

DOI: 10.13241/j.cnki.pmb.2014.06.041

# The Current Status and Influential Factors of Self-management in the Patients with Chronic Heart Failure\*

ZHANG Kun<sup>1</sup>, WANG Ai-min<sup>1,Δ</sup>, JIANG Yun-xia<sup>1</sup>, SUN Peng<sup>2</sup>, HUANG Xia<sup>2</sup>, YANG Fu-guo<sup>1</sup>, JIANG Nai-rui<sup>1</sup>

(1 Qingdao University Medical College, Qingdao, Shandong, 266021, China;

2 The Affiliated Hospital of Medical College Qingdao University, Qingdao, Shandong, 266003, China)

**ABSTRACT Objective:** To investigate the current status of self-management in the patients with chronic heart failure and analyze its influential factors. **Methods:** A total of 160 patients with chronic heart failure were investigated with Heart Failure Self-management Scale, Heart Failure Knowledge Assessment Scale, Patient Information Self-developed Questionnaire, Social Support Rating Scale(SSRS) and Self-Rating Depression Scale (SDS). **Results:** CHF patients' self-management ability are in medium level. Between Educations degree, the level of heart failure related knowledge as well as social support degree are moderately positive correlated with the self-management ability, while depression and age are moderately negative correlated. **Conclusion:** The self-management level of patients with chronic heart failure is affected by multiple factors, such as physical, psychological and social factors.

**Key words:** Chronic Heart Failure; Self-management; Influential factors

**Chinese Library Classification(CLC):** R47, R541.61 **Document code:** A

**Article ID:**1673-6273(2014)06-1159-05

## Introduction

Chronic heart failure (CHF) is the end stage of chronic cardiovascular disease. The high incidence rate and the repeated course of disease result in patients' decreased activity endurance and lower quality of life<sup>[1,2]</sup>. According to WHO statistics, the incidence rate of heart failure in our country reaches 1.3%-5.6%, and has a rising tendency when people is getting old<sup>[3]</sup>. Self-management, as an important way to improve the disease process, can help to relieve symptoms, ameliorate the prognosis of CHF, and improve the quality of life. But the study found that self-management of the majority of patients is still at the low side<sup>[4]</sup>. This study is designed to understand the current status of self-management and influential factors of CHF, provide the basis for personalized nursing intervention measures and effectively improve the patient's level of self-management.

## 1 Subjects and methods

### 1.1 Object of survey

The method of selective sampling is adopt to select patients with CHF in the Department of Cardiology from December 2012 to April 2013. Inclusive criterion: (1) in accordance with New York heart association (NYHA) cardiac function II -IV level; (2) aged 18 or more; (3) conscious and can perform normal writing or

communication; (4) without mental illness and communication disorders; (5) informed consent and voluntary patients who participated in the survey. Exclusive criterion: (1) patients combined other reasons without CHF leading to behavioral dysfunction; (2) patients with severe cognitive and mental disorder; (3) patients who don't cooperate with this investigation.

### 1.2 Methods of survey

#### 1.2.1 Investigative tool

1.2.1.1 General Information Questionnaire General Information Questionnaire is designed by the researchers themselves, including the patient's gender, age, education level, income, duration, the types of primary disease, family history, etc.

1.2.1.2 Self-Management Scale of Heart Failure Self-Management Scale of Heart Failure is designed through literature review and expert interviews, including 5 dimensions and 32 items with 5 rating method (1-5) each ranging 32-160, <96 is considered as poor level, 96-128 is considered as medium level, > 128 is considered as good level. The higher the score is, the better the self-management is. The table can show the self-management status of patients. The content validity index (CVI) approved by the experts is 0.975; Cronbach's alpha from the preliminary test is 0.93.

