

Analysis of the Effect of Optimizing the Emergency Care Process on Patients with Acute Upper Gastrointestinal Bleeding in the Emergency Department

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Abstract: *Objective:* To analyze the effect of optimizing the emergency nursing process on the nursing effect of patients with acute upper gastrointestinal bleeding (AUGB) in the emergency department. *Methods:* 100 cases (Group A) were randomly selected from AUGB patients who had undergone the routine emergency care process in the emergency department from January 2022 to December 2022, and 100 cases (Group B) were randomly selected from AUGB patients who had undergone the optimized emergency care process in the emergency department from January 2023 to December 2023. The nursing effects of the two groups were compared. *Results:* clinical indicators that include the emergency response time, time to open the infusion channel, time from diagnosis to specialty treatment, hospitalization time, resuscitation success rate, rebleeding rate, nursing satisfaction score, post-care SAS score, and SF-36 score in Group B were better than those in Group A ($P < 0.05$). *Conclusion:* Optimization of the emergency care process for AUGB patients in the emergency department can improve the efficiency and success rate of resuscitation, reduce the risk of rebleeding, improve the mood and quality of life of patients, and make the patients more satisfied with the nursing service.

Keywords: Optimization of emergency care; Emergency department; Acute upper gastrointestinal bleeding; Resuscitation efficiency; Nursing satisfaction

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1. Introduction

The main triggers of acute upper gastrointestinal bleeding (AUGB) are rupture of esophagogastric fundal varices, peptic ulcer, gastric cancer, acute gastric mucosal damage, and other factors leading to lesions and bleeding in the gastrointestinal tract above the flexural ligament. People with this disease have a high admission rate to the emergency department. If there is too much bleeding or if the bleeding is not stopped in time, the risk of death

of the patient will be significantly increased^[1-2]. Further optimization of the emergency care process to shorten the response time, the time to open the infusion channel, and the time from diagnosis to specialist treatment can significantly improve the success rate of treatment and prognosis^[3-4]. This study analyzes the impact of optimizing the emergency care process in the emergency department on AUGB patients, as described below.

2. Information and methods

2.1. General information

Group A consisted of 100 cases randomly selected from the AUGB patients in the emergency department who had undergone the routine emergency care process from January 2022 to December 2022, while Group B consisted of 100 cases randomly selected from the AUGB patients in the emergency department who had undergone the optimized emergency care process from January 2023 to December 2023. Group A consisted of 60 male and 40 female patients that have an age range of 32–73 years old, with a mean value of 52.68 ± 5.34 years old; a weight range of 45.32–87.56 kg, with a mean value of 65.34 ± 6.78 kg; and causative factors that include 16 cases of gastric cancer, 6 cases of acute gastric mucosal lesions, 46 cases of portal hypertensive bleeding 46 and 32 cases of peptic ulcer. Group B consisted of 56 male and 44 female patients that have an age range of 30–75 years old, with a mean value of 52.89 ± 5.52 years old; a weight range of 45.68–87.95 kg, with a mean value of 5.67 ± 6.56 kg; and causative factors that include 19 cases of gastric cancer, 7 cases of acute gastric mucosal lesions, 43 cases of portal hypertensive hemorrhage, and 31 cases of peptic ulcer. The comparison of the general information is $P > 0.05$.

Inclusion criteria: Patients with a confirmed diagnosis of AUGB and bleeding volume > 1000 mL, comprehensive understanding of the study content and consent to participate in the study, clinical data to meet the needs of the study, able to cooperate with the completion of all examinations and assessments and a high degree of cooperation.

Exclusion criteria: Patients with a confirmed diagnosis of lower respiratory tract hemorrhage, a bleeding volume that does not meet the standard of emergency care, abnormal coagulation function, cardiac insufficiency, and so on.

2.2. Methods

2.2.1. Group A

Group A is given routine emergency nursing as follows. Registration in the emergency department, triaging the patients, assisting patients to complete relevant examinations, assessing the condition and bleeding, paying fees, opening intravenous access, rehydration and expansion, improving anemia, triage treatment according to the examination results, and assisting family members to complete hospitalization procedures.

2.2.2. Group B

Group B is given optimized emergency nursing as follows. Establishing an emergency nursing team in the emergency department with team members working together to review relevant literature, analyze the emergency in this department, and optimize the nursing process for emergency AUGB patients. The team members were trained in a unified manner, and they were allowed to be on duty only after passing the examination. The patient's vital signs indicators were monitored to assess the patient's condition and feedback on the assessment results to the emergency physician promptly so that he or she could understand the patient's condition as soon as possible. The team leader coordinates and schedules the nursing care of emergency AUGB patients for the whole treatment procedure. The emergency nursing team would rapidly complete the construction of the intravenous access, fix

the catheter properly, observe the catheter condition carefully, and ensure that the catheter will not be folded or twisted. If the catheter is blocked, the nurse would immediately aspirate the blood clot with a syringe. The nurse would evaluate the patient's actual condition and administer balanced saline or plasma substitutes if needed. If the patient is vomiting large amounts of blood, negative pressure suction is immediately applied to avoid blood blockage of the mouth, nose, and airway and ensure that the patient's airway remains open. If the patient has gone into shock, the emergency physician is assisted in performing resuscitation work. Timely feedback is provided to the emergency physician on the patient's vital signs indicators and changes in clinical symptoms.

