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The Application Status of Cardiac Rehabilitation Nursing in Patients with Chronic Heart Failure

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Abstract: Patients with chronic heart failure (CHF) often suffer from a decline in heart pumping function, which is generally caused by patients suffering from coronary heart disease. Generally speaking, CHF patients are often caused by a large number of cardiomyocyte apoptosis, excessive activation of neuroendocrine, retention of water and sodium and other factors. Patients with CHF are not easily cured and often experience recurrence, which can have a direct adverse impact on their daily lives. Through cardiac rehabilitation training, it is possible to effectively intervene in the cardiac structure and function of CHF patients. Based on this, this article mainly explores and analyzes the current application status and nursing rehabilitation measures of cardiac rehabilitation nursing in patients with chronic heart failure.

Keywords: Chronic heart failure; Cardiac rehabilitation training; Application status; Nursing and rehabilitation measures

Introduction

At present, the incidence and mortality rates of CFH patients are still on the rise, and patients with chronic heart failure will bring great physical and mental pressure to their families. Taking cardiac rehabilitation nursing measures for CHF patients can improve their symptoms such as left ventricular hypertrophy and heart failure, thereby promoting a steady improvement in their quality of life. By actively applying the cardiac rehabilitation nursing model, the actual condition of CHF patients can be scientifically evaluated. Medical staff can use the patient's evaluation to carry out targeted rehabilitation plans, and provide education and rehabilitation guidance on cardiac rehabilitation and other aspects to continuously improve the exercise endurance and cardiac function level of CHF patients, in order to achieve safer and more reliable rehabilitation goals.

1. Content of cardiac rehabilitation nursing for chronic heart failure both domestically and internationally

1.1 Sports rehabilitation nursing

1.1.1 Current situation abroad

Research on CHF patients abroad has shown that implementing exercise rehabilitation can greatly enhance their activity endurance, comprehensively enhance their cardiac reserve, optimize and improve their endothelial function, and improve their quality of life. The exercise rehabilitation methods for CHF patients in foreign countries generally focus on aerobic exercise, followed by assistance in resistance exercises, flexibility exercises, respiratory muscle training, etc. After conducting a series of studies on CHF patients, Pan showed that implementing resistance exercise can improve their arterial remodeling, and the rehabilitation effect of exercise is higher than that of aerobic exercise. Marco conducted inspiratory muscle training on selected CHF patients, indicating that high-intensity inspiratory muscle training can optimize and improve their inspiratory muscle weakness and fatigue. However, a small number of CHF patients, due to their older age, are unable to undergo rehabilitation training with greater range of movement, and therefore require passive exercise rehabilitation training, while DOBŠÁK uses neuromuscular electrical stimulation (NMES) rehabilitation departure method to stimulate the target skin with low-frequency current, in order to achieve the purpose of contracting the patient's muscles, which can also achieve the corresponding exercise rehabilitation effect. BESNIER provides high-intensity interval exercise (HIIT) for patients, such as cycling for exercise endurance or gymnastics training. Finally, it is shown that HIIT can optimize and improve the parasympathetic tone and left ventricular ejection fraction of CHF patients. However, further sample size expansion or long-term follow-up is needed to determine the long-term impact on patients.

1.1.2 Domestic situation

Chinese scholars mainly conduct research on CHF patients based on foreign CHF research fields, and actively explore corresponding and more suitable exercise rehabilitation measures for CHF patients in China based on their actual situation. Yu Meili has launched the Eight Section Brocade exercise intervention measures, which innovates the original Eight Section Brocade exercise mode, removes movements that are not conducive to patient recovery, and adds exercises that are beneficial for improving patient cardiovascular function. Patients are allowed to practice the new Eight Section Brocade exercise mode at the rehabilitation center every week, 2-3 times a week, for about 45 minutes each time, and continue to exercise for 4 months. In the end, the patient's recovery effect is very good, and their exercise endurance and heart function have been significantly improved. Lu Fang guided CHF patients to implement phased comprehensive exercise. In the first stage, patients mainly receive slow expiratory and inspiratory muscle training. In the second stage, patients are given moderate intensity aerobic exercise training. In the third stage, CHF patients can receive resistance exercise training. The exercise results show that this rehabilitation program can improve their exercise endurance, physical function, and compliance.

Shi Xunyu guided patients to undergo a fast and short-term training mode of deep nasal inhalation followed by slow exhalation, which can slow down the patient's heart rate, increase the patient's heart venous volume, improve their exercise endurance, and greatly improve their symptoms. This training method is being implemented in the cardiac rehabilitation model of CHF patients in China, but further exploration and research can be conducted on the application effects in this area in the future.