1.2.1.3 Heart Failure Knowledge Assessment Scale Heart Failure Knowledge Assessment Scale includes 4 dimensions, a total of 32 items is designed by researchers through literature review and

\* Foundation items: The National Natural Science Foundation of China (81171208);

The medical and health science and technology development project fund program in department of health of Shandong (2011HW025)

Author introduction: ZHANG Kun(1987-), female, master in school, Mainly engaged in nursing education,

E-mail: zhangkunlw@126.com

Δ Corresponding author: WANG Ai-min, E-mail: mdr613@163.com

(Received: 2013-07-11 Accepted: 2013-08-12)

expert interviews in order to learn the master degree of disease knowledge in patients with CHF. Patients can choose according to their actual situation of the disease knowledge. Scale includes forward and reverses entries; respondents can get 1 point if he or she gives a correct answer, answer wrong or do not know the answer is 0 points. Scores range from 0 to 32, <19 is considered as poor situation, 19-25 is considered as medium situation, >26 is considered as good situation, the higher score they get reflects the patients have more heart failure related knowledge. The content validity index by the expert is (CVI) =0.966; by preliminary test, Cronbach's alpha is between 0.786 to 0.821.

**1.2.1.4 Social Support Rating Scale (SSRS)** SSRS is designed by Xiao Shui-yuan to investigate the social support in patients with CHF. The scale is composed of 10 items, the total score ranges from 12 to 66, less than 33 is considered as lower social support degree, 33 to 45 is considered as general social support degree, higher than 45 means high social support degree. The scale is applied in a number of studies, Cronbach's alpha is between 0.89 to 0.94<sup>[5]</sup>.

**1.2.1.5 Self-rating Depression Scale (SDS)** SDS is compiled by William w. k Zung in 1965 with the duration within 1 week. The scale is composed of 20 declarative sentences and the corresponding problems of items, each item corresponds to a related symptoms scoring from 1 to 4, Each items are calculated by 1, 2, 3, 4, level 4 score <sup>[6]</sup>. In this study, the total gross score above 41 indicates the symptoms of depression.

### 1.3 Data collection

If the patients are physically allowed, the purpose of research is firstly explained to them, and they are informed to have the right to participate the voluntary. With the patients' consent, the investigation questionnaire is distributed using the unified guidance language, scale items are explained so that the respondents can under-

stand the content of the scale, fill the scale to the principle anonymously. When the scale is completed, the correctness on the spot is checked in order to avoid mistakes. The scales are collected if no mistakes are made. This survey is distributed 160 pcs, and return valid 160 pcs, the effective recovery rate is 100%.

### 1.4 Statistical methods

SPSS 17.0 software is used to analyze the influential factors of CHF patients' self-management by frequency analysis, stepwise regression and other statistical methods.

## 2 Results

### 2.1 The general Information of CHF patients

In 160 cases of heart failure patients, 90 (56.3%) cases are male, 70 (43.7%) cases are female. They are aged 30-92 years old ( $68.85 \pm 10.52$  years old); education: 98 (61.3%) cases with junior high school and below education, 62 (38.7%) cases with high school or above; Primary disease: 72 cases of coronary heart disease, 45 cases of high blood pressure (including 16 cases of amalgamating hypertension coronary heart disease), 22 cases of cardiomyopathy, 19 cases of pulmonary heart disease, and 18 cases of valve disease. 84 cases of NYHA II (52.5%), 50 cases of NYHA III (31.3%), 26 cases of NYHA IV (16.2%). 50(31.3%) cases with Duration <5 years, 76 (47.5%) cases with 5-10 years, 22 (13.8%) cases with 11-15 years, 12(7.4%) cases with >15 years.

### 2.2 Self-management status and influential factors score of CHF patients

The survey results show that self-management in CHF patients has an average score of ( $96.14 \pm 14.37$ ), total score in the medium level; heart failure knowledge assessment score is ( $15.17 \pm 4.07$ ), patient's knowledge of disease is poor. Specific scores are shown in table 1.

### 2.3 Correlation of the total score of influential factors with

Table 1 Self-management level and influential factors score of CHF patients (n=160)

Dimension	Minimum	Maximum	$\bar{x} \pm s$	The average score for each item
Self-management				
Self-management Confidence	7	19	$12.73 \pm 2.59$	3.18
Self-management Behavior	31	92	$47.62 \pm 7.67$	2.98
Self-management Psychological	8	19	$12.77 \pm 2.23$	3.19
Self-management Cognitive	6	17	$11.91 \pm 2.12$	2.83
Self-management Information	6	17	$11.12 \pm 2.31$	2.78
CHF Knowledge Assessment				
Knowledge of disease	0	7	$3.30 \pm 1.53$	0.41
Knowledge of drug	0	6	$2.82 \pm 1.29$	0.47
Knowledge of life	2	11	$5.40 \pm 1.89$	0.49
Self monitoring and Prevention knowledge	0	7	$3.66 \pm 1.16$	0.52
Social support(SSRS)	18	59	$39.64 \pm 8.68$	2.83
Self-rating Depression(SDS)	37	62	$50.98 \pm 5.02$	2.55