2.3. Indicator observations

- (1) Clinical indicators: Statistics on emergency response time, time to open infusion channel, time from diagnosis to specialized treatment, hospitalization time, resuscitation success rate, and re-bleeding rate were recorded.
- (2) Nursing satisfaction score: The hospital had created a scale to evaluate the patient's nursing satisfaction, with the highest score of 100 points for each item indicating that the patient is very satisfied with the service, and the lowest score of 0 points indicating that the patient is very dissatisfied with the service.
- (3) SAS score: The SAS scale evaluates the psychological state of patients, with the highest score of 4 points for each item suggesting that the patient has serious adverse emotions, and the lowest score of 0 points suggesting that the patient has no adverse emotions.
- (4) SF-36 score: The SF-36 scale evaluates the patients' quality of life, with the highest score of 100 for each item suggesting that the patient's quality of life is very high, and the lowest score of 0 suggesting that the patient's quality of life is very low.

2.4. Statistical analysis

SPSS 25.0 was utilized to process the data, with mean \pm standard deviation (mean \pm SD) and [*n* (%)] indicating the measurement and count data, respectively. The *t*-test and χ^2 test were performed, with *P* < 0.05 indicating statistically significant.

3. Results

3.1. Comparison of clinical indicators

Group B's emergency response time, time to open infusion channels, time from diagnosis to specialized treatment, hospitalization time, resuscitation success rate, and rebleeding rate were better than that of Group A (*P* < 0.05), as shown in **Table 1**.

Table 1. Comparison of clinical indicators [*n* (%)]

Group	<i>n</i>	Emergency response time (min)	Opening time of infusion channels (min)	Time from diagnosis to specialized treatment (min)	Hospitalization time (d)	Resuscitation success rate (%)	Rebleeding rate (%)
Group B	100	15.53 \pm 2.18	5.18 \pm 1.24	22.48 \pm 2.97	8.16 \pm 1.67	98	3
Group A	100	25.38 \pm 3.25	8.53 \pm 1.42	30.15 \pm 3.56	10.26 \pm 2.18	91	10
<i>t</i> / χ^2	-	25.169	17.769	16.643	7.647	4.713	4.031
<i>P</i>	-	0.000	0.000	0.000	0.000	0.029	0.044

3.2. Comparison of nursing satisfaction scores

The comparison of nursing satisfaction scores between the two groups before nursing ($P > 0.05$) and after nursing indicates that group B has higher scores than group A ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of nursing satisfaction scores (mean \pm SD; points)

Group	<i>n</i>	Proactive services	Health promotion	Communication skills	Operating level	Emergency environment
Group B	100	89.39 \pm 4.34	89.52 \pm 4.37	89.26 \pm 3.41	89.37 \pm 3.52	89.43 \pm 3.61
Group A	100	82.29 \pm 3.34	82.84 \pm 3.62	83.27 \pm 3.15	83.24 \pm 3.09	83.32 \pm 3.11
<i>t</i>	-	12.964	11.771	12.903	13.087	12.822
<i>P</i>	-	0.000	0.000	0.000	0.000	0.000

3.3. Comparison of SAS scores

The comparison of SAS scores between the two groups before nursing care ($P > 0.05$) and after nursing care indicates that group B has lower scores than group A ($P < 0.05$), as shown in **Table 3**.

Table 3. Comparison of SAS scores before and after nursing (mean \pm SD; points)

Group	<i>n</i>	Anxiety		Fear		Foreboding		Panic		Sleep disorders	
		Before	After	Before	After	Before	After	Before	After	Before	After
Group B	100	3.13 \pm 0.37	0.89 \pm 0.45*	3.18 \pm 0.32	0.86 \pm 0.26*	3.14 \pm 0.42	0.83 \pm 0.21*	3.12 \pm 0.61	0.87 \pm 0.42*	3.15 \pm 0.34	0.82 \pm 0.23*
Group A	100	3.14 \pm 0.33	1.45 \pm 0.42*	3.16 \pm 0.35	1.22 \pm 0.56*	3.12 \pm 0.45	1.28 \pm 0.54*	3.16 \pm 0.59	1.44 \pm 0.39*	3.19 \pm 0.33	1.25 \pm 0.52*
<i>t</i>	-	0.201	9.097	0.421	5.830	0.324	7.766	0.471	9.945	0.844	7.562
<i>P</i>	-	0.840	0.000	0.673	0.000	0.745	0.000	0.637	0.000	0.399	0.000

Comparison with the group before care * $P < 0.05$.

