

Application of predictive nursing in nursing safety management of hemodialysis patients

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Keywords: Predictive care; Hemodialysis; Nursing safety management; Adverse events; Satisfaction

Abstract: The study selected 260 patients who underwent hemodialysis in our hospital from January 2020 to January 2022 as the research subjects. They were grouped according to the principle of the number table method, with 130 patients in the control group and 130 patients in the observation group. Among them, the control group received routine care, while the observation group received predictive care to explore the effectiveness of applying predictive care in the nursing safety management process of hemodialysis patients during treatment. The results showed that the negative emotions in the observation group after nursing were significantly lower than those in the control group, $P < 0.05$; The quality of life score of the observation group was better than that of the control group, $P < 0.05$; The incidence of adverse events in the observation group was lower than that in the control group, $P < 0.05$; The satisfaction of the observation group was better than that of the control group, $P < 0.05$. It can be seen that during hemodialysis treatment for patients, in order to improve the efficiency of nursing safety management, predictive care can be applied to improve patients' negative emotions and improve their quality of life. The incidence of adverse events is lower, and patient satisfaction is high, which is worth further learning from.

Hemodialysis is commonly used to treat renal failure and end-stage kidney disease caused by acute injury. During treatment, it is necessary to eliminate excess water and harmful substances in the blood, which promotes the prolongation of patients' lives and ensures their safety^[1]. From a clinical point of view, hemodialysis has high applicability, and can be used to treat acute heart failure, Uremia, and uncontrollable hypertension caused by volume overload and acute injury^[2]. However, the incidence of complications in patients undergoing hemodialysis is relatively high, and the occurrence of these symptoms can also affect their treatment process, posing a significant threat to their life safety^[3]. Therefore, in order to effectively reduce the risk of hemodialysis, improve the treatment effect of hemodialysis, and ensure their life safety, it is necessary to apply predictive nursing measures to improve their quality of life. Therefore, the purpose of this study is to explore the application value of predictive care in the management of nursing safety for hemodialysis patients. The specific situation is as follows.

1. Materials and Methods

1.1 General Information

The study selected 260 patients who underwent hemodialysis in our hospital from January 2020 to January 2022 as the research subjects. Among them, there were 56 males and 74 females in the control group, respectively; The age ranges from 36 to 67 years, with an average of (46.80 ± 4.23) years old. There were 60 males and 70 females in the observation group, respectively; The age ranges from 34 to 69 years, with an average of (45.53 ± 4.46) years old. The results of comparative analysis between the two sets of data are not significantly different and can be compared.

Inclusion criteria: After examination, it is determined that the patient meets the criteria for hemodialysis treatment; There is no mental illness and cognitive function is at a normal level; There are no other cardiovascular or cerebrovascular diseases.

Exclusion criteria: Low compliance and inability to maintain body position during treatment; Merge hematological infectious diseases; There are no indications for predictability.

1.2 Method

The control group received routine care: first, basic care. The nurse staff should provide patients with a comfortable ward environment, closely monitor their vital signs, carefully observe and inquire about the patient's condition, actively communicate and communicate with the patient, inform them of adverse reactions during dialysis in detail, closely observe their vital signs, and promptly identify the treatment measures to be taken for adverse reactions during the patient's blood dialysis process. Secondly, psychological care. In order to improve patients' enthusiasm for cooperation in treatment, it is necessary to create a harmonious Doctor-patient relationship, actively communicate with patients, inform them of disease related knowledge before they enter the hemodialysis room, encourage them to face with a positive attitude, inform them of possible adverse reactions during treatment, let patients understand the effect of blood treatment and cases after treatment, and eliminate their fear. Thirdly, record the patient's condition in detail. Nursing staff should carefully record the patient's basic vital signs and indicators, and have a comprehensive understanding of their temperature, blood pressure, pulse, and other conditions;The nurse staff should understand the daily habits of patients during dialysis and promptly correct their unhealthy behaviors.

The observation group receives predictive care, which includes: (1) the establishment of a predictive care group. The team leader is the Matron of the department, and the team members are the staff with rich clinical experience. The main purpose of the team is to prevent nursing risks during hemodialysis. In addition, targeted training is provided to nursing members to enhance their professional abilities. (2) Predictive care for catheters. Patients require indwelling catheters during hemodialysis, as long-term use can easily infect the patient's skin. It can be seen that it is necessary to evaluate the patient's skin before using the catheter, complete the catheterization based on the Aseptic technique standard, and closely observe the skin around the patient's catheter after catheterization to remind the patient to ensure that the skin is dry and clean. When the patient's skin experiences exudation and redness, they should be promptly moistened with iodophor. (3) Prevention of Hypotension. Hypotension of hemodialysis devices is not uncommon, and it is largely related to the vascular regulation function and circulating blood volume of patients. The Hypotension status can be comprehensively understood by reducing the intake of water and salt, and selecting appropriate posture after dialysis. In addition, a comprehensive evaluation of the patient's condition and observation of their blood pressure indicators are conducted before dialysis. (4) Prevention of catheter blockage. The sequence of establishing venous pathways for patients is

from veins to arteries, followed by timely disinfection and management. After dialysis, the catheter is sealed and cleaned with sodium chloride solution before sealing, followed by heparin solution to prevent thrombosis. (5) Pre care for unsuccessful internal fistula puncture: Some nursing staff need to improve their professional skills, and the problem of internal fistula puncture failure is not uncommon. Nursing staff should strengthen their skills training, and arrange nursing staff with deeper qualifications to provide guidance during internal fistula puncture. (6) Psychological care. In the process of long-term treatment, patients have different levels of Psychological stress. Nurses should accompany patients throughout the process, actively ask their feelings, encourage patients through suggestive language, eliminate their internal pressure, and enhance their self-confidence; Comprehensively understand the patient's basic situation and allow them to face treatment with an optimistic attitude.

