

Effect Of Comprehensive Assessment of Nursing Mode on The Care Ability of Family Members and Quality of Life of Patients with Acute Heart Failure

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Objective To explore the effect of comprehensive assessment of nursing mode on the care ability of family members and quality of life of patients with acute heart failure. **Methods** 118 patients with acute heart failure treated in our hospital were randomly divided into two groups: control group (n = 59) treated with routine nursing intervention and study group (n = 59) treated with comprehensive nursing mode intervention. Care was initiated at the time of admission until discharge. Family care, changes in cardiac function, quality of life, compliance, satisfaction, and self-management, 6-minute walk test (6MWT), and New York Heart Association (NYHA) classification were compared between the two groups. **Results** The scores of family care ability in the study group were lower than those in the control group ($P=0.000$). After nursing intervention, the levels of CO and LVEF in the study group and the control group were higher than those before intervention ($P<0.05$), and the levels of LVEDD and HR in the study group were lower than those in the control group ($P=0.000$). The scores of qualities of life in the study group were higher than those in the control group ($P=0.000$). The compliance rate in the study group was higher than that in the control group ($P=0.002$). The satisfaction degree in the study group was higher than that in the control group ($P<0.05$). The score of self-management in study group was higher than that in control group ($P=0.000$). The 6MWT level at discharge in the study group was higher than that in the control group after intervention. The odds of NYHA functional class II in the study group were higher than that in the control group. The odds of classes III and IV were lower than that in the control group, but the difference had no statistical significance ($P=0.087$). **Conclusion:** Comprehensive assessment of nursing mode intervention in patients with acute heart failure is beneficial to the improvement of the patient's family's nursing ability and quality of life, as well as the improvement of cardiac function, the improvement of the patient's compliance, satisfaction, the level of 6MWT and NYHA functional classification.

Keywords: Comprehensive assessment of nursing mode; Acute heart failure; Family care ability; Quality of life; Compliance;

Tob Regul Sci.™ 2021;7(5-1): 3012-3021

DOI: doi.org/10.18001/TRS.7.5.1.71

Acute heart failure is a serious and critical condition in clinical practice, and the incidence of this disease has been increasing year by year in recent years. Acute heart failure is characterized by a large number of symptoms, mainly due to acute pulmonary edema, shock, etc. If it fails to receive prompt treatment when it occurs, the patient's life safety will be threatened^{1,2}. At present, the treatment of acute heart failure is becoming more and more mature. However, in clinical practice, some patients lack of targeted nursing guidance scheme, lack of effective self-management ability and consciousness, and lack of the care ability of family members for such patients, which directly leads to the recovery after treatment seriously affects the quality of life of patients. Studies have shown that effective nursing interventions can promote patient compliance, promote patient outcomes, and improve quality of life³. Comprehensive assessment of nursing refers to the multi-dimensional comprehensive assessment of the patient's psychology, body, etc. by using multiple assessment tools, and the multi-disciplinary collaborative intervention to ensure the maximum improvement of the patient's quality of life⁴. Hui Liu⁵ et al. showed that the comprehensive assessment nursing mode could effectively reduce the incidence rate of cardiac (refractory angina, acute myocardial infarction, arrhythmia, cardiogenic shock, heart failure, sudden death) and nursing adverse events (pressure ulcer, fall, fall, scald, aspiration asphyxia, extubation, etc.) in the nursing of elderly patients with coronary heart disease. At present, there are no reports of comprehensive assessment of nursing care in patients with acute heart failure. This study explored the impact of a comprehensive assessment of nursing mode interventions on the care ability of family members and the quality of life of

patients.

DATA AND METHODS

General data

118 patients with acute heart failure admitted to our hospital from July 2018 to April 2020 were selected and divided into two groups by random number table method. 59 patients in the control group, 38 males and 21 females; age range 37-76 years, mean (56.8 ± 2.5) years; underlying diseases: dilated cardiomyopathy (13 cases), hypertension (24 cases), coronary heart disease (22 cases); mean body mass index (BMI) (23.76 ± 2.47) $\text{kg}\cdot\text{m}^{-2}$. In the study group, 59 patients (37 males and 22 females); age 35-76 years, mean (56.78 ± 2.2) years; underlying diseases: dilated cardiomyopathy in 15 patients, hypertension in 23 patients, coronary heart disease in 21 patients; mean body mass index (BMI) (23.95 ± 2.63) $\text{kg}\cdot\text{m}^{-2}$. The differences in basic data between the two groups were not comparable ($P>0.05$). The investigators and their families were informed and signed, which were approved by the Ethics Committee of our hospital.

