lower than those of the control group, and the scores of each dimension of the SF-36 scale were higher than those of the control group, and the differences were statistically significant ($p < 0.05$). *Conclusion*: The application of predictive and targeted nursing to patients with liver cirrhosis complicated with upper gastrointestinal bleeding can significantly shorten hemostasis and hospital stay, reduce the incidence of rebleeding, significantly improve patients' anxiety and depression, improve patients' quality of life, and has good clinical application value.

Keywords: Cirrhosis; Upper gastrointestinal bleeding; Predictive nursing; Targeted nursing; Quality of life

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1. Introduction

Cirrhosis is a common chronic progressive liver disease in clinical practice, caused by the long-term or repeated effects of one or more causes. Upper gastrointestinal bleeding is one of its most serious

complications, with rapid onset, severe condition and high mortality rate. Bleeding not only directly endangers the patient's life, but also the negative emotions it causes, such as fear and anxiety, as well as the risk of repeated bleeding, have adverse effects on the patient's treatment compliance and quality of life. Conventional care models focus only on observing the condition and following medical advice, fail to make forward-looking predictions about potential risks, and fail to respond to individualized needs. Predictive care involves a comprehensive assessment of the patient's condition to identify potential risks in advance and intervene; Targeted care is providing personalized care based on individual differences among patients. Combining the two enables the full, dynamic and efficient management of patients with cirrhosis combined with upper gastrointestinal bleeding. This paper mainly studies the efficacy of predictive and targeted care for this type of patients, providing some references for clinical nursing work [1].

2. Data and methods

2.1. General information

Patients with liver cirrhosis complicated with upper gastrointestinal bleeding admitted to our hospital from January 2023 to December 2023 were the subjects of study.

2.1.1. Inclusion criteria

(1) Meeting the diagnostic criteria for liver cirrhosis in the Guidelines for Diagnosis and Treatment of liver cirrhosis, and confirmed by imaging or pathology;
(2) Clinical manifestations include hematemesis, melena, etc., and upper gastrointestinal bleeding is confirmed by gastroscopy;
(3) Between 18 and 80 years old;
(4) Conscious and capable of basic communication and understanding;
(5) Informed consent and signature of the patient and his/her family.

2.1.2. Exclusion criteria

Patients with severe dysfunction of other organs such as heart, lung or kidney failure; patients with mental illness or cognitive impairment who cannot cooperate with the study; patients with upper gastrointestinal bleeding caused by other reasons such as gastric ulcer or gastric cancer; patients who refuse to participate in the study or withdraw from the study halfway [2].

A total of 102 patients who met the criteria were included. Patients were randomly divided into a control group and an observation group, with 51 cases in each group, using a random number table. There was no statistically significant difference ($p > 0.05$) between the two groups of patients in terms of general information such as gender, age, liver function classification, and degree of bleeding, and they were comparable [3].

2.2. Methods

2.2.1. Control group

Routine nursing intervention included:

(1) Disease observation

Paying attention to the changes in the patient's condition, accurately recording the inflow and outflow,

and observing the color, nature and volume of hematemesis and hematochezia.

(2) Basic care

Instruct the patient to stay in bed absolutely, keep the airway unobstructed and prevent aspiration.

(3) Medication care

Use hemostatic drugs, vasoactive drugs, etc. accurately and promptly as prescribed, and observe the efficacy and adverse reactions of the drugs.

(4) Dietary care

Strictly fast during the bleeding period. After the bleeding stops, gradually transition to liquid and semi-liquid diets as directed by the doctor.

(5) Health education

Teach patients and their families about the disease and precautions [4].

2.2.2. Observation group

Predictive and targeted care was carried out on the basis of the control group, and the specific care measures were as follows.

(1) Predictive nursing

① Risk assessment and prediction: After admission, the responsible nurse continuously assesses the patient's risk of rebleeding (blood pressure, heart rate, hemoglobin changes, ascites status, infection status, etc.) using standardized assessment tools to identify possible triggers such as severe coughing, emotional agitation, straining during defecation, etc., and then formulates prevention plans. ② Prepare first aid in advance: Anticipate the readiness of first aid supplies and medicines, three-chamber two-capsule tube, rescue vehicle, electrocardiogram monitor, oxygen inhalation device, blood products, etc., to ensure that rescue can be initiated in the shortest possible time in case of an emergency. ③ Early warning monitoring: On the basis of routine monitoring, pay special attention to those symptoms that indicate the possibility of rebleeding, that is, when the patient shows symptoms such as restlessness, thirst, palpitations, and reduced pulse pressure, immediately inform the doctor and initiate the emergency procedure. ④ Environmental and safety management: Anticipate the safety of patient activities, guide patients to defecate in bed, prevent them from getting out of bed, keep the ward quiet and clean, reduce adverse stimuli, and lower stress responses caused by environmental factors [5].

