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Intervention of Fluid Intake Compliance and the Construction of Health Belief Model in Maintenance Hemodialysis Patients under the Background of Informatization

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Abstract: *Maintenance hemodialysis (MHD) patients refer to the patients who have received long-term stable hemodialysis treatment. Hemodialysis is a process that human blood is dialyzed by using dialyzer and dialysate to remove excessive liquid and impurities in the body, and absorb electrolytes and bases needed by the body through dialysate. Long term hemodialysis needs MHD patients to control their fluid intake, which is undoubtedly difficult for them, so it is easy to produce negative emotions, depression and negativity. Therefore, it is of great significance for MHD patients to maintain the health belief model (HBM). This paper mainly studies the intervention of MHD patients' liquid intake compliance and the construction of HBM under the background of informatization. In this paper, 200 MHD patients were selected for the study. Methods: 200 MHD patients were divided into experimental group and control group. The study used the value-added during dialysis as an index to measure the compliance of MHD patients with liquid intake, and analyzed the compliance of MHD patients with health beliefs. Experimental research shows that the weight change of MHD patients in the control group without liquid intake intervention is large, while the weight change of MHD patients in the observation group is small. For example, the relative value of weight increase in the control group is 3.67, and the relative value of weight increase in the observation group is 1.13. For MHD patients, it is necessary to carry out liquid intake compliance intervention.*

Keywords: *Maintenance Hemodialysis, Fluid Intake, Compliance Intervention, Health Belief*

1. Introduction

MHD is the most important renal replacement therapy for patients with end-stage renal disease [1-2]. Long term and frequent treatment not only damages the physiological and social functions of patients, but also brings heavy economic burden and mental pressure, which can easily lead to a series of psychological disorders, such as anxiety, depression, lack of self-confidence, negative pessimism, etc., among which anxiety and depression are common [3-4]. At present, the psychological research on MHD patients mostly adopts traditional psychological intervention methods, focusing on patients with depression, anxiety and other negative emotions. However, clinical practice has found that the elimination of negative emotions does not mean the automatic generation of positive emotions [5-6]. This kind of neglect of patients' internal positive psychological quality and positive power of psychological nursing status, leading to its psychological intervention effect has not been satisfactory. Many clinical nursing studies have proved that the construction of HBM based on the theory of positive psychology can effectively improve the positive emotions and internal strength of patients, which is an effective supplement and improvement to the traditional psychological intervention methods [7-8]. However, at present, the positive psychological intervention and HBM are rarely used in MHD patients, and its effect needs to be further verified. Therefore, the application of HBM in the intervention of MHD patients' liquid intake compliance is of great value to improve the nursing quality of MHD patients [9-10].

In the study of MHD patients, many scholars at home and abroad have studied it, and have achieved certain results. Jasim Na used the depression, anxiety and stress scale to investigate 1300 MHD patients, and found that the detection rate of anxiety was 46.6%, the detection rate of depression was 36.3%, and the detection rate of stress was 19.9% [11]. Rashrash me used self rating Anxiety Scale and self rating

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Depression Scale as research tools to investigate 100 MHD patients. The results showed that 40 patients had different degrees of anxiety and 36 patients had different degrees of depression. The scores of anxiety and depression were related to age, education level, income level, medical expenses, dialysis time and hope level [12].

This paper mainly studies the intervention of MHD patients' liquid intake compliance and the construction of HBM. This paper studies the psychological research status of MHD patients, the influence of MHD patients' liquid intake compliance intervention, health belief intervention and HBM intervention. In this paper, through the investigation and study to understand the MHD patients' fluid intake compliance (FIC) intervention and health belief mode, through the study, the quality added value during dialysis was used as an index to measure the hemodialysis patients' FIC, and the MHD patients' health belief compliance was analyzed.

2. Study on the Intervention of FIC and HBM of MHD Patients

2.1. MHD Patients' Psychology

Although MHD can prolong the survival time of patients, it can not completely cure the disease. Long term repeated arteriovenous puncture, metabolic disorders, diet control, water and salt restriction and huge treatment costs not only cause serious damage to the physiological function of patients, but also cause great psychological impact. In recent years, with the gradual improvement of people's understanding of the role of psychosocial factors in the occurrence, development and outcome of the disease, the psychological problems of MHD patients began to attract the attention of many researchers. However, due to the overlap of disease symptoms and psychological symptoms of MHD patients, and the lack of widely recognized optimal psychological assessment tools, assessment forms and psychological diagnosis principles for MHD patients, it not only increases the difficulty of psychological assessment, but also leads to different degrees of differences in the results of psychological assessment, and the effect of psychotherapy and psychological nursing is not satisfactory. Although continuous and regular dialysis plays a certain role in promoting the physical and mental health of patients, it is only a clinical treatment method and can not become a routine method to alleviate the psychological disorders of patients. Psychological intervention is a common method to improve the psychological state of patients. Compared with drug treatment, it has the advantages of no side effects and easy acceptance by patients. Therefore, to explore a scientific, effective, advanced and practical psychological intervention program for MHD patients to maintain the best psychological state has become an important issue to be solved.