### self-management

The self-management score show moderate positive correlations with education degree, level of heart failure related knowledge as well as social support degree, while depression and age are

moderately negative correlated with the self-management score, residence has lowly negative correlation with the self-management score (Table 2).

### 2.4 Stepwise multiple regression analysis of Self-manage-

Table 2 Correlation of the total score of influential factors with self-management(r)

	Heart failure related knowledge	Depression	Social support	Age	Education	Residence
Self-management	0.641	-0.611	0.484	-0.548	0.662	-0.209
P	0.000	0.000	0.000	0.000	0.000	0.008

### ment situation

Stepwise multiple regression analysis is further used (ain=0.05, aout=0.10), the predicted impact variables into the regression

equation include the education level, heart failure related knowledge, depression and social support(Table 3).

Table 3 Stepwise multiple regression analysis of the self-management level of heart failure patients( n=160)

The order of variables selected	Multiple correlation coefficient(R)	Determination coefficient (R <sup>2</sup> )	Increase explain amount( $\Delta R$ )	F	P	Regression coefficient (b)	Standardization regression coefficient(Beta)	t	P
Education	0.662	0.438	0.438	123.140	0.000	3.470	0.307	4.726	0.000
Heart failure related knowledge	0.749	0.561	0.123	100.302	0.000	1.137	0.322	4.979	0.000
Depression	0.779	0.607	0.046	80.213	0.000	-0.678	-0.237	-3.784	0.000
Social support	0.786	0.617	0.011	62.483	0.000	0.198	0.119	2.031	0.044

## 3 Discussion

### 3.1 Self-management status of CHF patients

The treatment of CHF is a long-term process, in which the medical staff could not always keep at the side of patients, a lot of things need to be done by themselves, which is self-management. The higher self-management level is, the higher the patient's quality of life is. The basis of research object in this survey is given priority to coronary heart disease and hypertension, the main cause of patients with CHF at present, which is consistent with the results reported by Zheng Xiao-qin<sup>[7]</sup>. The survey results show that self-management in patients with CHF is basically in the middle level ( $96.14 \pm 14.37$ ), including 87 cases of self-management of medium and good condition (score >96), accounted for 54%, but most of them score at 96-105 points. The whole respondents have good self-management confidence and social support, and can adjust the mood well. However, the relevant knowledge about the disease in patients is less, with low scores ( $15.17 \pm 4.07$ ). The interviews with patients also found that some patients still could not take medicine follow the doctor's advice, reasonable diet, regular exercise, monitoring the blood pressure and so on. So there still had space for further improvement in the self-management behaviors of patients.

### 3.2 Influential factors of self-management level of CHF patients

The survey results show that the influential factors of CHF patient's self-management are education degree, heart failure related knowledge, depression and social support. Self-management level and education level are moderately positive correlated, with the improvement of education degree, self-management score increase accordingly. That is because the CHF patients with higher education level can be more motivated to learn how to self-management, and also more likely to accept diet, exercise and treatment plan. They can realize the importance of compliance and comply with the self-management plan better. To grasp the knowledge of disease is a prerequisite to self-management. Patients who are lack of the knowledge lead to a decline in self nursing ability, self-management compliance also reduces. The survey show that the level of self-management and heart failure related knowledge are moderately positive correlated, it is similar with the results of Xu Jing<sup>[8]</sup> who revised self-care behavior scale for heart failure and heart failure knowledge questionnaire as research tools for investigation of patients with heart failure. For the patients with CHF, only to understand disease related knowledge can they recognize and evaluate the disease status, have a good self-management. Social support is also one of the main relevant factors for self-management of CHF patients. A harmonious family and the support of family can not only make patients get comfortable care, the more important is to give more emotional support and encouragement. The results of this study show that social support positively affects