(2) Targeted care

① Targeted psychological intervention: Stratified psychological care is carried out based on the assessment results of the patient's psychological state (SAS, SDS score). For those with mild anxiety and depression, supportive psychotherapy such as listening, explaining and comforting is used, and successful cases are presented to boost their confidence; For patients with moderate to severe mood disorders, psychotherapists are invited to help them develop positive coping styles through relaxation training, cognitive behavioral therapy, etc. ② Individualized care during the bleeding period: Develop individualized care plans based on different amounts of bleeding and different causes. Patients with esophageal and gastric variceal bleeding should be treated with three-chamber two-capsule compression hemostasis care, and the pressure of the balloon should be monitored regularly to prevent improper traction or balloon slippage; For patients with peptic ulcer bleeding, pay attention to observing the nature of abdominal pain and whether there are signs of perforation. ③ Precise dietary management: Based

on the patient's bleeding control status, liver function and nutritional status, work with the nutrition department to develop personalized dietary plans. Transition from fasting to cold liquid, warm liquid, and low-residue semi-liquid to ensure nutrition supply while preventing rebleeding. Provide enteral nutrition support to those at risk of malnutrition. ④ Targeted strengthening of health education and continuing care: Provide focused guidance on health education and continuing care for patients, that is, "one-on-one" guidance. The content includes the identification of triggers, dietary restrictions, medication compliance, follow-up visit times, abnormal signal identification, etc. Health records are established after discharge, and continuous care is provided through phone calls, wechat, etc. Regular follow-ups are conducted, questions are answered, and reminders for follow-up visits are made [6].

2.3. Observation indicators

2.3.1. Clinical indicators

Compare the hemostasis time (the time from the start of treatment upon admission to the cessation of active bleeding, based on the absence of bloody fluid drawn from the gastric tube or negative fecal occult blood), length of hospital stays, and incidence of rebleeding during hospitalization between the two groups of patients.

2.3.2. Psychological status

Patients were evaluated on the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS) at admission, and on discharge. Both scales have 20 items and are scored on a 4-point scale with a cut-off standard score of 50 points. The higher the score, the more severe the degree of anxiety and depression.

2.3.3. Quality of life

Assessed using the Short Form 36 Health Survey (SF-36) three months after the patient's discharge. The scale consists of eight dimensions: physical function, physical role, physical pain, overall health, vitality, social function, emotional role, and mental health. Each dimension has a score range of 0 to 100, and the higher the score, the better the quality of life.

2.4. Statistical processing

Data were processed using SPSS 26.0 statistical software. Measurement data were expressed as mean plus or minus standard deviation ($\overline{x} \pm s$), and comparisons between groups were conducted using the independent sample t-test; Count data were expressed as the number of cases and percentage (%), and the χ^2 test was used for comparison between groups. $p < 0.05$ was considered statistically significant.

3. Fruiting

3.1. Comparison of clinical indicators between the two groups

The results showed that the hemostasis time and hospital stay of patients in the observation group were significantly shorter than those in the control group, and the incidence of rebleeding was significantly lower than that in the control group. The differences were statistically significant ($p < 0.05$). See **Table 1**.

Table 1. Comparison of clinical indicators between the two groups [($\overline{x} \pm s$), d]

Groups	Number of cases	Hemostasis time (d)	Hospital stays (d)	Rebleeding rate [n(%)]
Control group	51	2.64 ± 0.83	7.58 ± 1.94	9 (17.65)
Observation group	51	1.47 ± 0.51	5.13 ± 1.36	2 (3.92)
t/χ^2 values		8.521	7.332	4.993
p value		< 0.001	< 0.001	0.026

3.2. Comparison of mental states between the two groups

Before the intervention, there was no statistically significant difference in SAS and SDS scores between the two groups ($p > 0.05$). After the intervention, the SAS and SDS scores of the observation group were significantly lower than those of the control group, and the difference was statistically significant ($p < 0.05$). See **Table 2**.

Table 2. Comparison of mental states between the two groups [($\overline{x} \pm s$), points]

Group	Number of cases	SAS score		SDS score	
		Before intervention	After intervention	Before intervention	After intervention
Control group	51	55.23 ± 4.58	46.71 ± 4.15	56.72 ± 5.13	47.68 ± 4.42
Observation group	51	55.81 ± 4.96	39.84 ± 3.62	56.08 ± 4.87	40.27 ± 3.85
t value		0.613	8.956	0.652	9.134
p value		0.541	< 0.001	0.516	< 0.001

3.3. Comparison of quality of life between the two groups

After the intervention, the scores of each dimension of the SF-36 scale in the observation group were significantly higher than those in the control group, and the differences were statistically significant ($p < 0.05$). See **Table 3**.

