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Impact of Optimizing Emergency Nursing Processes on Resuscitation Success in Patients with Acute Chest Pain

Xiaohan Chen*

Yuhuan City People's Hospital Health Community Group Kanmen Branch, Yuhuan 317602, Zhejiang Province, China

***Corresponding author:** Xiaohan Chen, chenxiaohan0207@163.com

Abstract: *Objective:* To analyze the effect of optimizing the emergency nursing process in the resuscitation of patients with acute chest pain and the impact on the resuscitation success rate. *Methods:* 66 patients with acute chest pain received by the emergency department of our hospital from January 2022 to December 2023 were selected as the study subjects and divided into two groups according to the differences in the emergency nursing process, i.e., 33 patients receiving routine emergency care were included in the control group, and 33 patients receiving the optimization of emergency nursing process intervention were included in the observation group. Patients' resuscitation effect and satisfaction with nursing care in the two groups were compared. *Results:* The observation group's consultation assessment time, reception time, admission to the start of resuscitation time, and resuscitation time were shorter than that of the control group, the resuscitation success rate was higher than that of the control group, and the incidence of adverse events was lower than that of the control group, with statistically significant differences ($P < 0.05$); and the observation group's satisfaction with nursing care was higher than that of the control group, with statistically significant differences ($P < 0.05$). *Conclusion:* Optimization of emergency nursing process intervention in the resuscitation of acute chest pain patients can greatly shorten the rescue time and improve the success rate of resuscitation, with higher patient satisfaction.

Keywords: Chest pain; Emergency resuscitation; Optimization of emergency nursing process

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1. Introduction

Patients with acute chest pain are more common in emergency medicine, which is the first clinical manifestation of a variety of life-threatening acute and severe diseases, such as acute cardiac ischemic disease, ruptured aortic coarctation, acute pulmonary embolism, acute pericardial tamponade, etc. [1,2]. This condition progresses rapidly, the prognosis often has strong time-dependent characteristics, and the mortality rate will be greatly increased without timely treatment. Nursing personnel are involved in each link of the emergency rescue of acute chest pain patients, such as triage, resuscitation, transfer, handover, etc., and the relevant survey research shows that the

rationality of the emergency nursing process has a direct impact on the patient's treatment effect [3,4]. Therefore, the current emergency clinical nursing field suggests optimizing the emergency nursing process to make the intense emergency nursing work more efficient and orderly. Based on this, this study carried out the optimization of emergency nursing process intervention in the resuscitation of acute chest pain patients.

2. General information and methodology

2.1. General information

The study population selected was 66 patients with acute chest pain admitted to the emergency department of our hospital from January 2022 to December 2023, and they were divided into two groups according to the differences in the emergency care process. In the control group, there were 19 male patients and 14 female patients; the minimum age and maximum age were 24 years old and 68 years old, respectively, with a mean value of 41.98 ± 12.28 years old; the shortest time from onset to consultation was 30 minutes, and the longest time was 65 hours, with a mean value of 11.74 ± 3.67) hours. The observation group had 20 male patients and 13 female patients; the minimum age and the maximum age were 25 years old and 70 years old respectively, and the mean value was 41.65 ± 12.18 years old; the shortest time from onset to consultation was 40 minutes, and the longest time was 67 hours, and the mean value was 11.87 ± 3.69 hours. SPSS21.0 was used as the tool for data processing, and the statistical test suggested that the differences in the data of gender, age, and the time from onset to consultation between the groups were not significant ($P > 0.05$). The study was approved by the ethical review committee of the hospital, and the relevant information retrieved had been agreed upon by the patients themselves or their families, who signed an informed consent form.

2.2. Inclusion and exclusion criteria

(1) Inclusion criteria: Patients with acute chest pain manifestations; patients with no abnormalities in speech or cognitive ability; patients with complete case data.

(2) Exclusion criteria: Patients with acute chest pain caused by trauma; patients with chronic pain due to malignant tumors or chronic inflammation with a definite etiology, etc.; patients with psychiatric disorders; patients with a combination of other organic pathologies; patients with other diagnoses of diseases that require urgent management; patients who were transferred in transit; and patients with prehospital death.

2.3. Methodology

The control group implemented the routine emergency care process.