1.2 Nutrition rehabilitation nursing

1.2.1 Current situation abroad

In terms of nutritional rehabilitation care for CHF patients abroad, the main approach is to implement a family cooperation model and a 3-day dietary diary therapy. This rehabilitation nursing model can improve patient compliance with dietary restrictions. The capacity management and limited salt intake nutrition rehabilitation nursing model mainly implemented in foreign countries. For CHF patients in the United States, it is recommended that they undergo at least one professional nutritional assessment and education. For CHF patients whose protein intake is greater than 1.1g/kg and whose body mass index is not less than 35kg/m2, it is recommended that they lose 5% to 10% of their weight through nutritional rehabilitation care

1.2.2 Domestic situation

China's relevant experts still draw on the dietary restrictions and capacity management of foreign researchers for the study of CHF patients. There is no clear explanation in the relevant literature or guidelines regarding the nutritional imbalance problem of CHF patients. Lou Juan et al. conducted self-capacity management for CHF patients, conducting a one-year trial on 100 selected CHF patients. They also provided health education to CHF patients, making them aware of the importance of capacity management and dietary standards for controlling water and salt intake. They also learned how to scientifically measure the patient's physical fitness and record their output. Before discharge, the selected patients, Nursing staff jointly develop reasonable capacity management goals and nutritional rehabilitation nursing measures based on the actual condition of the patient, allowing the patient's self recovery after discharge to be recorded in the form of a diary. The capacity management diary can be introduced monthly through outpatient visits or We Chat communication with nursing staff. Afterwards, the nurse provides timely guidance to the patient's dietary diary to help them correct and improve it, Such nutritional rehabilitation interventions can further enhance the heart function and self-care ability of CHF patients, and help them better recover their quality of life.

1.3 Home rehabilitation nursing

1.3.1 Current situation abroad

The home rehabilitation nursing model originated in countries such as Israel and Singapore, and has played a great role in the rehabilitation nursing of CHF patients, also achieving good results. In the current era of intelligence, the rapid development of remote medical technology has also brought many conveniences to the implementation of home care for CHF patients.

Related studies have shown that remote rehabilitation guidance for CHF patients by medical staff through online platforms can further

improve the effectiveness of rehabilitation care for CHF patients. Compared with traditional rehabilitation care, medical care costs can be greatly reduced.

Experts in relevant fields in the United States have developed a 4G wireless tablet system that can achieve remote monitoring, allowing CHF patients to wear sensors at home. The system platform can collect real-time vital signs of patients and upload them to the system platform. Medical staff can monitor the vital signs of patients in real-time, and if abnormal data is found, targeted treatment can be carried out promptly. This system also contains health knowledge and exercise rehabilitation guidance videos related to the cardiac rehabilitation of CHF patients, which can enable patients and their families to actively learn relevant rehabilitation knowledge, timely detect abnormal situations of patients at home, and make home rehabilitation safer and more effective for CHF patients.

1.3.2 Domestic situation

At present, China has also begun to try to use this internet rehabilitation guidance model. For example, relevant expert Qiu Xiaoqin has established a "Heart Steward" application that integrates medical and nursing mobile devices, patient mobile devices, and computer management devices. It allows CHF patients to achieve good home rehabilitation guidance, continuously improve their functions, and promote the comprehensive improvement of the quality of life of CHF patients.

2. Application measures of cardiac rehabilitation nursing in patients with chronic heart failure

In the clinical nursing process of CHF patients, cardiac rehabilitation nursing is mainly supervised by nursing staff to ensure the implementation of various cardiac rehabilitation measures, as follows:

2.1 Psychological prescription

After the patient is admitted to the hospital, nursing staff should promptly understand the patient's personality traits and psychological status, ask the patient to fill out relevant self-evaluation scales, and then evaluate and screen the patient's related psychological problems. They should actively listen to the patient's emotional demands, timely alleviate the patient's negative emotions, educate the patient's family on relevant rehabilitation nursing knowledge, and urge them to assist nursing staff in providing psychological counseling to the patient, thus fully reducing the psychological pressure and negative emotions of patients during treatment.

2.2 Life prescription

To encourage CHF patients with a history of smoking to actively quit smoking and stay away from smoking environments. For patients with smoking addiction, they can be advised to chew gum or eat melon seeds to divert their attention. Patients of this type can also be given vitamin B supplements to stabilize their nerves, while guiding them to develop good habits of going to bed early, getting up early, and having a healthy diet, keeping them in a sunny mood at all times.