Inclusion criteria: (1) Perfect relevant examinations in combination with clinical diagnosis of acute heart failure (patients with symptoms such as dyspnea, cough, cardiomegaly, wet rales in the bottom of both lungs and pulmonary vein stasis. Cardiac color ultrasound examination showed significantly decreased EF, significantly increased brain natriuretic peptide, acute pulmonary edema, gallop rhythm, and increased venous pressure. Tachycardia, nocturnal cough and one third of the maximum vital capacity of vital capacity decreased)⁶, all patients received routine clinical treatment; (2) The patients and their families had no abnormal mental function; (3) The caregivers were spouse or children; (4) The patients had class IV cardiac function and had

no history of heart failure or acute heart failure attack in the past.

Exclusion criteria: (1) Patients with incomplete clinical data; (2) Patients with blood circulation disorder and organ dysfunction such as liver, lung and kidney; (3) Patients with malignant tumor, autoimmune disease and patients with severe infection.

Methods

The patient's condition and basic conditions were determined by dynamic ECG examination, cardiac color ultrasound examination, etc.¹ In addition, the patient was given oxygen inhalation via mask or nasal catheter, continuous ECG monitoring, and intravenous treatment with morphine, loop diuretics and cardiotonic agents. If the condition was still unstable, the patient could be given positive inotropic agents, vasodilators and vasoconstrictors according to systolic blood pressure and pulmonary congestion. If the condition was serious, the patient with blood pressure less than 90 mmHg or even cardiogenic shock could be given non-drug therapy such as mechanical ventilation and surgery, at the same time, care was taken to monitor BNP levels, which decreased by more than one-third, suggesting a favorable prognosis and response to therapy. In the treatment, it is necessary to eliminate various causes and treat the underlying cardiovascular diseases.

Routine nursing care in control group. Methods

To strengthen the observation of the patient's condition, provide medication guidance, and give psychological counseling intervention^{7,8}.

The study group performed a comprehensive assessment of nursing mode intervention

based on the control group.

Methods: (1) According to the patient's past medical history, clinical condition, body quality, diet, medication and other information, perfect the nursing plan, carefully mark the contents requiring intensive care, create the quality assessment form, give the targeted care, evaluate the nursing effect every day, and adjust the nursing plan according to the evaluation result. (2) Instruct patients and their family members on the evolution of the disease, treatment methods, basic life care knowledge, patients' rehabilitation and life style before discharge, teach patients' family members some methods of caring for patients, provide nursing training for patients' family members by full-time nursing staff; scheme: ① Diagnosis period: After the diagnosis of the patient's disease, the operation time was arranged based on patient's condition, and the patient's condition, the procedure, medication, postoperative precautions, etc. were explained patiently to the patient or his family members before the operation, and the patient's tension and anxiety should be eliminated. ② Treatment period: train the patient's family members so that the family members can better assist the medical staff to take care of the patient's life during the treatment period, and at the same time provide the patient and the family members with the rehabilitation guidance after discharge. ③ Discharge preparation period: The patient's condition was stable, and the patient and his family were given medication, diet and exercise guidance 2 days before discharge. The patient was told to make re-examination on time, and the patient was given cardiac rehabilitation training in accordance with the doctor. The family members were assessed for their ability to take care of the patients, so as to ensure that the patients could receive effective and healthy care after discharge. (3) Health publicity and

