

The Application of Systematic Nursing in the Treatment of Patients with Acute Pancreatitis

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ABSTRACT

Objective To explore the application effect of the systematic nursing model in the clinical treatment of patients with acute pancreatitis (AP). **Methods:** From June 2023 to June 2025, 78 patients with acute pancreatitis admitted to our hospital were selected as research samples and divided into the control group (39 cases) and the experimental group (39 cases) according to the random number table method. The control group received routine care, while the experimental group received systematic care. The hospitalization time, clinical symptom relief time, complication rate and nursing satisfaction of the two groups of patients were compared. **Results:** The abdominal pain relief, bowel rumbling recovery, AMS normalization time and average hospital stay in the experimental group were (10.52 ± 2.06) d, (3.21 ± 0.74) d, (2.79 ± 0.61) d and (4.08 ± 0.95) d, respectively. All were shorter than those of the control group $[(14.25 \pm 3.17)$ d, (4.83 ± 1.05) d, (4.15 ± 0.92) d and (6.42 ± 1.38) d], with significant differences ($P < 0.05$). The total incidence of complications in the experimental group was 7.69% (3/39), including 1 case of pulmonary edema, 1 case of infection, and 1 case of pancreatic pseudocyst. ARDS did not occur. The total incidence of complications in the control group was 28.21% (11/39), including 2 cases of ARDS, 2 cases of pulmonary edema, 4 cases of infection, and 3 cases of pancreatic pseudocysts. The total incidence of complications in the experimental group was significantly lower than that in the control group, with a significant difference ($P < 0.05$). The nursing satisfaction rate of the experimental group (94.87%) was significantly higher than that of the control group (76.92%), with a significant difference ($P < 0.05$). **Conclusion:** In the treatment of patients with acute pancreatitis, the application of the systematic nursing model can effectively shorten the length of hospital stay, relieve clinical symptoms more quickly, reduce the risk of complications, and improve nursing satisfaction.

KEYWORDS

Systematic nursing acute pancreatitis clinical treatment; Complications; Nursing satisfaction

1 Introduction

Acute Pancreatitis (AP) is a relatively common acute abdominal condition in clinical practice. It is mainly caused by various factors that lead to the premature activation of digestive enzymes in the pancreas, which start to digest its own tissues, resulting in edema and bleeding of the pancreas. In severe cases, necrosis may occur. Its onset is sudden, the disease progresses rapidly, and it is also prone to cause various complications^[1-2]. Some of the severe cases may even develop into severe acute pancreatitis (SAP) or systemic inflammatory response syndrome (SIRS), with a relatively high risk of death^[3]. For the treatment of AP, in addition to timely and effective medical measures such as medication, fluid resuscitation, and nutritional support, scientific and meticulous nursing intervention is also a key link in stabilizing the patient's condition, promoting recovery, and improving prognosis. The traditional conventional nursing model mainly focuses on carrying out medical orders and monitoring vital signs, lacking predictive, systematic and full-process management tailored to the characteristics of AP disease, making it difficult to fully meet the complex needs of patients. Systematic nursing can make up for this deficiency. Guided by modern nursing concepts, it integrates all aspects of nursing assessment, diagnosis, planning, implementation and evaluation, forming a standardized and coherent scientific management model. This model not only focuses on the physiological aspect of the disease, but also runs through psychological support, health education and rehabilitation guidance throughout. It embodies the essence of modern patient-centered nursing, thereby providing more comprehensive, continuous and patient-specific nursing services^[4]. To verify the clinical value of systematic nursing in the treatment of AP, this study conducted an in-depth analysis of the application effect of systematic nursing by setting up controls. The report is as follows.

2 Materials and Methods

2.1 General Information

A randomized controlled design was adopted. A total of 78 patients with acute pancreatitis admitted to our hospital from June 2023 to June 2025 were selected for the study. Inclusion criteria: ① Clinically diagnosed with AP, accompanied by reduced or absent abdominal pain, abdominal distension and bowel sounds; ② Aged between 18 and 75; ③ The patient and their family members were informed of the content of this study and signed the consent form. Exclusion criteria: ① Accompanied by disorders of vital organs or other malignant diseases; ② Pregnant or lactating women; ③ There are mental or cognitive abnormalities that prevent one from cooperating with the research content; ④ Withdrawal

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from the research halfway. The patients were divided into the control group (n=39) and the experimental group (n=39) according to the random number table method. The general data of the two groups of patients were compared, and there was no significant difference ($P>0.05$). They can be compared. This study was approved by the Ethics Committee of our hospital (Approval Number: XXX).