3.4. Comparison of SF-36 scores

The comparison of SF-36 scores between the two groups before nursing care ($P > 0.05$) and after nursing care indicates that group B has a higher score than group A ($P < 0.05$), as shown in **Table 4**.

Table 4. Comparison of SF-36 scores [mean \pm SD (points)]

Group	<i>n</i>	Somatic functioning		Social functioning		Physiological functioning		Psychological functioning		Mental health	
		Before	After	Before	After	Before	After	Before	After	Before	After
Group B	100	68.32 \pm 3.65	83.23 \pm 3.47*	68.26 \pm 3.51	84.79 \pm 5.23*	67.54 \pm 8.13	84.62 \pm 4.23*	67.41 \pm 8.06	83.39 \pm 3.46*	68.18 \pm 3.41	83.71 \pm 3.56*
Group A	100	68.13 \pm 3.42	79.26 \pm 3.25*	68.37 \pm 3.23	79.37 \pm 3.22*	67.69 \pm 8.16	79.23 \pm 3.86*	67.78 \pm 8.24	79.72 \pm 3.54*	68.65 \pm 3.46	79.53 \pm 3.67*
<i>t</i>	-	0.379	8.350	0.230	8.824	0.130	9.412	0.320	7.414	0.967	8.175
<i>P</i>	-	0.704	0.000	0.817	0.000	0.896	0.000	0.748	0.000	0.334	0.000

Comparison with the group before care * $P < 0.05$.

4. Discussion

AUGB patients are characterized by complex and variable conditions, rapid progression, and high mortality, so it is difficult to accurately determine the bleeding site promptly. Once the critical treatment time window is missed, the patient's life will be endangered as the bleeding worsens ^[5,6]. Therefore, timely diagnosis of the cause of the patient's disease and the adoption of effective symptomatic treatment measures are key to improving the success rate of resuscitation and prognosis ^[7]. The past conventional emergency care process adopted in the emergency department was ineffective in controlling the timing of resuscitation, which led to unsatisfactory results for patients with AUGB in emergency care ^[8,9]. The emergency nursing process is the basis for the emergency department to guide the emergency rescue nursing work. Through the optimization of the emergency nursing process, the division of labor and responsibilities of each emergency department nursing staff are clarified, so that they can better cooperate with the work of the emergency department doctors and reasonably shorten the response time, to strive for more time for the patient's rescue, thus improving the success rate and prognosis of the resuscitation ^[10-12].

The advantages of optimizing the emergency care process in the emergency department for AUGB patients include the following. After the admission of patients to the hospital, the emergency department medical and nursing staff use the shortest time to assess their condition, determine the main points of the resuscitation work, and quickly develop a targeted resuscitation process for them. Unified training for emergency department medical and nursing staff can improve the standardization of emergency care and avoid reducing the quality and efficiency of emergency department resuscitation work due to the shortage of skilled medical and nursing staff. After optimization, the head of the emergency department coordinates and directs the work of resuscitation of AUGB patients to ensure that each healthcare worker carries out the resuscitation work in strict accordance with his or her duties while avoiding mistakes in the process of resuscitation of AUGB patients as much as possible, to improve the safety of the resuscitation work. Experienced nurses participate in the whole nursing process of AUGB patients to ensure timely and comprehensive implementation of each nursing measure and provide timely feedback to emergency physicians on the patient's condition changes so that the physicians can perform the rescue work on time.

The results of this paper indicate that the clinical indexes, nursing satisfaction score, post-care SAS score, and SF-36 score of Group B were better than those of Group A ($P < 0.05$), confirming that the optimization of the emergency nursing process for AUGB patients in the emergency department can improve the efficiency and quality of the resuscitation, reduce the re-bleeding rate, and improve the mood and quality of life of the patients. The key to optimizing the emergency nursing process in this study is to improve the timeliness of resuscitation by analyzing and summarizing the problems encountered in the previous work of the department in resuscitating AUGB patients and the risk factors that led to the delay in resuscitation. The nursing team would then optimize the emergency nursing measures, assess the patient's condition, and rapidly open the infusion pathway to ensure that the patients received timely and effective treatment, thus improving the resuscitation success rate. Nursing staff should take the initiative to conduct effective nursing measures and preventive rescue programs to better control the patient's condition and improve the effect of resuscitation. The optimization of the emergency nursing process improves the rationality of the allocation of medical resources in the emergency department and also improves the degree of cooperation between nursing staff and emergency physicians, thus avoiding delays in resuscitation time due to miscommunication. Preparation work should also be performed before resuscitation, by soothing the emotions and improving the mood of the patients, so that the quality of life and cooperation of the patients can be improved. A cooperating patient in a good mood can improve the quality of resuscitation and reduce the rate of re-bleeding, thus improving the overall nursing care quality.

In conclusion, optimization of the emergency nursing process for AUGB patients in the emergency department can improve the efficiency and success rate of resuscitation, reduce the risk of rebleeding, improve the mood and quality of life, and make the patients more satisfied with the nursing service.

Disclosure statement

The authors declare no conflict of interest.

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