The Effect of Interventional Nursing on Treatment Outcome, Negative Emotions and Quality of Life of Patients Undergoing Cardiovascular Interventions

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*A*bstract: *Objective*: To analyze the effect of interventional nursing on the therapeutic effect, negative emotion and quality of life of patients undergoing cardiovascular and cerebrovascular interventional therapy. *Methods*: Eighty-four patients who received cardio-cerebral vascular interventional therapy in a hospital during January 2024–December 2024 were selected, and were divided into the control group and the observation group by the mean score method, each with 42 cases. The control group was given standardized perioperative care, and the observation group was given interventional nursing intervention on this basis. The two groups were compared in terms of clinical efficacy, negative emotion score, incidence of related complications, quality of life score and nursing satisfaction. *Results:* The total effective rate of treatment of patients in the observation group (95.24%) was significantly higher than that of the control group (78.57%), and the difference was statistically significant ($P < 0.05$); before nursing care, the difference between SDS and SAS scores of patients in the two groups was insignificant ($P > 0.05$); after nursing care, the scores of various indexes of the two groups were significantly reduced and the observation group was lower than that of the control group, and the difference was statistically significant ($P < 0.05$); the patients in the observation group had more negative moods than those in the control group; the complication rate of patients in the observation group (2.38%) was significantly lower than that of the control group (19.04%), and the difference was statistically significant ($P < 0.05$); the quality of life scores of patients in the observation group were higher than that of the control group, and the difference was statistically significant ($P < 0.05$); the satisfaction rate of patients' nursing care in the observation group was 97.62%, which was higher than that of the control group (78.57%), and the difference was statistically significant ($P < 0.05$). The difference is statistically significant ($P < 0.05$). *Conclusion:* The implementation of interventional nursing intervention for patients with cardiovascular and cerebrovascular interventional therapy can further enhance the clinical therapeutic effect, improve the negative emotions of patients' anxiety and depression, reduce the risk of related complications, improve the quality of life of patients, and obtain higher satisfaction.

Keywords: Cardiovascular disease; Interventional therapy; Interventional care; Efficacy; Negative emotions; Quality of life

1. Introduction

Cardiovascular and cerebrovascular diseases (CVDs) pose a serious threat to global public health due to their high morbidity, disability, and mortality rates, and minimally invasive technologies such as percutaneous coronary intervention (PCI) and cerebrovascular intervention (CIVI) have become key therapeutic tools to save patients' lives and improve their prognosis due to their significant advantages. However, patients often face multiple challenges in the perioperative period and the rehabilitation phase in terms of physiological and psychological aspects, which results in poor quality of life for the patients as a whole [1]. Conventional perioperative care model of PCI often focuses only on the basic postoperative care of patients, and there are limitations in proactive identification and systematic intervention of patients' physiological and psychological health problems, which seriously affects the therapeutic effect. As an evidence-based, structured, multidisciplinary and proactive intervention model, interventional care provides specialized and anticipatory care throughout the entire treatment process through comprehensive assessment, accurate prognosis, individualized plan development and dynamic adjustment [2]. This care model is committed to proactively optimizing treatment outcomes, actively managing patients' emotional distress, and systematically improving their functional status and quality of life. Based on clinical practice, Zhang (2025) [3] explored the effects of full interventional nursing combined with interventional surgical nursing care with pathway diagrams on complications in patients with hepatocellular carcinoma, and found that this comprehensive nursing model could effectively reduce patients' postoperative pain and improve negative psychology and cancer fatigue; Yang (2022) [4] analyzed the clinical effects of interventional nursing in patients with cerebrovascular interventions and found that interventional nursing intervention can significantly improve the success rate of cerebrovascular interventions, reduce the risk of complications, and obtain good clinical results. In her book review of Clinical Interventional Diagnosis and Treatment and Nursing, Yang (2022) [5] analyzed the clinical efficacy of cerebrovascular interventional nursing in the light of practice, and pointed out that standardized interventional nursing care is of great significance in reducing complications, lowering mortality, and improving the quality of life, and it can be widely used in the prevention and treatment of ischemic cerebrovascular disease. To deeply study and scientifically evaluate the application effect of interventional nursing in patients with cardiovascular and cerebrovascular interventional therapy, this study summarizes the relevant literature and explores the multidimensional effects of interventional nursing on the therapeutic efficacy, negative emotions and quality of life of such patients through clinical trials, aiming to provide reference for optimizing clinical nursing practice.