the ability of self-management, it is basically the same with some other chronic diseases<sup>[9]</sup>. CHF patients are easy to have negative emotions during the long course of treatment, such as pessimism, loneliness, disappointment. These negative emotions may reduce the enthusiasm of patient's self-management. Social support can provide emotional support for patients, help them adapt to the disease states as soon as possible, reduce the negative emotions. Depression is a common mental symptom in patients with chronic disease, and it is also the most common emotional disorders in patients with CHF. Scherer's<sup>[10]</sup> study found that the rate of depression and anxiety in patients with CHF were significantly higher than the general population. Our survey found that CHF patients' self-management score was moderately negative correlated with depression. Zhang Yu-fang's<sup>[11]</sup> study also showed that individual's self-management ability and emotions such as anxiety and depression were negatively correlated, negative emotions could reduce the ability of cognitive and behavioral of patients, thus had adverse effects on the self-management ability. Depression can make the patients in a state of self sealing, they are difficult to communicate with medical staff, the ability to acquire new information is also reduced. There is a big difficulty in self-management. Depression is accompanied by physical symptoms which can also cause the body unwell and influence the self-management practices of CHF patients.

### 3.3 Nursing strategies to improve self-management of CHF patients

Nursing staff is the main educator of CHF patients with self management, who undertake the task of science education knowledge. Nurses should tell patients the disease prevention knowledge and methods by providing consulting, lectures, brochures, and other forms of education, not only to improve the understanding of heart failure, but also to change bad lifestyle. To do as doctors told them and cooperate with treatment actively can also help patients master self-management of disease knowledge and skills, take positive actions to control the disease correctly, reduce the incidence and death risk of heart failure. Nursing staff should also pay enough understanding and attention to social support situation of CHF patients, give full play to the patient's social support system, and encourage the patients' families and friends to give understanding and care from the emotions and actions. At the same time, medical workers as a part of the sources of social support should dredge bad emotion of patients in time, make them have right attitude and active use of social support system and have a more positive response to disease. For the patients whose emotions have larger fluctuation, nursing staff should target for health education and psychological counseling, keep the patients emotion stable. Professional psychological treatment should be used if it is necessary.

In conclusion, CHF patients' self-management ability is in medium level, which is still need to be improved. Teaching management of disease needed knowledge, skills and confidence can enhance patients' self-management ability and improve their quality of life. Individualized interventions and health education should be carried on to keep patients from the intervention factors and improve their self-management ability.

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## 慢性心力衰竭患者自我管理的现状及影响因素分析 \*

张 坤<sup>1</sup> 王爱敏<sup>1△</sup> 姜云霞<sup>1</sup> 孙 鹏<sup>2</sup> 黄 霞<sup>2</sup> 杨富国<sup>1</sup> 姜乃睿<sup>1</sup>

(1 青岛大学医学院 山东 青岛 266021; 2 青岛大学医学院附属医院 山东 青岛 266003)

**摘要** 目的:了解慢性心力衰竭患者自我管理的现状及影响因素。方法:采用自行设计的心力衰竭自我管理量表、心力衰竭知识测评量表、患者信息调查表和社会支持评定量表、抑郁自评量表调查 160 例慢性心力衰竭患者的现状。结果:心衰患者自我管理状况呈中等水平,自我管理水平和教育程度、心衰相关知识水平以及社会支持程度呈中度正相关关系,与抑郁情绪和年龄呈中度负相关关系。结论:慢性心衰患者自我管理水平和受其生理、心理及社会等多因素的影响。

**关键词:**慢性心力衰竭;自我管理;影响因素

中图分类号:R47, R541.61 文献标识码:A 文章编号:1673-6273(2014)06-1159-05

\* 基金项目:国家自然科学基金项目(81171208);山东省卫生厅医药卫生科技发展计划基金项目(2011HW025)

作者简介:张坤(1987-),硕士研究生,主要从事临床护理教育方面的研究, E-mail: zhangkunlw@126.com

△ 通讯作者:王爱敏, E-mail: mdr613@163.com

(收稿日期:2013-07-11 接受日期:2013-08-12)