education: Because most patients lack understanding of the treatment of acute heart failure, it is feasible to improve the disease awareness by distributing brochures, opening lectures and playing multi-media videos, so as to improve the relevant precautions for acute heart failure and master the emergency treatment. (4) Psychological dredging: Patients tend to be anxious, depressed and afraid of their condition. At this time, communication should be strengthened when they are in stable mood, harmonious nurse-patient relationship should be established, the causes of bad mood should be clarified, and the bad mood of patients can be transferred by means of music therapy and attention diversion. Instruct the patient's family to accompany the patient daily, and instruct the family members to give support and encouragement to the patient, so that the patient can maintain the emotional state of active appointment. (5) Dietary intervention: assess the nutritional status of the patient, provide dietary guidance, and ensure daily nutritional intake of approximately 550-600 KJ per day, 50% to 55% carbon water, 25% fat, 1.2 to 1.5 g/kg protein, eat more fruit and vegetables with sufficient water. (5) Exercise: select suitable physical exercise, mainly aerobic exercise, such as walking and jogging, and the time should be 20-30 minutes.

Observation indicators

The main observation indicators were family care ability, secondary observation indicators were 6MWT and NYHA classification, heart function level, quality of life, compliance, nursing satisfaction and self-management level.

Compare the care ability of family members by FCTI (care ability table), there are 5 items of indicators, each score 0-5, the lower the score, the better the care ability. Detection should be performed before the patient was discharged

from the hospital.

The cardiac function levels, as measured by left ventricular ejection fraction (LVEF), cardiac output (CO), heart rate (HR) and left ventricular end-diastolic diameter (LVEDD), were compared. The cardiac function levels were measured by color Doppler ultrasound (HP-8500, USA). The patient was tested prior to nursing intervention and prior to discharge.

Compared with quality of life, as assessed by the Quality-of-Life Scale (SF-36) and as measured by the Health Survey, the scale consists of 8 domains with 100 scores in each domain, with higher scores being associated with better quality of life. Detection should be performed before the patient was discharged from the hospital.

Compliance was assessed by the self-administered scale. Complete compliance: The patient can completely comply with the medical care instruction, and voluntarily and accurately complete the nursing and treatment; partial compliance: it is necessary to urge the patient to follow the medical drugs, and it is necessary to implement the nursing measures under supervision or be unable to fully implement the measures; non-compliance: refuse the treatment, fail to follow the guidance provided by the medical staff, do not conduct self-care, and refuse family assistance. Patient pre-discharge testing, compliance rate = (complete compliance + partial compliance) / total number * 100%.

Compare the satisfaction degree, using our hospital's self-designed "Satisfaction Degree Scale" statistics, the index is: service attitude, health education, operation skill, psychological intervention, nurse-patient communication, with 0-4-point system and full score of 20 points, the higher the score, the higher the satisfaction, evaluating before discharge. Detection should be performed before the

patient was discharged from the hospital.

Compare the self-management level, the content is diet, medication, life, disease condition monitoring, each score 100 points, the higher the score, the stronger the ability. Questionnaires were completed and collected at discharge and at 1-month follow-up.

Compare two groups for 6MWT level and NYHA classification. 6MWT: make measurement in the straight corridor with distance of 30 m, place the chair for rest on both ends and in the middle of corridor, allow the patient to walk in the corridor with distance of 30 m for 6 min, and record the maximum distance that the patient walks in this section. As assessed by the same senior physician according to the NYHA classification criteria, class I: Patients with cardiac disease but with no limitation of usual activity, general physical activity does not cause undue fatigue, palpitations, wheezing, or angina. Class II: Mild limitation of physical activity in patients with cardiac disease. No subjective symptoms at rest, general physical activity causing undue fatigue, palpitation, wheezing, or angina. Class III: Patients with cardiac disease such that physical activity is significantly restricted. Asymptomatic at rest, but less than ordinary physical activity can cause undue fatigue, palpitation, wheezing, or angina. Class IV: Patients with heart disease who are unable to carry out any physical activity, have symptoms of heart failure at rest, and have aggravation after physical activity).

Statistical methods

SPSS18.0 software was used to make correlation analysis on the data collected in this study. The measurement data were expressed as mean \pm standard deviation ($\bar{x} \pm s$). Two independent sample *t* test was used for the comparison of mean values between two groups, and paired *t* test was used for the comparison of

mean values before and after intervention in the same group. The χ^2 test was used for the comparison of rates. $P < 0.05$ indicates statistical difference.