2. Information and methods

2.1. General information

During the period of January 2024–December 2024, 84 patients admitted for cardiovascular and cerebrovascular PCI treatment in a hospital were targeted, and were divided into a control group and an observation group by the mean score method, each with 42 cases. In the control group, there were 22 males and 20 females; the age range was 25–68 years old, with an average of (55.32 ± 6.15) years old; the types of interventional procedures were: percutaneous coronary intervention (PCI) in 14 cases, pacemaker implantation in 8 cases, intracranial aneurysm embolization in 11 cases, and carotid stenting in 9 cases. In the observation group, there were 23 males and 19 females; the age range was 24–70 years old, with an average of (56.18 ± 5.87) years old; and the types of interventional procedures were: percutaneous coronary intervention (PCI) in 13 cases, pacemaker implantation in 9 cases, intracranial aneurysm embolization in 12 cases, and carotid artery stent placement in 8 cases. The

general data of the two groups of patients were comparable, with no statistically significant difference ($P > 0.05$). The study was approved and passed by the Ethics Committee of the hospital, and all patients signed the informed consent.

Inclusion criteria: (1) Those who were diagnosed with cardiovascular and cerebrovascular diseases such as angina pectoris, myocardial infarction, cerebral artery stenosis, acute ischemic stroke, etc., and who had successfully implemented interventional therapy; (2) Those who were aged between 18–70 years old; (3) Those who were clear in their mind, had basic communication, comprehension, and expression skills, and who were able to cooperate with the completion of the nursing interventions, questionnaire surveys, and outcome assessments; (4) Informed about the purpose, content, possible risks and benefits of the study, and voluntarily signed a written informed consent form.

Exclusion criteria: (1) Those who have a combination of severe mental illness, moderate to severe dementia or severe cognitive impairment, and are unable to understand the content of the study, cooperate with the nursing intervention and the assessment of the effect; (2) Those who have a history of major surgery or severe trauma within the last 3 months; (3) Those who have a combination of other serious life-threatening or terminal illnesses; and (4) Those who are unable to complete the follow-up plan required by the study, or who refuse to provide the necessary information, and who withdraw from the study. study.

2.2. Methodology

2.2.1. Control group

Standardized perioperative nursing was given. Preoperative comprehensive condition assessment, implementation of standardized health education; intraoperative assistance to patients to adjust the appropriate position, continuous monitoring of vital signs; postoperative enhancement of the dynamic observation of the condition, and giving routine dietary guidance, will emphasize the high-fiber, fruits and vegetables diet and adequate water intake.

2.2.2. Observation group

Interventional nursing intervention was carried out based on the control group. Routine care is the same as the reference group, and the interventional care is as follows:

(1) Psychological care: Stratified psychological interventions are implemented according to the specific conditions of the patients:

(a) Routine care: Psychological counseling is carried out based on individualized assessment, the advantages of PCI surgery are explained in detail, and patients' confidence in the treatment is strengthened through the sharing of successful cases.

(b) Specialized care for high-risk patients: Patients with significant anxiety and depression are assessed by the psychiatrists with a standardized negative emotion assessment and then a targeted intervention plan is formulated. For patients with significant anxiety and depression, the psychiatrist will conduct a standardized negative emotion assessment and then formulate a targeted intervention program. The whole process adopts empathic communication technology, dynamically observes the patient's response, and then pauses the intervention when encountering resistance. At the same time, an in-depth interview mechanism is established every 48h, focusing on the analysis of postoperative discomfort experience and providing timely prognosis interpretation and professional Q&A to strengthen the patients' sense of being supported.

(2) Dietary guidance: Strictly limit sodium and fat intake after surgery, formulate high dietary fiber recipes, and emphasize hydration therapy to accelerate the removal of contrast medium.

(3) Preoperative care: Systematic guidance on bedside defecation techniques and establishment of constipation early warning mechanism; at the same time, focusing on standardizing the management of body activities and prohibiting the increase of chest and abdominal pressure movements to effectively prevent vascular injury in the puncture area.

(4) Intraoperative nursing care: Adjust and optimize the position according to the needs of the intervention path during the operation, dynamically monitor the vital signs, and immediately report any abnormalities to ensure the safety of the operation.

(5) Postoperative care: After removing the sheath tube, the radial artery puncture point is compressed by the step decompression method to avoid venous reflux, and the patient's puncture point is closely monitored for blood leakage. If active bleeding occurs, the patient will be treated with a compression bandage immediately.

(6) Rehabilitation exercise: Early rehabilitation exercise training should be carried out 24h after surgery, initially implementing passive joint movement in bed, and then transitioning to assisted sitting and standing/bedside mobility after stabilization; 1 week after surgery, patients should be assisted to implement low-intensity aerobic training such as walking/tai chi, 5 times/week, with each time not less than 1h.

