

# Effects of co-nursing model on self-care ability and quality of life of hemodialysis patients

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**ABSTRACT Objective:** To investigate effects of the co-nursing intervention on selfcare ability and quality of life of hemodialysis patients. **Methods:** Ninety-six patients were treated with hemodialysis for the treatment of chronic renal failure in our hospital from December, 2014 to January, 2016. Patients were randomly divided into two groups: treatment group (n = 48) and control group (n = 48). The patients in the treatment group received co-nursing intervention, while the control group received routine nursing intervention. **Results:** The quality of life and self-care ability of the two groups before admission were not significantly different. However, quality of life and self-care ability of the treatment group were better than that of the control group, and the difference was statistically significant. The incidence of complications in two groups were compared. The incidence of complications in the treatment group was significantly lower than that in the control group. **Conclusion:** Co-nursing model in hemodialysis patients can improve self-care ability, quality of life, reduce the complications of patients and achieve satisfactory clinical results.

# **KEYWORDS**

Co-nursing model Routine nursing model Hemodialysis Self-care ability Quality of life

#### Introduction

The incidence of kidney disease increases year by year, of which about 10% of patients underwent hemodialysis treatment of renal failure [1]. Currently, treatment for chronic renal failure is hemodialysis and kidney transplantation. However, most of the kidney transplant results in rejection. Thus, hemodialysis treatment has become the best choice for patients with chronic renal failure [2]. Chronic renal failure patients need long-term dialysis, which is high cost and causes economic burden, mental and physical stress and affects quality of life [3]. Collaborative-nursing (co-nursing) care model is a people-oriented service. The co-nursing care model involves family members in the treatment of patients. Comprehensive treatment of patients with co-nursing care model gradually replaces the patient-centered conventional nursing model. The co-nursing care model is more emphasized on holistic and integrated treatment. In this paper, the co-nursing care model was applied on the patients undergoing hemodialysis. The patients' quality of life and self-care ability were observed and the incidence of complications was analyzed.

# 1.Materials and Methods

# 1.1 General Information

Ninety-six patients who were diagnosed with chronic renal failure and undergoing hemodialysis, were recruited from December 2014 to January 2016 in our hospital. Out of the 96 patients, 57 were male patients. Age of male patients is ranged from 43 to 65 years with mean age  $(52.6 \pm 4.15)$  years. These male patients receive hemodialysis for 3 months to 3.5 years, with an average of  $(1.36 \pm 0.29)$  years. For female patients (n = 29), the average age is  $(52.7 \pm 0.29)$  years the duration of hemodialysis form 2 months to 2 months.

3.96) years, the duration of hemodialysis is from 3 months to 3 years, and the average treatment time is  $(1.31 \pm 0.18)$  years. According to the guidelines established by the American Kidney Foundation, of chronic renal failure can be divided into 1–5 stages. 56% of the patients are currently in renal failure stage 4, 44% of the patients are currently in uremic renal function stage 5. No statistically significant difference was shown in age, treatment period and current stage of renal failure of patients.

#### **1.2 Treatment Methods**

After admission, all patients received assessments of psychological and physical. Besides, self-care ability and quality of life were scored. Routine nursing model was applied to the control group. The general procedure was as follow: clinic instruction, diet care, oral care and drug use. In the treatment group, the co-nursing intervention model was adopted, and the specific contents were as follows.

#### 1.2.1Evaluation

Medical staffs communicate with patients and family members in order to establish mutual trust. Patients' information should be fully understand, including family members, economic situation, education, drug used, current state of disease and self-care ability assessment. Medical staffs determines the treatment program according to patients' will and nephropathy stage. The concept and purpose of the co-nursing model were explained to patients and family members. Patients and family members should give fully cooperation and understanding of status of family members and medical care in this study to minimize uncertainties. Informed consents were obtained from hemodialysis patients before intervention.