Table 1 Comparison of general information of the two groups of patients [n,(x $\pm$ s)]

Project	Control group(n=39)	Experimental Group(n=39)	χ^2/t	P
Gender (Female/Male)	18/21	17/22	0.053	0.818
Age (years)	52.36 $\pm$ 10.47	51.84 $\pm$ 11.02	0.214	0.831
BMI (kg/m ²)	25.18 $\pm$ 3.42	24.93 $\pm$ 3.67	0.315	0.754
Etiology (n)			0.189	0.910
Biliary origin	22(56.41%)	21(53.85%)		
Hyperlipidemic	11(28.21%)	12(30.77%)		
Alcoholic	6(15.38%)	6(15.38%)		

2.2 Methods

Both groups of patients received the same basic treatment measures for acute pancreatitis after admission, specifically including: early rapid fluid resuscitation, fasting, gastrointestinal decompression, anti-enzyme therapy, analgesic and anti-infective drug use, and organ function support.

The control group received routine care. This includes: ① Routine monitoring of vital signs: Regularly measure and record the patient's body temperature, pulse, respiration, blood pressure, blood oxygen saturation, etc., observe changes in abdominal symptoms and signs, record 24-hour intake and output, and report to the doctor in a timely manner; ② Accurately follow medical advice: Strictly adhere to medical advice to implement treatments such as fasting and water deprivation, gastrointestinal decompression, fluid replacement, acid suppression, and inhibition of pancreatic enzyme secretion; ③ Basic life care: Perform proper postures and activities, and provide necessary oral care; ④ Health education: Provide regular health knowledge explanations and psychological counseling.

The experimental group implemented systematic nursing. Including: (1) Systematic assessment and dynamic monitoring: ① Establish a systematic nursing team composed of head nurses, senior responsible nurses and nutritionists. Within 24 hours of the patient's admission, a comprehensive assessment was conducted using standardized scoring tools such as Acute Physiology and Chronic Health Evaluation II (APACHE-II) to quantify the severity of the condition. At the same time, by integrating laboratory tests and imaging results, a complete patient health record is established to provide detailed basis for subsequent care. ② Dynamic monitoring: On the basis of routine monitoring of vital signs, the Numerical Rating Scale (NRS) for pain is used to conduct dynamic quantitative assessment of abdominal pain. The assessment is conducted four times a day at fixed times, and it is evaluated at any time when the patient reports an increase in pain, which is recorded in the pain management sheet. Systematic auscultation of bowel sounds was performed in each of the four quadrants of the patient's abdomen for 1 minute. Auscultation was conducted three times a day, and the changing trend was recorded. (2) Predictive nursing plan formulation and implementation: Based on the assessment results, develop a predictive systematic nursing plan to prevent the occurrence of complications. ① Formulate and implement the plan for turning over and patting the back. For patients in the acute stage, sputum aspiration should be performed every two hours. If necessary, mechanical suction can be carried out. For patients in the recovery period, guide and encourage them to engage in appropriate bed activities, effective coughing and deep breathing to prevent pulmonary infection and acute respiratory distress syndrome (ARDS). ② Precise management of liquids. Establish two or more venous access routes, accurately record the 24-hour inflow and outflow, regularly monitor blood pressure and central venous pressure (CVP), ensure the effectiveness and safety of fluid resuscitation, and prevent shock and pulmonary edema. ③ Systematic care for drainage tubes: For patients with indwelling gastrointestinal decompression and other tubes, the drainage tubes should be properly fixed, clearly marked, and ensure smooth drainage. Closely observe and meticulously record the nature, color and volume of the drainage fluid to prevent catheter-related infections and provide an accurate basis for disease diagnosis. ④ Phased nutritional support: Systematically plan the nutritional path, gradually transition from parenteral nutrition to enteral nutrition through the nasojejunal tube as per the doctor's advice, reduce the stimulation to the pancreas, and gradually transition to a personalized diet plan after the condition stabilizes. (3) Personalized living and rehabilitation care: For patients in the acute stage, assist them in adopting comfortable positions such as bending their knees and lying on their side, and distract their attention through conversations and playing light music to relieve pain and anxiety. Nursing staff will also flexibly adjust non-pharmaceutical analgesia plans based on patients' personal preferences and the degree of pain to ensure that patients achieve the best comfort level. For patients in the recovery period, when their condition permits, individualized guidance and assistance should be provided based on their physical strength and tolerance to carry out progressive early bed activities, such as ankle pump exercises, passive and active limb activities, to promote recovery. (4) Systematic health education and psychological support From admission to discharge, the patient's psychological state is evaluated throughout the process, and diversified health education is carried out. Through graphic and text brochures, short videos produced by the department, etc., the disease knowledge of acute pancreatitis, treatment measures, key points of nursing cooperation, and rehabilitation guidance after discharge are introduced to the patient, covering key matters such