RESULTS

Comparison of family care ability

The nursing ability scores of the family members in the study group were lower than those in the control group ($P = 0.000$ for all). See Table 1.

Table 1 Comparison of ability to care (scores, ($\bar{x} \pm s$),						
Group	Number of cases	Role of care	Emotional management	Assistance	Providing	Contingency ability
Control group	59	2.25 \pm 0.85	2.15 \pm 0.74	2.87 \pm 1.11	1.69 \pm 0.75	2.26 \pm 0.94
Study group	59	0.96 \pm 0.62	1.25 \pm 0.48	0.98 \pm 0.40	0.85 \pm 0.32	1.06 \pm 0.72
<i>t</i> value	/	9.418	7.838	12.304	7.913	7.785
<i>P</i> value	/	0.000	0.000	0.000	0.000	0.000

Comparison of cardiac function

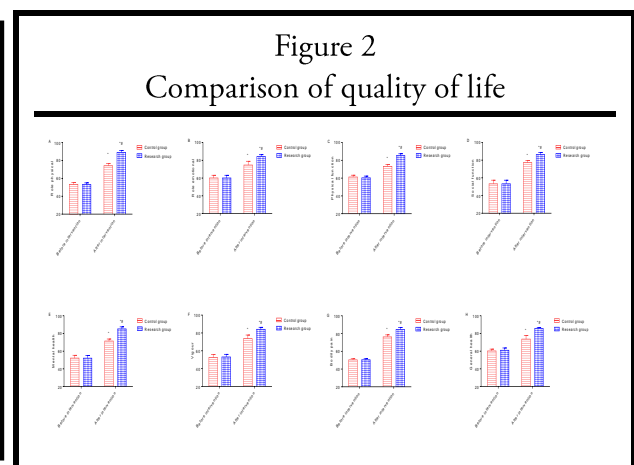
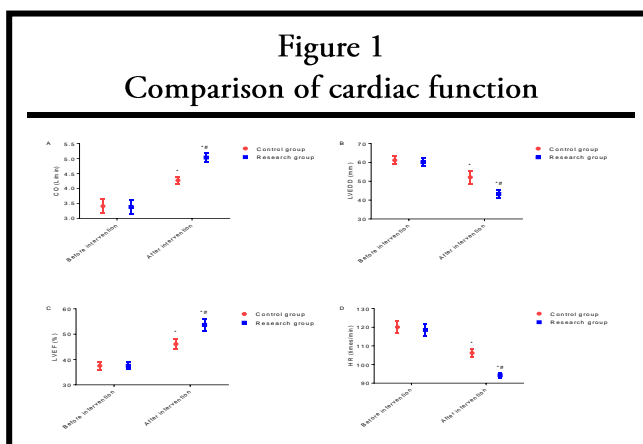
Compared with that before intervention, the new function was significantly increased in both groups. After nursing intervention, the levels of CO and LVEF in the study group were higher than those in the control group ($P < 0.05$). The levels of LVEDD and HR in the study group were lower than those in the control group ($P = 0.000$). See Table 2 and Figure 1.

Comparison of quality of life

Before intervention, there was no statistical difference in quality of life between the two groups ($P > 0.05$). After intervention, the quality of life significantly increased in both groups, and the scores of qualities of life in the study group were higher than those in the control group ($P = 0.000$). See Table 3 and Figure 2.

Group	Number of cases	CO (L/min)		LVEDD (mm)		LVEF (%)		HR (beats/min)	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Control group	59	3.41±0.24	4.27±0.91***	61.14±5.01	52.11±3.50***	37.52±3.47	46.12±4.10***	120.10±10.26	106.20±12.21***
Study Group	59	3.38±0.22	5.03±0.94***	60.13±4.02	43.31±2.14***	37.54±3.95	53.69±4.45***	118.57±9.41	94.23±11.17***
t value	/	0.708	6.168	1.208	16.477	0.029	9.610	0.877	5.556
P value	/	0.481	0.028	0.230	0.000	0.977	0.000	0.382	0.000

Note: compared with pre-intervention, *** P<0.001



Notes: A:CO; B: LVEDD; C: LVEF; D: HR. Within-group comparison *P<0.05; inter-group comparison #P<0.05.

