

Original Article

Application value of high-quality nursing intervention in patients with cardiovascular diseases

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Abstract: Objective: To investigate the application value of high-quality nursing intervention in patients with cardiovascular diseases. Methods: Eighty-four patients with cardiovascular diseases (CVD) treated in Ganzhou People's Hospital from April 2016 to August 2017 were included as subjects, and were randomized into the observation group (42 cases) and the control group (42 cases). Patients in the control group received conventional intervention, while patients in the observation group received high-quality nursing intervention. The Quality of Life (QoL), psychological state, and treatment compliance of patients in the two groups before and after interventions were compared, along with nursing satisfaction. Results: The indexes of patients' bodily pain, physiological function, physical condition, physical role, mental state, general condition, and social function and energy were all significantly improved after receiving either intervention (all $P < 0.05$), and significantly higher in the observation group compared with the control group (all $P < 0.05$). The Self-Rating Anxiety Scale and Self-Rating Depression Scale scores of patients in the two groups were significantly decreased after either nursing intervention (all $P < 0.01$), and the scores in the observation group were significantly lower than those in the control group (all $P < 0.01$). The evaluation indexes for treatment compliance and patient satisfaction were significantly better in the observation group compared with the control group (all $P < 0.05$). Conclusion: High-quality nursing intervention in patients with CVD can significantly improve clinical symptoms, treatment compliance and QoL, and relieve patients' anxiety and depression.

Keywords: High-quality nursing, cardiovascular diseases, quality of life, compliance, safety

Introduction

Cardiovascular diseases (CVD) are a generic term used for a group of heart or vascular diseases such as myocardial infarction, cardiac arrhythmia, hypertension, or hyperlipidemia. Since CVD is usually characterized by long course of disease, easy to recur, high disability and mortality rates, they seriously affect the patients' quality of life (QoL) [1-3]. The pressures of modern life have significantly increased the number of patients suffering from CVD; in addition, the demands for better QoL have made clinical nursing work much more challenging [4-6]. Conventional nursing methods used for CVD don't receive satisfactory results in some patients. The implementation of high-quality nursing intervention, which is derived from the conventional nursing methods, has not been tested extensively in CVD patients.

Therefore, we investigated the clinical value of high-quality nursing intervention in 84 patients with CVD who were undergoing treatment in Ganzhou People's Hospital from April 2016 to August 2017. The effects of high-quality nursing intervention on patients' QoL, psychological state, treatment compliance etc. were analyzed.

Materials and methods

General data

Eighty-four patients with CVD who underwent treatment at the Department of Cardiology in Ganzhou People's Hospital were selected as subjects. All patients were randomized into the observation group (n=42) and the control group (n=42).

Inclusion criteria: (1) patients with stable general condition; (2) patients with normal mental

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Table 1. Comparison of clinical outcome data of the two groups

Groups	Observation group (n=42)	Control group (n=42)	t/X ²	P
Gender (case)			0.202	0.653
Male	27	25		
Female	15	17		
Age (year)	64.31±3.06	63.55±3.17	1.118	0.269
Mean course of disease (year)	6.71±2.06	6.83±2.10	0.264	0.792
Classification of illness (case)			1.058	0.901
High blood pressure	10	9		
Myocarditis	12	13		
Angina pectoris	8	10		
Myocardial infarction	9	6		
Others	3	4		

state; (3) patients without malignant tumors; (4) patients with normal limb functions; (5) patients with complete clinical data.

Exclusion criteria: (1) patients had severe organic diseases of heart, liver, kidney etc.; (2) patients were unstable even after treatment; (3) patients had severe malnutrition; (4) patients withdrew from the study halfway; (5) patients had poor compliance; (6) patients were unable to follow up on time.

This study was reviewed and approved by the Medical Ethics Committee of Ganzhou People's Hospital, and all participants and their family members provided signed informed consent forms.

Methods

Patients in the control group received routine nursing: those with acute myocardial infarction or severe arrhythmia were given daily life assistance. They were advised to have proper rest and exercise, eat high-protein and easily-digestible foods, strictly control daily salt intake, regularly take the prescribed medications, and not to withdraw from taking the medication arbitrarily [7, 8].