as drug use, low-fat diet, regular rest and regular follow-up visits. At the same time, for the anxiety, fear and other emotions they have, provide targeted psychological counseling to help build confidence in recovery. (5) Evaluation and Feedback: The nursing team holds a regular meeting once a week to systematically evaluate the implementation effect of the nursing plan. Based on the changes in the patient's condition and dynamic indicators such as APACHE-II score and pain score, the nursing plan is adjusted in a timely manner to ensure the continuous effectiveness of the nursing measures.

2.3 Observation Indicators

① Clinical symptom indicators and hospital stay: Record the hospital stay of the two groups of patients, as well as the time for abdominal pain relief, bowel sounds recovery, and serum amylase (AMS) to return to normal levels. ② Incidence of complications: The occurrence of complications such as ARDS, pulmonary edema, infection, and pancreatic pseudocysts during hospitalization was statistically analyzed in both groups of patients. ③ Nursing satisfaction: A self-made nursing satisfaction survey questionnaire of our hospital was used to ask patients to evaluate after the nursing was completed. There were 20 questions in total, with a score of 100. A score of 85 or above was considered satisfactory.

2.4 Statistical Methods

The research data were statistically analyzed by using SPSS 24.0 software. Measurement data were measured using ($\bar{x} \pm s$) and t-test; Count data were analyzed using [n(%)] and χ^2 tests. A P value <0.05 was considered statistically significant.

3 Results

3.1 Comparison of Clinical Symptom Indicators and Hospital Stay between the Two Groups of Patients

The abdominal pain relief, bowel rumbling recovery, AMS normalization time and average hospital stay in the experimental group were (10.52 ± 2.06) d, (3.21 ± 0.74) d, (2.79 ± 0.61) d and (4.08 ± 0.95) d, respectively. All were shorter than those of the control group [(14.25 ± 3.17) d, (4.83 ± 1.05) d, (4.15 ± 0.92) d and (6.42 ± 1.38) d], with significant differences ($P < 0.05$). For details, please refer to Table 2.

Table 2 Comparison of clinical symptom indicators and hospital stay between the two groups of patients($\bar{x} \pm s$,d)

Group	Number of cases	The relief time of abdominal pain	Recovery time of bowel sounds	AMS normalization time	Hospital stay
Control group	39	14.25 ± 3.17	4.83 ± 1.05	4.15 ± 0.92	6.42 ± 1.38
Experimental Group	39	10.52 ± 2.06	3.21 ± 0.74	2.79 ± 0.61	4.08 ± 0.95
t	-	6.185	8.042	7.834	8.756
P	-	<0.001	<0.001	<0.001	<0.001

3.2 Comparison of Complication Rates between the Two Groups Of Patients

The total incidence of complications in the experimental group was 7.69% (3/39), including 1 case of pulmonary edema, 1 case of infection, and 1 case of pancreatic pseudocyst. ARDS did not occur. The total incidence of complications in the control group was 28.21% (11/39), including 2 cases of ARDS, 2 cases of pulmonary edema, 4 cases of infection, and 3 cases of pancreatic pseudocysts. The total incidence of complications in the experimental group was significantly lower than that in the control group, with a notable difference ($P < 0.05$). For details, please refer to Table 3.