2.2. Intervention on Compliance of Fluid Intake and Health Belief in MHD Patients

Under the intervention of FIC and health belief, patients should be informed that salt and water intake must be strictly limited, the amount of drinking water should be reasonably controlled, and the method of calculating daily drinking water should be guided. When blood pressure drops after dialysis, the amount of drinking water should be appropriately increased. After exercise, sweating or diarrhea, the amount of drinking water should be appropriately adjusted to form the habit of calculating daily urine volume, Use a container with a scale to drink water; measure the body weight no less than twice a day, ensure one time in the morning and one time in the evening, control the daily weight gain within 1kg, so as to guide the water intake, cultivate the living habits of patients to accept the long-term control of drinking water quantity, when the drinking water quantity reaches the limit of thirst, it is recommended to contain ice to quench thirst.

The patient safety management team explained to the patient the need for exercise. According to the individual situation of each patient, help to develop the most suitable way of exercise, encourage patients to do housework, guide patients with mobility difficulties to carry out muscle exercise or self massage, teach the method of judging exercise intensity, and explain the matters needing attention in outdoor exercise to patients. Often talk with patients, introduce cases with positive energy in treatment, encourage patients to take the initiative to talk with their family members, friends around them and medical staff, and solve their inner worries in time. If necessary, ask a psychologist to participate in kidney friends association activities to provide psychological counseling for patients, or give lectures on MHD related psychological knowledge, and teach the methods of solving psychological obstacles, Encourage patients to participate in social communication and public welfare activities, maintain a positive and optimistic attitude, in order to maintain good mental health. In addition, for the patients'

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achievements and progress in self-management, medical staff should give timely affirmation, praise and encouragement.

2.3. Influence of Health Belief Mode Intervention

(1) Strengthen the psychological intervention of MHD patients, improve the treatment confidence

MHD patients are prone to depression, anxiety and other negative psychology due to the impact of disease on their personal and family life style. Therefore, we need to strengthen the psychological support and intervention for these patients. We can encourage patients to participate in various social public welfare activities, hire psychiatrists to hold relevant knowledge lectures, regularly visit their families, and communicate with patients face to face, so as to enhance the patients' confidence in treatment, make them relax in time, and release their negative emotions reasonably. Because patients through self-regulation, help to form a positive, optimistic psychological behavior.

(2) Communication intervention at any time to increase the knowledge of MHD patients

Through the opening of 24-hour hotline and wechat platform, MHD patients can report their physical symptoms, problems encountered in self-management, concerns and adverse drug reactions to medical staff at any time. Because it is very important to inform the patients before the intervention to develop a feasible and effective treatment and nursing plan. In addition, patients can obtain hemodialysis related self-care knowledge through kidney club, knowledge lectures, brochures and communication with medical staff, which is very important for MHD patients to implement effective self-management activities. Thanks to the 24-hour hotline, wechat platform and other intervention measures, MHD patients can get the guidance of the research team at any time. By constantly understanding the relevant knowledge of the disease, the treatment confidence is increased, and the self-management ability is also enhanced.

(3) Strengthening diet management intervention to improve diet compliance of MHD patients

The difficulty of MHD patients' self-management lies in diet management, which needs the joint efforts and cooperation of medical staff, patients and their families to effectively complete, especially the participation of patients themselves. The diet self-management behavior of MHD patients requires patients and their families to deeply understand the importance of diet self-management on the disease. MHD patients need to master reasonable diet, fast high salt food, abide by the restrictions of eating and drinking water, and improve the management ability of diet and water intake. At the same time, the diet structure can be adjusted in time according to the results of regular inspection.

(4) Strengthen medication guidance and improve medication compliance of MHD

MHD patients need to take a variety of drugs continuously, such as antihypertensive drugs to control blood pressure, calcium to prevent hypocalcemia, osteoporosis, blood tonic drugs to treat anemia and so on. In the self behavior intervention of MHD patients, it is necessary to encourage patients to form the habit of keeping a diary, and urge patients to take all kinds of related drugs on time and according to the doctor's advice, which will help to improve their treatment behavior ability.