Patients in the observation group received high-quality nursing on the basis of above intervention. (1) Health education: All enrolled patients received information related to CVD, including the pathological mechanisms, treatment methods and precautions for daily life, to enable a thorough understanding of the disease and establish their confidence in the

treatment [9]. (2) Psychological intervention: CVD often resulted in anxiety and irritability in the patients due to long course of disease and complicated treatment. Nursing staff, therefore, should frequently communicate with the patients, listen patiently, and try to alleviate their bad moods in order to enhance their treatment compliance. Patients with significant CVD-induced psychological changes received stronger psychological

interventions along with sedative drugs whenever necessary. (3) Disease intervention: The nursing staff recorded patient conditions, clinical manifestations, and medications every day, and once any abnormality was found, reported them to the attending doctor promptly [10-12]. In addition, nocturnal nursing quality was improved with more robust rounds in the night ward. (4) Diet and exercise interventions: Patients were given dietary instructions according to their individual conditions, and advised to control the oil and salt content in the daily diets, consume more low-calorie and nutritious foods, form a good diet habit, and have regular exercises and regular schedule. (5) Environmental intervention: To ensure that the wards had ambient temperature and humidity, they were ventilated daily for 2-4 hours for fresh air circulation. In addition, the ward floors and windows were regularly cleaned and disinfected. Overall, serene conditions were ensured in the wards to let the patients have adequate sleep, and to avoid the occurrence of any adverse events.

Observation indexes

Primary observation indexes were as follows. (1) The concise QoL survey scale (SF-36) that was used to evaluate the change in QoL before and after interventions in the two groups [13]. The scale measured eight aspects: bodily pain, physiological function, physical condition, physical role, mental state, general condition, social function and energy. The scores were represented as percentage, and higher scores depicted higher QoL. (2) The Self-Rating Anxiety

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Table 2. Comparison of SF-36 scale of the two groups before and after intervention ($\bar{x} \pm sd$)

Groups	Observation group (n=42)				Control group (n=42)				Comparison of t values between the two groups after intervention	Comparison of P values between the two groups after intervention
	Before intervention	After intervention	t	P	Before intervention	After intervention	t	P		
Bodily pain	46.59±18.42	77.29±10.38	9.410	<0.001	46.54±18.40	68.77±10.24	6.842	<0.001	3.787	<0.001
Physiological function	37.50±13.26	66.22±15.01	9.293	<0.001	37.48±13.25	50.49±14.97	4.217	<0.001	4.809	<0.001
Physical condition	38.59±11.95	70.61±14.37	11.103	<0.001	38.50±11.83	61.04±13.92	7.996	<0.001	3.100	0.003
Physical role	28.55±10.47	45.71±12.33	6.875	<0.001	28.49±10.38	34.11±10.99	2.409	0.018	4.551	<0.001
Mental state	50.68±9.02	75.33±16.43	8.523	<0.001	50.67±9.01	68.44±10.87	8.157	<0.001	2.267	0.026
General condition	30.17±5.45	50.61±6.97	14.972	<0.001	30.15±5.29	44.71±5.36	12.530	<0.001	4.349	<0.001
Social function	45.98±8.03	78.27±10.31	16.013	<0.001	45.96±8.97	69.55±10.24	11.230	<0.001	3.938	<0.001
Energy	39.54±6.12	70.08±5.44	24.171	<0.001	39.38±6.08	57.27±5.35	14.316	<0.001	10.881	<0.001

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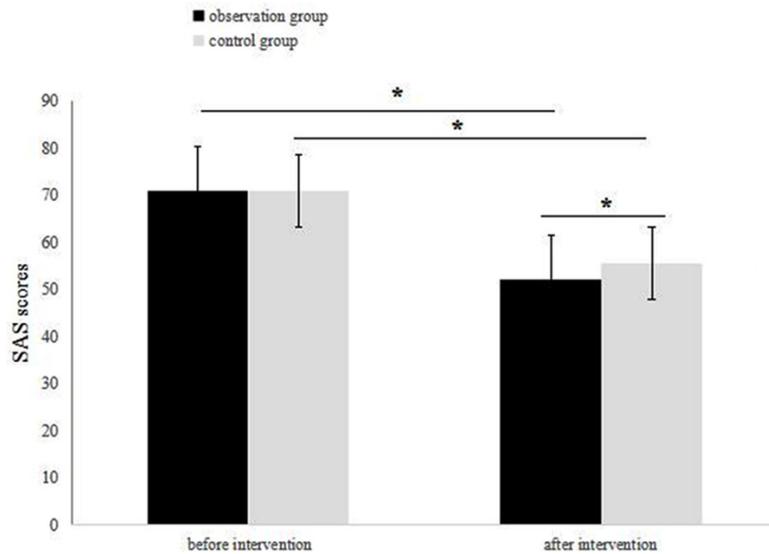


Figure 1. Comparison of SAS scale before and after intervention in two groups of patients. SAS, Self-Rating Anxiety Scale. * $P < 0.01$.