(1) When the patients arrived at the emergency department, detailed inquiries about patients' clinical manifestations, disease history, etc. were made, initially assessed and judged the patients' conditions, and arranged the order of consultation.

(2) For patients in critical condition, the resuscitation process was carried out immediately, i.e., intravenous access was established, measures such as oxygen intake and cardiac monitoring were given, and doctors were informed of the emergency treatment. Normal emergency patients then enter the observation room for observation and monitoring.

(3) Patients or their families were assisted with admission and treatment, followed the doctor's instructions for injection, infusion, blood collection, and other therapeutic nursing operations, closely observed the patient's condition during this period, and provided timely feedback to the doctor if there was any abnormality.

The observation group adopted the optimization of emergency nursing process intervention.

(1) Optimizing the quality of nursing personnel: By analyzing the job demand of acute chest pain triage care and rescue care, it was clear that nursing staff needed to have professional skills and knowledge in chest pain emergency care, and at the same time evaluating the existing ability of emergency nursing staff, and formulating targeted training programs based on the gap between nursing staff's ability and job demand. At the end of the training, appropriate skills and knowledge assessment was conducted to ensure that all emergency nursing staff mastered the knowledge of triage of chest pain patients, resuscitation knowledge, and the ability to read electrocardiogram (ECG).

(2) Optimizing teamwork: The division of responsibilities was clearly defined and a clear process of emergency care collaboration was developed to ensure that nursing staff can respond quickly. At the same time, the communication within the team was strengthened, and regular team meetings were organized to exchange and share experience and information and improve the understanding and trust among team members.

(3) Optimizing the reception process: For patients arriving at the hospital by emergency ambulance, medical personnel and emergency items were positioned in advance, and the performance of emergency instruments was checked to ensure that they could be used at any time. For patients who arrived at the hospital by themselves, the emergency consultation was completed within 2 minutes; the electrocardiogram examination was completed and the result was interpreted within 10 minutes for patients with stable vital signs, and then they were placed in chest pain clinic for priority treatment. All the patients with acute and critical illnesses followed the principle of "treatment before payment" and the "green channel" was opened to be sent to the emergency room for rescue, thus shortening the patients' waiting time.

(4) Optimizing the treatment process: The first-come-first-served nurse responsibility system was implemented. After the patient entered the rescue room, cardiac and electric monitoring, the establishment of venous access, and collection of arterial and venous blood were performed at the fastest speed (within 5 minutes), and actively cooperated with the relevant inspection work and various rescue operations, and completed the monitoring and recording of changes in the patient's vital signs. During the rescue process, nurses fully respected the privacy of patients, fully sympathized with the fear and nervousness of conscious patients, and carried out emotional appeasement and psychological guidance in time, so as to minimize patients' negative emotions and psychological state, thus enhancing patients' cooperation.

(5) Optimizing the nursing care of hospitalization and transfer: During patients' stay, the beds were kept clean and comfortable, and close attention was paid to patients' conditions and psychological changes. For patients who need to be transferred to higher-level hospitals for further treatment, before transferring patients to hospitals, their conditions were accurately assessed and possible dangers during transfer were predicted, with first-aid supplies prepared so as to make appropriate emergency treatment when dynamic conditions occur; nurses correctly filled in the transfer nursing record sheet, and properly handover the medical-nursing and nursing-nursing care, so as to ensure that there was no gap in the handover of the transfer hospitals.

2.4. Observation indicators

(1) Resuscitation effect: The length of triage assessment, the length of reception, the length of admission to the start of resuscitation, the length of resuscitation, the success rate of resuscitation, and the incidence of adverse events (such as cardiac arrhythmia, acute pulmonary edema, cardiac failure, and shock, etc.) of the patients in the two groups were counted.

(2) Patient satisfaction with nursing care: At the end of nursing care, the two groups of patients or family

members were issued self-made nursing satisfaction questionnaire to fill in; the full score is 100 points, divided into very satisfied with 91–100 points, satisfied with 61–90 points, and dissatisfied with 0–60 points. Satisfaction is the percentage of the total number of cases between the number of very satisfied patients and the number of satisfied patients.

2.5. Statistical methods

The data processing tool used was SPSS21.0 software. Statistical data such as count data and measurement data were described by frequency, mean ± standard deviation (SD), and χ^2 test and *t*-test were used for comparison between groups, respectively, with $P < 0.05$ as the significance cut-off value.