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#### **1.2.2Knowledge training**

Relevant knowledge of chronic kidney disease was explained to patients and family members, including pathogenesis of disease, development of disease, suitable treatment methods for patients, related drug indications, adverse reactions and complications of hemodialysis. Besides, patients and family members were informed with principles of hemodialysis, dialysis indications, and complications like low blood pressure, thrombosis and fistula. Regular tests or measurements should be performed to monitor changes and replace treatment method timely, for example blood pressure, hematuria, blood glucose, renal function, quantitative protein detection (if necessary), and body weight. Dietary recommendations for patients include low protein, low sodium and rich in vitamins, in order to reduce related complications and delay the development of disease. Patients should maintain healthy life style by exercise, avoid smoking and drinking, and healthy diet.

#### 1.2.3 Psychological counseling

Treatment period for patients with chronic kidney disease is very long. Even though after repetitive of costly dialysis treatment, the patients cannot be cured and chronic renal failure is developed. Meanwhile, patients might develop with complications, which will cause physiological and psychological trauma to patients. Patients result in a variety of negative emotions, depression and anxiety, which will affect the treatment. Co-nursing model requires medical staffs and patient family members to observe the psychological changes of patients. The patients' psychological depression and anxiety were scored. Timely guidance and communication will eliminate the patients' anxiety. If necessary, counseling by medical staffs will help patients to maintain an optimistic attitude to face the Significant fluctuation of indicators should be reported in time, so that doctor can adjust the treatment program. Patients with fistula should avoid labor works, pressure and keep the fistula surrounding disease and actively cooperate with the treatment.

# 1.2.4 Skill guidance

Patients and their families should be guided to measure and record body weight, body temperature, blood pressure and urine output.

in dry situation. Patient's family members should disinfect the fistula surrounding to prevent infection and inform the patient if there is swelling and bleeding around the fistula. Patients and their families should make sure the fistula is unobstructed and get timely medical treatment if obstructed. After the completion of the dialysis, patient or family member should release the pressure belt a little loose for half an hour, and then fully release for an hour. In the event of bleeding, oppression of blood vessels can help to stop bleeding.

#### **1.3 Evaluation of indicators**

Self-care ability and quality of life were assessed in two groups before admission and after admission. The self-care ability scores were compared with the self-care ability scale [4]. The two groups were scored on the dialysis knowledge, dialysis care skills, self-care responsibility and self-concept. The higher the score means the higher the nursing ability. The quality of life of patients were referred to the quality of life scale [5]. The two groups of patients were compared in the physiological field, emotion, mental health and overall health score. The higher the score means the better the quality of life of patients.

#### 1.4 Statistical analysis

The quality of life score, self-care ability score and the incidence of complications of two groups were analyzed using SPSS21.0. P < 0.05 showed statistically significant difference.

Project	Before intervention				After intervention			
	Treatment Group	Control Group	<i>t</i> value	Pvalue	TreatmentG roup	Control Group	Pvalue	<i>t</i> value
Total	97.25±12.89	98.12±13.2 1	0.134	>0.05	112.34±12. 13	100.98±9.87	< 0.05	4.018
Dialysis careskill	29.13±3.98	26.46±3.57	-1.116	>0.05	41.19±3.58	27.16±5.17	< 0.05	-9.725
Related knowledge degree of control	34.12±5.96	33.97±6.98	-0.120	>0.05	47.34±3.14	35.13±3.67	< 0.05	-8.924
Self-care responsibility	17.98±8.91	18.97±7.94	0.947	>0.05	30.09±4.98	19.45±5.14	< 0.05	3.521
Self-concept	23.12±5.76	22.96±6.14	0.325	>0.05	28.18±4.24	23.45±5.36	< 0.05	4.018

 Table 1. Self-care ability scores of two groups before and after intervention

## 2. Results

2.1 Self-care ability

The treatment group and control group were compared in terms of self-care skills, dialysis knowledge, self-care responsibility and self-

concept. The pre-admission scores of self-care ability of two groups of patients the analysis showed no statistically significant difference. (Table 1) shows that self-care ability score of the treatment group is better than that of the control group after receiving different nursing intervention (P < 0.05).