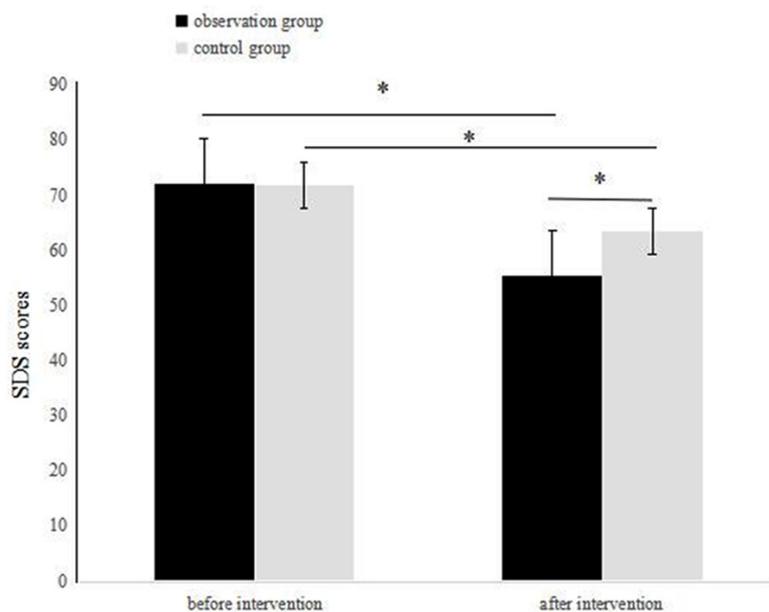


Figure 2. Comparison of SDS scores before and after intervention in two groups of patients. SDS, Self-Rating Depression Scale. * $P < 0.01$.

Scale (SAS) and Self-Rating Depression Scale (SDS) that evaluated the change in the psychological state of patients [14, 15]. Higher scores indicated more severe anxiety and depression. (3) A self-designed questionnaire of Ganzhou People's Hospital that evaluated the patients' treatment compliance of two groups covered five aspects: coop-

eration with the treatment, optimistic attitude, taking medication on time, proper exercises, smoking and alcohol cessation, and abstinence. Full compliance meant that the patients fulfilled 90% or more of these criteria, and non-full compliance meant less than 90% completion.

Secondary observation index was the self-designed satisfaction rating scale that evaluated the patients' satisfaction with the nursing care. The total score of the scale was 100 points, of which, scores of 85 or higher were rated as satisfactory, scores of 70 to 84 as basically satisfactory, and scores of less than 70 as unsatisfactory. Satisfaction = Number of cases (satisfactory + basically satisfactory)/total number of cases * 100%.

Statistical analysis

Statistical analysis was performed by SPSS 20.0 software. All data are expressed as mean \pm standard deviation ($\bar{x} \pm sd$). The t test was used to compare data before and after interventions in the same group. The independent t test was used to compare data of two groups that accorded with normal distribution, and is denoted by t. The X^2 test was used for the count data, and

denoted by X^2 . $P < 0.05$ is considered statistically significant.

Results

Clinical results of two groups

The main baseline clinical data such as gender, age, mean course of disease, and disease

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Table 3. Comparison of treatment compliance in two groups of patients (n, %)

Groups	Cooperate with treatment	Psychological well-being	Quit smoking and drinking	Take medicine on time	Proper motion
Observation group (n=42)	39 (92.86)	38 (90.48)	32 (76.19)	37 (88.10)	30 (71.43)
Control group (n=42)	30 (71.43)	29 (69.05)	18 (42.86)	27 (64.29)	18 (42.86)
χ^2	6.557	5.974	9.685	6.563	7.000
P	0.010	0.015	0.002	0.010	0.008

Table 4. Satisfaction evaluation in two groups of patients

Groups	Satisfaction	Basic satisfaction	Dissatisfaction	Satisfaction (n, %)
Observation group (n=42)	28	11	3	39 (92.86)
Control group (n=42)	19	13	10	32 (76.19)
χ^2				4.459
P				0.035

classification showed no significant difference between the two groups (all $P > 0.05$). A comparative analysis between the groups could be performed as shown in **Table 1**.