Table 3. Comparison of quality of life between the two groups [($\overline{x} \pm s$), points]

Dimensions	Physiological function	Physiological functions	Somatic pain	Overall health	Vitality	Social function	Emotional function	Mental health
Control group (n = 51)	64.17 ± 7.02	57.32 ± 8.45	60.54 ± 7.98	52.89 ± 8.12	55.17 ± 7.33	62.28 ± 7.56	56.84 ± 8.91	58.06 ± 8.27
Observation group (n = 51)	74.85 ± 7.68	69.46 ± 9.21	71.33 ± 8.67	67.52 ± 9.04	68.91 ± 8.52	73.49 ± 8.89	70.22 ± 9.76	72.38 ± 9.01
t value	7.367	6.902	6.558	8.572	8.673	6.836	7.192	8.313
p value	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

4. Discussion

Cirrhosis combined with upper gastrointestinal bleeding is a critical condition in gastroenterology, with rapid disease progression and a high risk of rebleeding. Patients not only suffer from physical pain, but also experience intense anxiety and depression due to uncertainty about the prognosis of the disease, fear

of rebleeding, and concern about the financial burden. This negative mental state affects the stability of the internal environment of the body through neuroendocrine mechanisms, increases sympathetic nerve excitability, may lead to elevated blood pressure, accelerated heart rate, and even induce rebleeding, creating a vicious cycle. Therefore, how to effectively control bleeding while optimizing nursing strategies and improving patients' psychological state and quality of life has become a key and difficult point in clinical nursing work.

The results of this study showed that the hemostasis time and hospital stay of patients in the observation group were significantly shorter than those in the control group after predictive and targeted care, and the incidence of rebleeding was also significantly reduced. The results suggest that the risk assessment and pre-intervention emphasized by predictive care play a key role. By early identification of high-risk factors for rebleeding, such as increased intra-abdominal pressure, coagulation dysfunction, improper activity, etc., and taking preventive measures in advance, such as guiding effective coughing, maintaining smooth bowel movements, strict bed rest, etc., the external factors that induce rebleeding were effectively reduced. At the same time, the advance preparation of first aid supplies and medicines ensures an immediate response in case of sudden changes in the condition, buying precious time for rescue, which fundamentally improves the efficiency of treatment and shortens the course of the disease.

Targeted care is reflected in the precise understanding of individual differences among patients. In terms of psychological state, the observation group provided stratified and personalized psychological intervention for patients with different degrees of emotional disorder based on the SAS and SDS scores. For those with mild emotional disorders, positive communication and positive guidance were provided to help them build a sense of security; For those with moderate to severe emotional disorders, introduce professional psychotherapy to correct their misperceptions and catastrophizing of the disease at the cognitive level. This targeted intervention effectively alleviates patients' negative emotions, enabling them to cooperate with treatment with a more stable and positive mindset, which is of great significance for maintaining stable vital signs, reducing stress responses, and promoting recovery. The data also confirmed that the SAS and SDS scores of the observation group after the intervention were much lower than those of the control group.

Improving the quality of life is one of the ultimate goals of nursing work. The study showed that patients in the observation group scored significantly better than those in the control group in all dimensions of SF-36 three months after discharge. This was due to the predictive and targeted care throughout the course. Physiologically, individualized dietary management and nutritional support provide patients with a sufficient nutritional base and promote the recovery of bodily functions; Precise medication guidance and disease monitoring have reduced the occurrence of complications. On the psychological level, effective emotional intervention alleviates long-term psychological burden. At the social function level, continuous care, through follow-up and guidance after discharge, helps patients and their families master scientific home care methods and enhances their confidence and ability to return to the family and participate in social activities. This multi-dimensional and comprehensive intervention has contributed to the overall improvement of patients' quality of life.

5. Conclusion

In summary, the application of predictive and targeted care in patients with liver cirrhosis complicated with upper gastrointestinal bleeding, through prospective risk identification and precise intervention,

not only effectively improves clinical treatment efficiency and reduces the risk of rebleeding, but also significantly improves the psychological state and long-term quality of life of patients. This nursing model has put the patient-centered concept into practice, achieving a shift from simple disease care to holistic and individualized care, and has significant clinical promotion value.

Disclosure statement

The author declares no conflict of interest.

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