Group	Time	Physical functioning	Emotional functioning	Physiological functioning	Social functioning	Mental health	Vitality	Physical pain	General health
Control group	Before intervention	53.22±2.05	60.12±3.07	61.26±2.04	53.26±4.14	52.14±3.24	52.52±3.0	50.36±1.27	60.22±2.14
Study Group	After intervention	74.11±2.36***	74.65±4.22**	73.26±2.14*	77.2±2.4***	71.45±2.32**	73.62±4.11*	76.25±2.34*	73.65±4.15**

Study Group	Before intervention	52.96±2.03	60.11±3.04	60.30±2.01	53.25±4.11	52.13±3.20	53.12±3.01	50.41±1.24	61.02±2.63
Study Group	After intervention	88.95±2.10***	84.15±2.12*	85.21±2.13*	86.26±2.25*	85.15±2.36*	84.12±2.22*	84.57±2.12*	85.62±1.10*

Note: compared with that before intervention, ***P<0.001; compared with control group, ###P<0.001.

Note: A: physical functioning; B: emotional functioning; C: physiological function; D: social functioning; E: mental health; F: vitality; G: physical pain; H: general health. Compared with those before intervention, *P<0.05; compared with those before intervention of the

control group, [#]P<0.05.

Compliance comparison between the two groups

The compliance rate of patients in the study group was higher than that in the control group (P=0.002). See Table 4.

Table 4 Compliance comparison ($\bar{x} \pm S$ case, %)					
Group	Numb er of	Full compliance	Partial compliance	Complete non-compliance	Compliance rate

	cases	ce	ce	ce	
Contr ol group	59	32 (54.24)	16 (27.12)	11 (18.64)	81.36%
Study group	59	41 (69.49)	17 (28.81)	1 (1.69)	98.31%
X ²	/		4.965		9.277
P	/		0.014		0.002

Comparison of satisfaction

The satisfaction of the study group was higher than that of the control group (P<0.05). See Table 5.

Table 5 Comparison of satisfaction (, points)							
Group	Number of cases	Service attitude	Health education	Operationa l skill	Communication	Psychological intervention	Total score
Control group	59	2.98±0.12	2.75±0.02	2.92±0.10	3.00±0.20	2.74±0.20	15.95±0.31
Study group	59	3.52±0.17	3.26±0.11	3.45±0.10	3.63±0.03	3.53±0.12	18.20±0.10
T	/	13.021	12.098	11.220	13.154	12.925	13.625
P	/	0.032	0.001	0.010	0.021	0.006	0.014

Comparison of self-management level

The self-management score of the study

group was higher than that of the control group (P=0.000). See Table 6.

Table 6 Comparison of self-management level ($\bar{x} \pm S$, score)						
Group	Number of cases	Diet management	Life management	Medication management	Condition monitoring	
Control group	59	67.52±8.21	63.52±5.21	71.25±8.12	75.21±6.00	
Study group	59	84.25±8.36	84.12±7.20	91.52±10.36	92.14±10.11	
T	/	10.967	17.804	11.834	11.061	
P	/	0.000	0.000	0.000	0.000	

Comparison of 6MWT levels and NYHA classification in both groups

After intervention, the level of 6MWT (m) in the study group was higher than that in the control group at discharge (P=0.000), the rate of NYHA cardiac functional classification class II in the study group was higher than that in the control group, and the rate of NYHA cardiac functional classification classes III and IV in the study group was lower than that in the control group, but the difference had no statistical significance (P=0.087). See Table 7.

Table 7 Comparison of 6MWT level and NYHA classification in the two groups ($\bar{x} \pm S$, case, %, n=59)				
Items	6MWT at discharge (m)	NYHA cardiac functional classification		
	After intervention	Class II	Class III	Class IV
Control group	243.23±25.16	9(15.25)	40(67.80)	10(16.95)
Study group	263.29±25.47	18(30.51)	36(61.02)	5(8.47)
T	4.304		4.877	
P	0.000		0.087	

DISCUSSION

Comprehensive assessment of nursing mode refers to that, before providing services to

patients, it is necessary to fully understand the patient's body condition, family state of mind, psychological characteristics and disease knowledge mastery, make comprehensive evaluation, and carry out nursing according to evaluation results, so as to ensure that the nursing work is scientific and targeted⁹⁻¹¹.