2.3 Medication prescription

For CHF patients, nurses should further clarify the medication details and provide detailed explanations to the patients on the methods, efficacy, side effects, and contraindications of each medication taken. Strict monitoring should be implemented according to the different situations of the patients. For example, patients who need to use diuretics should record their daily urine output and regularly monitor their electrolyte and renal function indicators. For taking ivabradine β Patients with receptor blockers should closely monitor their heart rate in addition to taking medication on time.

2.4 Dietary prescription

For CHF patients, the amount of fluid intake should be determined based on the patient's weight, usually at a daily intake of 1-2 ml/kg. The daily salt intake should be determined based on the degree of edema and electrolyte concentration of the patient, generally less than 2.5g/d. For severe edema patients, it should be lower, less than 2g/d, and for low sodium patients, it should be less than 3g/d. Patients should be

encouraged to consume appropriate and sufficient amounts of vitamins, inorganic salts, high-quality protein, etc. They should eat fewer and more meals per day, and their eating speed should be slowed down as much as possible. It is advisable to control their daily intake between 5-6 times.

2.5 Exercise prescription

To develop a reasonable exercise rehabilitation plan based on the condition of CHF patients. Medical staff need to conduct a cardiac function assessment on patients, which will be conducted after morning rounds. For grade II patients, it is recommended to perform a full set of heart failure rehabilitation exercises three times a day, with a recommended exercise time of 10-15 minutes each time. They can also walk slowly in the ward three times a day, with a recommended exercise time of 10-15 minutes each time. For grade III patients, heart failure rehabilitation exercises should be performed twice a day for 10-15 minutes each time. For grade IV patients, abdominal breathing exercises can be performed 3 times a day for 10-15 minutes each time. The above exercise rehabilitation plans are all exercise rehabilitation plans for patients during hospitalization. During the period of home rehabilitation after discharge, patients can maintain a complete set of heart failure rehabilitation exercises twice a day, 10-15 minutes each time, and walk outdoors twice a day, 10-15 minutes each time. Before exercising, patients should undergo a blood pressure, breathing, and heart rate assessment once a day. If the values are normal, exercise rehabilitation can only be performed. If there is discomfort such as asthma and palpitations during exercise, exercise should be stopped quickly and the patient's condition should be continuously observed. If necessary, emergency treatment should be immediately taken to the hospital. The rehabilitation exercises for CHF patients with heart failure are shown in Table 1.

Table 1 Heart Failure Rehabilitation Exercise

Projects	Actions
Head movement	sitting upright with both hands on the waist: head forward bend → restore → backward bend → restore → right side bend → restore → left side bend → restore → right turn → restore → left turn → restore → 1 turn from front to left → 1 turn from front to right
Shoulder straps and upper limb movement	sit upright, hands naturally drooping: raise arms forward → restore → lift arms up and keep palms facing forward → restore → lift arms up and keep palms facing each other → restore → lift arms up and keep palms facing downwards → restore
Limb movement (first part)	sitting or lying flat, legs extended: straighten ten fingers and clench fist → cross fingers and swing up and down → extend toes forward and retract → fold feet together and rotate clockwise, counterclockwise, in the same direction, and in the opposite direction
Limb movement (second part)	lying flat, legs bent knees, hands naturally placed on both sides of the body: extend right leg forward → restore and inhale → extend left leg forward → restore and inhale → lift right leg and keep knee at 90 ° → restore and inhale → lift left leg and keep knee at 90 ° → restore
Somatic movement	Sitting upright with body movement naturally placing both hands on both sides of the body: shrug and press down → cross hands and place them behind, clamp shoulders, and slowly lift hands up → restore → extend the right hand horizontally, hold the wrist of the right hand with the left hand and pull to the left → extend the left hand horizontally, hold the wrist of the left hand with the right hand and pull to the right → restore and release the arms and fingers

3. Conclusion

In summary, currently, both domestically and internationally, CHF patients are actively using the cardiac rehabilitation nursing model, and some achievements have been made in this research field. Of course, compared with the international community, China's current situation is still in the initial stage, and there is still great research potential and space for home rehabilitation nursing and other aspects. In the future, China can adopt a large sample and more comprehensive innovative research on the application of cardiac rehabilitation nursing models for CHF patients. It is necessary to establish a cardiac rehabilitation nursing system that is consistent with the actual situation of CHF patients, and provide patients with more comprehensive, high-quality, and complete rehabilitation nursing services.

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