SF-36 scores of patients before and after intervention in the two groups

There was no significant difference in the SF-36 scores between the two groups before nursing intervention ($P > 0.05$). After interventions by the two nursing modes, the patients' social function, physiological function, physical condition, physical role, mental state, general condition, and social function and energy were all significantly improved (all $P < 0.05$), and apparently higher in the observation group than the control group (all $P < 0.05$) as shown in **Table 2**.

SAS and SDS scores before and after intervention in the two groups

There was no significant difference in the SAS and SDS scores between the two groups before intervention (both $P > 0.05$). Post-intervention SAS and SDS scores of patients in both groups were significantly decreased (both $P < 0.01$) compared with pre-intervention scores, and those of the observation group were significantly lower than those of the control group (all $P < 0.01$) as shown in **Figures 1, 2**.

Treatment compliance in patients from the two groups

The evaluation indexes for the treatment compliance were significantly better in the

observation group than control group (all $P < 0.05$) as shown in **Table 3**.

Satisfaction of patients in the two groups

The satisfaction score of the observation group was significantly higher than that of the control group ($P < 0.05$) as shown in **Table 4**.

Discussion

According to global epidemiological surveys, 15 million patients died each year due to CVD around the world [16]. Due to their cryptic and sudden onset, CVD result in severe physical and psychological trauma in the patients. The clinical complexity of CVD makes nursing a critical part of any treatment intervention. In addition, with the tense doctor-patient relationship and patients' low degree of satisfaction with nursing, it has become an important work of cardiovascular medicine to seek a scientific and reasonable nursing model and make it change effectively. A high-quality nursing intervention should be patient-oriented and offer alleviative services throughout the treatment to enhance patients' satisfaction, medical and nursing satisfaction, and hospital satisfaction [17]. In this study, we implemented a high-quality nursing intervention in the patients with CVD to investigate its effect on patients' QoL, psychological state, treatment compliance etc.

Consistent with previous reports, the patients' social function, physiological function, bodily pain, role physical, mental state, general condition, and social function and energy were all

significantly improved after receiving high-quality nursing intervention (observation group) compared with the conventional nursing mode (control) group [18]. The chronic nature of CVD results in serious economic burden on patients and their families, and causes long-term anxiety and depression in patients, thereby seriously affecting the treatment efficacy [19]. In this study, the SAS and SDS scores of patients in both groups decreased significantly after nursing intervention, and the scores in the observation group were significantly lower than the control group, suggesting the patients' negative emotion was effectively alleviated after high quality nursing intervention, which might be the result of interventions from different aspects in this model, such as disease education, psychological state, condition, diet, and environment, urging patients to eat reasonably, exercise properly, better understand the state of illness, and alleviate their bad emotions, further promoting the patient to cooperate with the treatment. Cardiovascular disease is a typical clinical physical and mental disease, which is difficult to be cured, and there are many complications in the later stage. At the same time, the degree of control of various risk factors during the progression of the disease will also affect the occurrence and development of the disease. Therefore, the effective improvement of patients' compliance with treatment and strict compliance with the doctor's action have a positive effect on curbing the progress of the disease. In this study, the evaluation indices for the treatment compliance, as well as the patient satisfaction scores, were significantly better in the observation group compared with the control group, and the difference between two groups was statistically significant. High-quality nursing intervention is a novel active service mode which involves the mutual communication and cooperation between the medical staff and patients. In addition, with timely reminders and correct guidance from the health care workers, patients' poor lifestyle habits can be effectively improved and their poor psychological states can be alleviated, thereby improving patients' treatment compliance and satisfaction. These findings of this study are similar to other relevant reports [20].

In summary, high-quality nursing intervention can improve the QoL, treatment compliance, and patients' satisfaction, and reduce negative

emotions in patients with CVD, and therefore can be adopted in wider clinical practice. However, due to the small patient cohort, short study time, and lack of multi-centre involvement, our findings need to be validated with long-term multi-centre studies on larger cohorts.

Disclosure of conflict of interest

None.

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