In this study, the self-management score of the study group was higher than that of the control group, and the compliance rate of the study group was higher than that of the control group. The satisfaction of the study group was higher than that of the control group, which indicated that the nursing regimen of the study group could improve the self-management level and compliance of the patients. The analysis may be due to the full and comprehensive assessment of the patients by the medical workers when the patients were hospitalized, and the nursing measures provided according to the assessment results, so as to make them psychologically, socially and spiritually and physically improved¹²⁻¹⁴. Follow-up after the patient was discharged resulted in improved patient compliance and increased patient awareness of activity, which contributed to improved self-care¹⁵. After patients' compliance with treatment and nursing is improved, they can abide by medical advice to use drugs and take the initiative to accept nursing care, which is conducive to the recovery of cardiac function. In this study, the CO and LVEF levels in the study group were higher than those in the control group, and the LVEDD and HR levels were lower than those in the control group, further confirming the positive effect of the study group's nursing regimen on the improvement of cardiac function.

In this study, the quality-of-life index scores in the study group were higher than those in the control group, indicating that comprehensive assessment of nursing care is of positive

significance in improving the quality of life of patients. Heart failure can reduce their quality of life for the patients. The quality of life of patients in the study group was higher than that of patients in the control group. The analysis results showed that the conditions of various systems could be evaluated in real-time and dynamically, and the occult problems could be found in time, and the specific intervention could be stopped. For the patients with multiple medication problems, the patients' blood concentration should be observed, and the side effects should be emphasized; appropriate activity exercises should be developed to enhance the patient's ability to perform activities of daily living and self-care^{16,17}. Meanwhile, the patient's family members were trained to take care of them, so as to promote the improvement of the family's ability to take care of them; for the emotional and cognitive disorders experienced by the patients, psychological counseling intervention should be actively given to alleviate their bad mood^{18,19,26}.

Because patients with acute heart failure often suffer from other underlying cardiovascular diseases, they often turn into chronic heart failure after treatment, and the course of disease and recovery time are long, requiring family members to devote a long time to care. If the nursing knowledge of family members and caregivers is poor, and the knowledge cannot be updated effectively, it will often affect the nursing effect. At the same time, the patient will also have emotional disorder during self-care, which will directly result in the reduction of self-care ability and affect the patients' rehabilitation. The results of this study showed that the scores of care ability of family members in the study group were lower than those in the control group, which indicated the promoting effect of comprehensive assessment nursing on improving the care ability of family

members. This may be related to the comprehensive assessment of nursing, which is guided by the needs of family members, the knowledge of nursing, and the psychological counseling of nursing, which can not only meet the needs of patient care, but also timely guide the bad mood of caregivers, and play an important role in nursing care.

The traditional nursing intervention model focuses on the goal of treating the disease as a care service^{20,21}. Comprehensive assessment of nursing mode is focused on the concept of "people-oriented" service, with the aim of improving patients' quality of life and improving their ability to live. Therefore, comprehensive evaluation of nursing mode has put forward further requirements for clinical practice, and it is required to pay attention to the patient's body condition as well as routine disease care, formulate rehabilitation guidance for patients after discharge and provide guidance for caregivers^{22,23}. In view of its deficiency, comprehensive study has found that this nursing mode can lead to the prolongation of working pressure and working time of medical staff, and the lack of reasonable charging mode may result in the influence of working enthusiasm of medical staff and result in the reduction of nursing quality²⁴. At present, the comprehensive assessment nursing mode is still in the initial stage, and the specific implementation standard and quality evaluation standard are lack of unity. Therefore, it is necessary to actively carry out specialized training so as to improve the comprehensive evaluation nursing quality of nursing intervention mode²⁵.

In conclusion, the comprehensive evaluation of nursing mode intervention in patients with acute heart failure is beneficial to the improvement of patients' quality of life and family's care ability, and can improve cardiac

function, improve patients' compliance and satisfaction, which is worthy of being used for reference.

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