3. Results

3.1. Comparison of the resuscitation effect between patients in two groups

From the results in **Table 1**, the two groups were statistically significant ($P < 0.05$) in terms of triage assessment time, reception time, admission to start resuscitation time, resuscitation time, resuscitation success rate, and incidence of adverse events; and the observation group's diagnosis and assessment time, reception time, admission to start resuscitation time, and resuscitation time were shorter than that of the control group, the resuscitation success rate was higher than that of the control group, and the incidence of adverse events was lower than that of the control group. Therefore, the optimization of emergency nursing process intervention for patients with chest pain in the emergency department can obtain better rescue effects.

Table 1. Comparison of resuscitation effect between the two groups (mean ± SD)

Group	Number of cases (*n*)	Length of triage assessment (min)	Length of consultation (min)	Length of time from admission to start of resuscitation (min)	Resuscitation time (min)	Resuscitation success [n (%)]	Adverse event occurrence [n (%)]
Control group	33	2.23 ± 0.36	10.86 ± 2.19	26.32 ± 2.74	59.21 ± 6.36	27 (81.82)	9 (27.27)
Observation group	33	1.12 ± 0.27	6.98 ± 1.05	17.44 ± 2.18	45.31 ± 5.79	32 (96.97)	2 (6.06)
t/χ^2	-	14.169	9.177	14.568	9.283	3.995	5.345
P	-	0.000	0.000	0.000	0.000	0.045	0.021

3.2. Comparison of patients' satisfaction with nursing care between the two groups

Based on the results in **Table 2**, there is a statistically significant difference between the two groups in terms of satisfaction with nursing care ($P < 0.05$), and the observation group had higher satisfaction than the control group, so the optimization of the emergency nursing process intervention for patients with chest pain in the emergency clinic can improve the satisfaction of patients and their families with nursing care.

Table 2. Comparison of patients' satisfaction with nursing care in the two groups [n (%)]

Group	Number of cases (*n*)	Very satisfied	Satisfied	Dissatisfied	Nursing care satisfaction
Control group	33	11 (33.33)	12 (36.36)	10 (30.30)	23 (69.70)
Observation group	33	21 (63.64)	10 (30.30)	2 (6.06)	31 (93.94)
χ^2	-	-	-	-	6.518
P	-	-	-	-	0.060

4. Discussion

Most patients with acute chest pain are first diagnosed in the emergency department of hospitals, and it is well known that the prognosis of high-risk acute chest pain diseases has a great correlation with early treatment, so it is necessary to carry out a rapid emergency care process for patients with acute chest pain. However, routine emergency care procedures are complex and irrationally planned, which cannot effectively shorten the resuscitation time, thus greatly reducing the efficiency of treatment [5]. In recent years, more studies have shown that optimizing the emergency care process is more helpful in shortening the rescue time for acute chest pain patients, thus saving patient's life and improving the success rate of treatment [6-8]. The emergency care process is optimized that put the patient's rescue first, and as the starting point and focus of emergency care services. By improving the quality and teamwork of nursing staff, optimizing the entire emergency nursing service process, and connecting all aspects of the emergency more closely, we can fight for the patient's golden rescue time, to ensure efficient emergency treatment [9-11]. The results of this study show that after taking the intervention of optimizing the emergency nursing process, the observation group's length of triage assessment, the length of reception, the length of admission to the start of resuscitation, and the length of resuscitation were all shorter than that of the control group, the resuscitation success rate was significantly higher than that of the control group, and the incidence of adverse events was lower than that of the control group, and the difference was statistically significant ($P < 0.05$). It can be seen that optimizing the emergency nursing process for acute chest pain patients can improve the efficiency of emergency nursing personnel and enhance the resuscitation effect. In addition, the observation group's total satisfaction with nursing care was significantly higher than that of the control group, and the difference was statistically significant ($P < 0.05$). This is because optimizing the emergency nursing process to intervene in the resuscitation of patients with acute chest pain effectively considers the patient, improves the effectiveness of patient rescue, and thus obtains patient satisfaction feedback.

5. Conclusion

In conclusion, optimization of emergency nursing process interventions applied to acute chest pain patient resuscitation can improve the resuscitation effect, and obtain a higher patient satisfaction of clinical care.

Disclosure statement

The author declares no conflict of interest.

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