(5) To increase the knowledge of complications of MHD patients and improve the treatment behavior ability

In the process of intervention, teach patients to deal with various complications during dialysis, such as insomnia, fistula failure, bleeding and so on. Through the understanding of MHD patients' knowledge of disease complications, on the one hand, it can help them reduce the occurrence of complications, on the other hand, it can help medical staff to timely intervene in the early stage of complications and avoid the deterioration of the disease. In this way, it is also helpful to improve the treatment behavior ability of patients.

(6) Encourage MHD patients to participate in appropriate exercise and actively respond to diseases

Through self-management behavior intervention, the exercise mode which accords with their own reality can not only effectively enhance the patient's constitution, reduce complications, but also help to improve the social function, self-awareness level and change negative psychological state.

2.4. Weighted Aggregate Analysis Algorithm of Questionnaire Survey

This paper mainly studies the intervention of liquid intake compliance and HBM of MHD patients,

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and discusses the influence of maintaining health belief on MHD patients by studying the intervention of liquid intake compliance. In this paper, 200 MHD patients were selected for the study, and then the data were collected to analyze the correlation results. In this paper, the method of weighted aggregation is used to analyze the questionnaire data,the specific formula is as follows:

$$A=\sum_{i=1}^{I}\lambda_i[\sum_{j=1}^{m}\lambda_{ij}(\sum_{k=1}^{n}\lambda_{ijk}a_{ijk})] \tag{1}$$

At the same time, we also use the weighted summary statistical method to process the collected information, the specific formula is as follows:

$$S=\sum_{1}^{n}Q_iS_i(i=1,2,...,n) \tag{2}$$

Through the collection, understanding, statistics and calculation of the questionnaire information data, it has a specific result to explore the influence of maintaining health belief on MHD patients through the study of liquid intake compliance intervention, and understand its significance and value.

3. Experimental Study

3.1. Subjects

In order to study and understand the FIC intervention and health belief mode of MHD patients, 200 MHD patients were selected for the study. These 200 patients were treated with hemodialysis as the main treatment method for long-term hemodialysis, which has research significance. 200 hemodialysis patients were divided into two groups, 100 in each group, as the experimental group and the control group, one group was intervened, and the other group was not intervened, according to each hemodialysis treatment as a node for data analysis.

3.2. Experimental Process Steps

This paper mainly studies the MHD patients' liquid intake compliance intervention and HBM. This paper studies the mental research status of MHD patients, the influence of MHD patients' liquid intake compliance intervention and health belief intervention, and HBM intervention. In this paper, through the investigation and research to understand the MHD patients' FIC intervention and health belief mode, this paper uses the value-added of quality during dialysis as an index to measure the hemodialysis patients' FIC, and analyzes the MHD patients' health belief compliance.

4. Experimental Study and Analysis of MHD Patients' Liquid Intake Compliance Intervention and HBM

4.1. MHD Patients with Fluid Intake

In order to understand the compliance of MHD patients with liquid intake, 200 MHD patients were divided into experimental group and control group for experimental study. The observation group was intervened with liquid intake, while the control group was not intervened. Then according to MHD patients undergoing hemodialysis as the node, after three times of hemodialysis, the body weight gain, daily body weight gain, daily body weight gain, daily body weight gain and daily body weight gain were measured. The relative value of weight gain was compared and analyzed, and the data integration of the collected results was shown in Table 1.

Table 1: Compliance of fluid intake in MHD patients

Project	Control Group	Observation Group
Weight Gain	2.76	1.64
Daily Weight Gain	1.56	0.82
Relative Weight Gain	3.67	1.13

It can be seen from Figure 1 that the weight change of MHD patients in the control group without liquid intake intervention is large, while the weight change of MHD patients in the observation group is small. For example, the relative value of weight gain in the control group is 3.67, and the relative value

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of weight gain in the observation group is 1.13. For MHD patients, excess liquid can not be discharged from the body, so it is necessary to carry out liquid intake compliance intervention.