Table 3 Comparison of complication rates between the two groups of patients[n(%)]

Group	Number of cases	Complications				Overall incidence rate
		ARDS	Pulmonary edema	Infection	Pancreatic pseudocyst	
Control group	39	2(5.13)	2(5.13)	4(10.26)	3(7.69)	11(28.21)
Experimental Group	39	0(0.00)	1(2.56)	1(5.13)	1(2.56)	3(7.69)
χ^2						5.714
P						0.017

3.3 Comparison of Nursing Satisfaction between the two groups of Patients

The nursing satisfaction rate of the experimental group was 94.87% (37/39), significantly higher than that of the control group (76.92%, 30/39), with a significant difference ($P < 0.05$). For details, please refer to Table 4.

Table 4 Comparison of Nursing Satisfaction between Two Groups of Patients [n(%)]

Group	Number of cases	Satisfied (≥ 85 points)	Dissatisfied (< 85 points)	Overall satisfaction
Control group	39	30(76.92)	9(23.08)	76.92
Experimental Group	39	37(94.87)	2(5.13)	94.87
χ^2	-			5.186
P	-			0.023

4 Discussion

The treatment of sexual pancreatitis is a complex process. Its success or failure not only depends on accurate diagnosis and timely treatment, but is also closely related to high-quality nursing services. The results of this study show that

compared with the control group, the experimental group implementing systematic care demonstrated better effects in terms of indicators such as the recovery time of clinical symptoms and the incidence of complications. Analyzing the reasons, in the treatment of patients with acute pancreatitis, systematic nursing has replaced the passive observation mode of conventional nursing with proactive predictive measures. This transformation is not only reflected in the nursing concept, but also implemented in every detail of the specific execution. Within 24 hours of admission, the nursing team quantified the condition using the APACHE-II score, which could quickly distinguish between mild and severe patients. Thus, the best nursing plan could be implemented based on the severity of the condition and individual differences, and the changes in the condition could be monitored dynamically. This mechanism of early quantitative assessment and risk stratification management has won precious time for subsequent precise nursing intervention. For severe patients, priority is given to strengthening respiratory monitoring and precise fluid resuscitation management, effectively preventing the occurrence of ARDS and pulmonary edema. For patients with mild symptoms and lower scores, emphasis was placed on postural management and early dietary transition guidance. Daily systematic auscultation of bowel sounds and phased nutritional support were provided, which accelerated the recovery of intestinal function, reduced infection and the formation of pancreatic pseudocysts, effectively expedited the rehabilitation process, and shortened the hospital stay. It is worth noting that systematic nursing also places particular emphasis on the synergy among various nursing measures. For instance, it combines nutritional support with intestinal function monitoring and links pain management with early activities, thus forming a mutually reinforcing virtuous cycle. Lan^[5] et al.'s research confirmed that implementing systematic care for patients with severe acute pancreatitis undergoing CRRT can significantly stabilize vital signs, alleviate pain and anxiety, improve inflammatory indicators, and reduce the incidence of severe complications such as multiple organ dysfunction and infection by approximately 50-70%, highlighting the significant value of this systematic model in critical care. In addition, systematic nursing integrates health education, psychological support and humanistic care throughout the entire hospitalization process. During the hospitalization period, the responsible nurse systematically explains the relevant knowledge of the onset, treatment and life guidance of acute pancreatitis through diversified forms such as graphic brochures and health short videos, helping patients establish a correct understanding of the disease and alleviate the anxiety and fear caused by the uncertainty of the disease and the lack of knowledge^[6]. More importantly, nursing staff will adopt personalized educational methods based on patients' educational levels, comprehension abilities and learning preferences to ensure the effectiveness of health education. During hospitalization, through dynamic psychological assessment and communication, patients' confidence in treatment and compliance were effectively enhanced, and the increase in nursing satisfaction confirmed this^[7]. Systematic nursing also places particular emphasis on the mobilization of the family support system. By guiding family members to participate in the nursing process, it not only enhances the patient's psychological security but also lays a foundation for continuous care after discharge.

In conclusion, the systematic nursing model, with its systematic, predictive and individualized characteristics, has played a significant role in the treatment of patients with acute pancreatitis. It can accelerate the relief of clinical symptoms, reduce complications, speed up the recovery process, and make patients and their families more satisfied. It is a scientific and efficient nursing management model. In the future, as the concept of precision medicine deepens, systematic nursing can be further combined with advanced technologies such as genomics and metabolomics to achieve more refined stratified management and individualized intervention. Meanwhile, by leveraging the information platform to build an acute pancreatitis nursing database, it will help optimize the nursing plan and promote the development of acute pancreatitis nursing towards greater precision and efficiency.

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