1.3 Observation indicators and evaluation methods

Observe and evaluate the negative emotions of the patient, and use the Anxiety and Depression Scale to evaluate the patient's emotions. The total score is 53 points, and the higher the score, the higher the negative emotions of the patient. The nurse staff should evaluate the quality of life of patients based on their role function, physical function, emotional function, and social function, with a total score of 100 points. The score is positively proportional to the patient's quality of life [4-5]. The incidence of adverse events in both groups of the observation group; Evaluate the patient's satisfaction, with a total score of 100 points, with a score below 60 indicating dissatisfaction; A score between 61 and 80 indicates basic satisfaction; A score of 81-100 indicates great satisfaction [6].

1.4 Statistical methods

Applying SPSS 24.0 to analyze the relevant research data, $P < 0.05$ expression differences can constitute statistical significance.

2. Results

2.1 Comparing Two Groups of Negative Emotional Scores

Comparison of negative emotional scores between the observation group and the control group after nursing, $P < 0.05$. See Table 1.

Table 1: Comparison of Negative Emotion Scores between Two Groups ($\bar{x} \pm s$, points)

Group	cases	Anxiety score		Depression score	
		Pre-care	Post-care	Pre-care	Post-care
Control group	130	45.35±4.17	30.12±2.48	40.24±5.46	26.34±4.35
Observe group	130	44.67±3.68	20.12±4.21	39.89±4.52	14.20±4.68
t-values	-	0.463	8.532	0.257	14.386
P-value	-	0.085	0.000	0.051	0.000

2.2 Comparison of Quality of Life Scores between Two Groups

The quality of life score of the observation group was higher than that of the control group,

P<0.05. See Table 2.

Table 2: Comparison of Quality of Life Scores between Two Groups ($\bar{x} \pm s$, points)

Group	Cases	Role Functions	Physical functioning	Emotional function	Social function
Control group	130	65.46±4.32	66.79±4.36	68.78±3.58	64.68±4.25
Observe group	130	79.80±4.28	84.22±3.53	82.41±4.02	89.56±3.21
t-values	-	8.689	12.461	10.351	11.460
P-values	-	0.002	0.001	0.000	0.000

2.3 Comparing the incidence of adverse events between two groups

The total incidence of adverse events in the observation group was lower than that in the control group, P<0.05. See Table 3.

Table 3: Comparison of adverse event incidence rates between two groups [cases,%]

Group	Cases	catheter obstruction	Hypotension	Metabolic imbalance	Total occurrence rate
Control group	130	5(3.85)	3(2.31)	4(3.08)	12(9.23)
Observe group	130	1(0.77)	2(1.54)	1(0.77)	4(3.08)
χ^2 -values	-	2.730	0.204	1.835	4.262
P-values	-	0.099	0.652	0.176	0.039

2.4 Comparison of satisfaction between two groups

The satisfaction of the observation group was much higher than that of the control group, P<0.05. See Table 4.

Table 4: Comparison of Satisfaction between Two Groups [Example, (%)]

Group	Cases	Dissatisfied	Basically satisfied	Very satisfied	Overall satisfaction
Control group	130	15(11.54)	42(32.31)	73(56.15)	115(88.46)
Observe group	130	2(1.54)	26(20.00)	102(78.46)	128(98.46)
χ^2 -values	-	10.637	5.098	14.700	10.637
P-values	-	0.001	0.024	0.000	0.001

3. Discussion

Hemodialysis is often used to treat the diseases of Uremia patients, which plays a role in prolonging their life cycle and improving their quality of life [7]. However, predictive care is a modern nursing model for patients during hemodialysis, which can predict the development of their condition, and the application of predictive care can effectively determine the risk of hemodialysis

for patients. During the treatment period, the nurse staff should raise questions based on the patient's condition development and patterns, develop effective nursing strategies, and reduce the incidence of risk events [8].

To reduce the incidence of various adverse reactions, it is necessary to increase nursing efforts during the hemodialysis process, ensure nursing effectiveness through predictive care, identify the possibility of risk occurrence from the source, take scientific and reasonable measures to eliminate potential risks, and reduce the incidence of adverse reactions [9].

The research results showed that compared with the control group, the observation group had lower negative emotional scores, higher quality of life scores, lower incidence of adverse events, and higher satisfaction. The comparison with the control group was statistically significant, indicating that predictive care has higher application value. Mainly because patients receive effective psychological care during treatment to eliminate their negative emotions; Patients were given predictive care of catheters, prevention of Hypotension, prevention of catheter blockage, and pre care of unsuccessful puncture of internal fistula to reduce the incidence of complications, so the quality of life of patients was higher, and patients' satisfaction was correspondingly improved.

In summary, the application of predictive care during patient care safety management during hemodialysis is beneficial for eliminating negative emotions, improving patient quality of life, reducing the incidence of adverse events, and improving patient satisfaction. It is worth further reference.

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