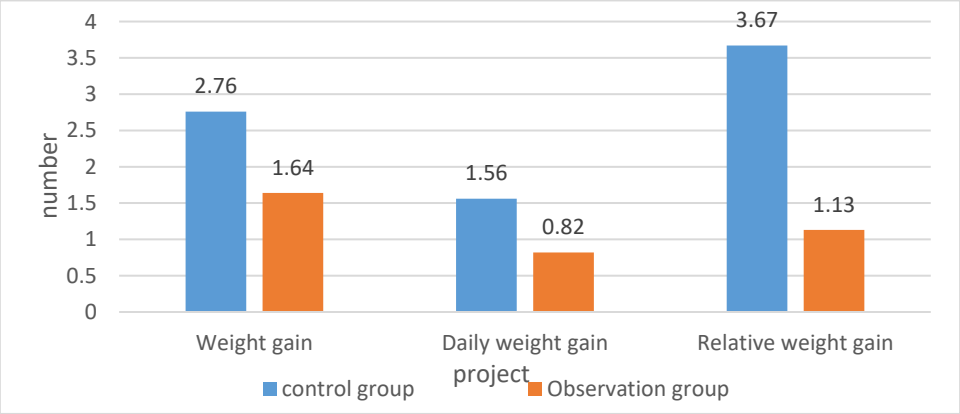

Figure 1: Compliance of fluid intake in MHD patients

4.2 Health Belief Compliance of MHD Patients

In order to understand the health belief compliance of MHD patients, 200 MHD patients were divided into experimental group and control group for experimental study. The observation group was intervened with health belief to help patients establish health belief. The control group was not intervened and lived naturally. Then, according to MHD patients' hemodialysis as the node, after three times of hemodialysis, the dry weight, ultrafiltration volume, ultrafiltration volume, blood pressure and blood pressure were measured. The results of comparative analysis of liquid intake and data integration are shown in Table 2.

Table 2: Health belief compliance of MHD patients

Project		Control Group	Observation Group
Dry Weight	Before	4.96	4.89
	After	4.19	3.38
Ultrafiltration	Before	3.51	3.53
	After	3.02	2.45
Fluid Intake	Before	1916	1897
	After	1736	1469

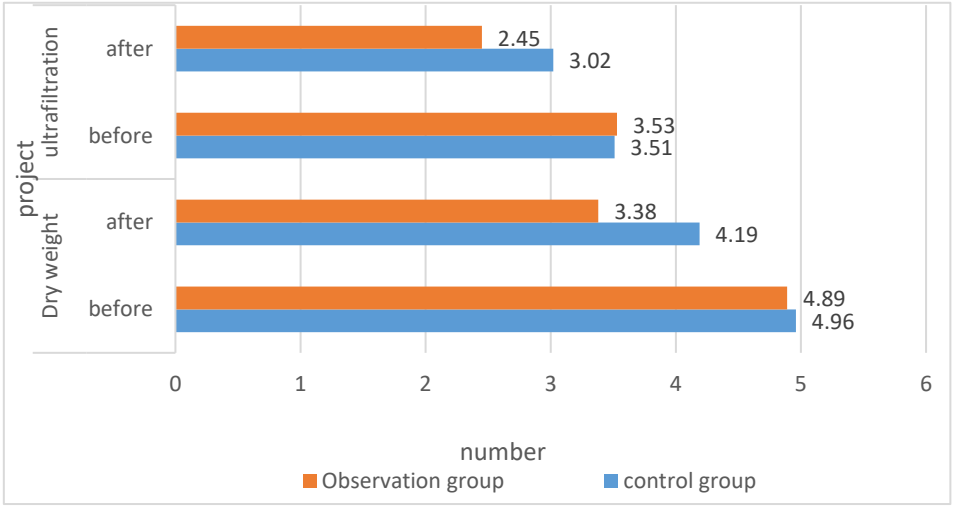

Figure 2: Health belief compliance of MHD patients

As can be seen from Figure 2, after health belief intervention, the dry weight, ultrafiltration volume and liquid intake of MHD patients in the observation group were lower than those in the control group. For example, the dry weight of MHD patients in the observation group was 3.38 after intervention, while that of MHD patients in the control group was 4.19 after intervention, indicating that the HBM

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can improve the compliance of MHD patients.

5. Conclusions

The application of HBM in the intervention of MHD patients' liquid intake compliance is of great value to improve the quality of care for MHD patients. This paper mainly studies the intervention of MHD patients' liquid intake compliance and the construction of HBM under the background of informatization. In this paper, 200 patients with MHD were selected for the study. 200 MHD patients were divided into the experimental group and the control group. The study used the value-added of quality during dialysis as an index to measure the compliance of MHD patients with liquid intake. At the same time, the MHD patients' health belief compliance was analyzed. Finally, it was concluded that the intervention of MHD patients' liquid intake compliance and the construction of HBM were of great significance.

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