2.3. Observation indicators

(1) Clinical efficacy: Observe and record the clinical efficacy of the two groups after nursing. Evaluation criteria: Obvious effect - clinical symptoms subside; effective - clinical symptoms significantly improved; ineffective - no change in clinical symptoms. Total effective rate = (obvious effect + effective) number of cases / total number of cases × 100%.

(2) Negative mood scores: The depression self-assessment scale (SDS) and anxiety self-assessment scale (SAS) were used to assess the degree of depression and anxiety of patients before and after nursing. The total score of each index was 60 points, and the higher score indicated the more serious depression and anxiety of the patients.

(3) Occurrence of complications: Observe and record the occurrence of complications such as cardiogenic shock, cardiac arrhythmia, heart failure, cerebral vasospasm, lower extremity venous thrombosis and so on during the treatment of the two groups of patients. Total incidence rate = number of cases/total number of cases × 100%.

(4) Quality of life score: SF-36 scale was used to assess patients' quality of life from six dimensions: physical function, mental health, somatic pain, vitality, emotional function, and social function, and the score of each dimension was 100, and the higher the score indicated the better the patients' quality of life.

(5) Nursing care satisfaction: the hospital's satisfaction questionnaire was used to investigate nursing care satisfaction indicators in terms of cognitive, psychological, physiological and other needs fulfillment. Patients check the boxes of satisfaction, basic satisfaction, or dissatisfaction according to their perioperative nursing experience. During the survey, no prompts were given; only the research method and objectives were informed, and the whole process was completed independently by the patients. Total satisfaction = number of cases (satisfied + basically satisfied)/total number of cases × 100%.

2.4. Statistical analysis

SPSS 20.0 statistical software was used to statistically analyze the obtained data, and the count data such as patients' gender, type of surgery, related complications, and satisfaction with nursing care were expressed as rate (%), and compared with χ^2 test; the measure data such as age, negative mood score, and quality of life were expressed as mean ± standard deviation (SD), and compared with t-test; $P < 0.05$ was considered as the difference was statistically significant.

3. Results

3.1. Comparison of clinical efficacy between the two groups

The total effective rate of treatment of patients in the observation group (95.24%) was significantly higher than that of the control group (78.57%), and the difference was statistically significant ($P < 0.05$), see **Table 1**.

Table 1. Comparison of clinical efficacy between the two groups (n, %)

Groups	Obvious effect	Effective	Ineffective	Total effective
Control group ($n = 42$)	18 (42.86)	15 (35.71)	9 (21.42)	33 (78.57)
Observation group ($n = 42$)	26 (61.91)	14 (33.33)	2 (4.76)	40 (95.24)
χ^2				5.126
p				0.024

3.2. Comparison of negative mood scores between the two groups of patients before and after nursing care

Before nursing care, the difference between the SDS and SAS scores of the two groups of patients was not significant ($P > 0.05$); after nursing care, the scores of all the indexes of the two groups were significantly decreased, and the observation group was lower than the control group, and the difference was statistically significant ($P < 0.05$), see **Table 2**.

Table 2. Comparison of negative mood scores before and after care in the two groups (mean ± SD, points)

Groups	SAS		SDS	
	Pre-nursing	Aftercare	Pre-nursing	Aftercare
Control group ($n = 42$)	56.42 ± 4.13	44.25 ± 3.16*	55.34 ± 4.38	46.45 ± 2.34*
Observation group ($n = 42$)	56.09 ± 4.21	39.32 ± 3.08*	56.17 ± 4.62	40.29 ± 2.38*
t	0.363	7.241	0.845	11.961
P	0.718	< 0.001	0.401	< 0.001

Note: *$p < 0.05$ is the statistical comparison before and after care in the same group.

3.3. Comparison of the occurrence of complications between the two groups of patients

The incidence of related complications in patients in the observation group (2.38%) was significantly lower than that in the control group (19.04%), and the difference was statistically significant ($P < 0.05$), see **Table 3**.

Table 3. Comparison of the incidence of relevant complications between the two groups (n, %)

Groups	Cardiogenic shock	Arrhythmia	Heart failure	Cerebral vasospasm	Lower extremity venous thrombosis	Gross
Control group ($n = 42$)	1 (2.38)	2 (4.76)	2 (4.76)	1 (2.38)	2 (4.76)	8 (19.04)
Observation group ($n = 42$)	0	1 (2.38)	0	0	0	1 (2.38)
χ^2						4.480
p						0.034

3.4. Comparison of quality of life scores after care in the two groups

After the nursing care, all the quality of life scores of the patients in the observation group were higher than those of the control group, and the differences were statistically significant ($P < 0.05$), see **Table 4**.