## 2.2 Quality of life assessment

The quality of life assessment score analysis before and after (Tal admission showed that the scores were not significant different among the two groups of patients. After nursing intervention, the **Table 2**.Quality of life assessment before and after the intervention

quality of life of the treatment group scores higher than that of the control group (P < 0.05). See Table 2 for details.

(Table 2). Quality of life assessment before and after the intervention

	Before inte	ervention			After intervention		Pvalue	tvalue
Project	Treatment group	Control group	<i>t</i> value	Pvalue	Treatment group	Control group		
Physiological field	29.31±16.5 8	28.74±15. 45	0.041	>0.05	52.34±13.67	37.10±11. 47	2.153	< 0.05
Emotional field	51.62±27.1 0	52.54±26. 91	-0.075	>0.05	70.59±22.51	54.35±20. 93	2.314	< 0.05
Energy	54.76±11.7 8	53.46±10. 78	-0.314	>0.05	64.51±12.36	55.71±10. 93	2.679	< 0.05
Mental health	63.97±12.4 6	62.98±11. 96	0.436	>0.05	79.09±9.04	65.65±8.9 2	4.136	< 0.05
Overall health	51.26±11.2 4	52.34±10. 98	-0.078	>0.05	64.24±9.51	53.28±9.3 6	6.83	< 0.05

# 2.3 Complications analysis

Table 3 shows that the incidence of complications in the treatment group is significantly lower than that of the control group (P < 0.05).

Γal	ble i	3. I	Incid	lence	of	com	olic	ations

Group	Thrombosis	Infection	Bedsore	Electrolyte imbalance	Incidence
Treatment group (n = 48)	0	1	0	2	6.25%
Control group (n = 48)	1	5	1	6	27.1%

## **3.Discussion**

#### 3.1 Self-care ability

Co-nursing model can improve the self-care ability of patients. Treatment period of hemodialysis requires a long time, yet inadequate nursing care might cause complications [6]. Unsatisfied treatment results might be due to low education level, the patient did not receive comprehensive information on chronic kidney dialysis, defective in nursing care before, during and after dialysis, or selfcare is insufficient. Co-nursing care model provides relevant knowledge for patients and also their family members and the current disease state of the patients to improve awareness of the disease. The co-nursing model can fully mobilize all aspects of resources for the patient service, so that the satisfaction of treatment was maximized and the complications were reduced. In the present study, the scores of self-care ability of the treatment group were significantly higher than that of the control group. The significant difference was caused by appropriate nursing care by patients and their families with the knowledge of disease and dialysis.

## 3.2 Quality of life

Co-nursing care models can also improve the quality of life of dialysis patients. Long-term hemodialysis patients with low quality of life may be due to negative emotions in patients with mental and psychological trauma. Besides, proteinuria in chronic renal failure patients leads to low immune resistance, and thus patients prone to infection. Chronic renal failure patients with long-term dialysis will lead calcium loss. Co-nursing model can be integrated in all aspects of patient care information to improve the satisfaction of care. Training of patients and their families focused on the physiology of patients, while also taking into account the psychological and skills of patients. In this study, the quality of life of patients in the treatment group were significantly higher than that of the control group. The difference might be due to the collaborative care of patients through the life and psychological guidance, which leads to healthier life style and better quality of life.

# 3.3 Conclusion

Co-nursing model focused more on humanization and holistic care on the basis of comprehensive care. Meanwhile, family members of patients were involved in the treatment to integrate all aspects of resources for patients. Patients were in a comfortable environment with positive and optimistic attitude to disease, and thus able to achieve satisfactory clinical results. This study found that conursing care model can improve the quality of life and self-care ability of patients, reduce the incidence of complications. As the sample size of this study is very small, it is worth to conduct further clinical research.

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