Table 4. Comparison of quality of life scores after care in the two groups (mean ± SD, points)

Groups	Physiological function	Mental health	Pain in the body	Vigor of life	Emotional function	Social function
Control group ($n = 42$)	74.29 ± 2.86	77.51 ± 3.23	81.36 ± 2.68	80.12 ± 2.67	76.31 ± 2.59	70.65 ± 4.54
Observation group ($n = 42$)	78.68 ± 3.52	80.41 ± 4.34	88.42 ± 2.39	85.44 ± 2.36	80.35 ± 2.89	78.83 ± 3.95
t	6.273	3.474	12.742	9.675	6.747	8.809
p	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

3.5. Comparison of patient care satisfaction between the two groups

The patient care satisfaction of the observation group was 97.62%, which was higher than the 78.57% of the control group, and the difference was statistically significant ($P < 0.05$), see **Table 5**.

Table 5. Comparison of patient care satisfaction between the two groups (n, %)

Groups	Dissatisfied	Mostly satisfactory	Unsatisfactory	Job satisfaction
Control group ($n = 42$)	20 (47.62)	13 (30.95)	9 (21.43)	33 (78.57)
Observation group ($n = 42$)	26 (61.91)	15 (35.71)	1 (2.38)	41 (97.62)
χ^2				7.265
p				0.007

4. Discussion

Against the backdrop of an aging population and changes in dietary structure and lifestyle, the incidence of cardiovascular and cerebrovascular diseases (CVDs) has continued to rise, and has now become one of the major public health problems worldwide. Distinguished from other medical conditions, cardiovascular diseases are centrally characterized by irreversible neurological damage, with approximately 68% of survivors left with cognitive deficits or motor dysfunction, and a disability rate as high as 3.2 times that of traditional chronic diseases [6]. Percutaneous coronary intervention (PCI), pacemaker implantation, carotid stenting, and other interventional techniques have become the first choice of intervention for patients with acute cardiovascular and cerebrovascular

diseases due to their minimally invasive nature and immediate efficacy, which is guided by digital subtraction angiography and catheterized to achieve precise recanalization of occluded blood vessels, thus effectively promoting the prognosis [7]. However, combined with the summary of clinical practice experience, it was found that most patients' therapeutic effects and quality of life are highly dependent on the level of perioperative nursing management, but the traditional nursing model is fragmented due to the existence of health guidance, resulting in insufficient patient knowledge of the disease, treatment compliance is not high, coupled with the lack of active identification of and intervention in negative emotions such as anxiety, depression, and the lack of systematic and sustained postoperative rehabilitation, lifestyle management and long-term follow-up guidance, not only is it not enough, but it is also not enough for the patient to have the right to receive treatment. management and long-term follow-up guidance, which will not only aggravate the patients' psychological burden, but also limit the space for patients' quality of life improvement, and more professional nursing management is urgently needed [8].

Interventional nursing as a highly individualized supportive care model, the core of which is to fully respect the subjectivity of the patient, the practice of "people-oriented" service concept, nursing care requires nursing staff to assess the depth of the patient's disease state, psychological tolerance and spiritual needs, to formulate and implement targeted care programs [9]. For patients with cardiovascular and cerebrovascular interventional therapy, interventional nursing through active participation in the process of interventional therapy, strengthen the monitoring of the condition and collaboration, to provide patients with more humanistic and personalized care, and effectively safeguard their rights and interests, and maximize the satisfaction of their physical and mental health needs. After PCI treatment, patients with cardiovascular and cerebrovascular diseases often face negative emotions such as anxiety and depression, which directly affects the recovery process and prognosis, and through the implementation of interventional nursing, starting from the actual situation of the patients, the improvement of the psychological state as a key goal, actively identify and systematically intervene in the negative emotions of the patients to achieve to enhance the therapeutic effect and the quality of life, and to improve the negative emotions purpose [10]. The results of this study showed that in the observation group, which applied interventional nursing care in PCI treatment, the values of depression self-assessment scale (SDS) and anxiety self-assessment scale (SAS) and the incidence of related complications were significantly lower than those of the control group, which only received routine standardized perioperative care ($P < 0.05$). Meanwhile, the quality of life scores and overall satisfaction scores with nursing services of patients in the observation group were significantly better than those of the control group after nursing care ($P < 0.05$).

5. Conclusion

In summary, in the perioperative nursing control of cardiovascular and cerebrovascular interventional patients, interventional nursing effectively relieves the patients' psychological pressure and corrects their negative emotional responses through the implementation of a humanized and customized care program, ultimately improving the quality of life in multiple dimensions and realizing synergistic promotion of physical and mental rehabilitation, and the overall effect is significantly better than the conventional nursing pathway.

Disclosure statement

The authors declare no conflict of interest.

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