Cardiac Rehabilitation Journey in an Elderly Patient with Chronic Heart Failure and Atrial Fibrillation

Authors: Li Miao

Date: 2024-05-22T00:00:00+00:00

Abstract

This article summarizes the experience of cardiac function recovery in a patient with chronic heart failure and atrial fibrillation through treatment and cardiac rehabilitation nursing. Based on early identification of disease progression, enhanced risk prediction capability, and integration of patient needs, condition monitoring, daily life care, psychological care, and health education, the application of the "five major prescriptions" of cardiac rehabilitation, Traditional Chinese Medicine nursing techniques, abdominal breathing training, and lower limb muscle strength training effectively improved clinical symptoms, prevented complications, and enabled the patient to enhance quality of life and return to normal living.

Full Text

Cardiac Rehabilitation in an Elderly Patient with Chronic Heart Failure and Atrial Fibrillation

Li Miao, Department of Cardiovascular Medicine, 731 Hospital of China Aerospace Science and Industry Corporation

Abstract

This article summarizes the experience of restoring cardiac function in a patient with chronic heart failure complicated by atrial fibrillation through comprehensive treatment and cardiac rehabilitation nursing. By early identification of disease changes and enhanced risk prediction capabilities, and based on patient needs, condition monitoring, daily living care, psychological nursing, and health education, we effectively improved clinical symptoms and prevented complications through the "five prescriptions" of cardiac rehabilitation, traditional

Chinese medicine nursing techniques, abdominal breathing training, and lower limb muscle strength training, ultimately improving the patient's quality of life and facilitating return to normal life.

Keywords: heart failure; cardiac rehabilitation nursing; abdominal breathing training; lower limb muscle strength training

Introduction

Based on survey data from 50 million Chinese urban employee medical insurance records, the standardized prevalence of heart failure (HF) among individuals aged $ $25 years in China is 1.1%, with an incidence rate of 275 per 100,000 person-years. This translates to an estimated 12.05 million existing HF patients and 2.97 million new cases annually. Both prevalence and incidence increase significantly with age [1]. Heart failure has imposed a substantial public health burden on China, necessitating effective prevention and treatment measures to reduce HF readmissions [2]. As the severe manifestation or advanced stage of various cardiac diseases, HF is characterized by persistently high mortality and readmission rates [3]. This article reports the cardiac rehabilitation experience of one chronic HF patient with atrial fibrillation.

Clinical Case Report

Patient: 81-year-old female admitted to the outpatient department by wheelchair at 10:02 on June 16, 2023, with chief complaints of chest tightness and dyspnea after activity, unable to lie flat.

Past Medical History: Rheumatic heart disease for over 40 years, mitral stenosis, chronic atrial fibrillation for over 40 years.

Auxiliary Examinations: NT-proBNP 2046 ng/L. Echocardiography showed left atrial enlargement, severe mitral stenosis, mild tricuspid regurgitation, decreased left ventricular diastolic function, and ejection fraction (EF) of 43%. Admission ECG revealed atrial fibrillation with incomplete right bundle branch block. Laboratory results: potassium 3.1 mmol/L, sodium 131 mmol/L, total protein 52.7 g/L, albumin 32.6 g/L. The patient was diagnosed with acute exacerbation of chronic cardiac insufficiency.

Treatment Course: After treatment to correct cardiac function, the patient received carvedilol 6.25 mg orally twice daily, spironolactone 20 mg orally once daily, furosemide 20 mg orally once daily, dapagliflozin 10 mg orally once daily, nesiritide 0.5 mg in 0.9% sodium chloride 50 ml via infusion pump at 4 ml/h every 12 hours, and warfarin 1.5 mg orally once daily. After completing relevant examinations, NT-proBNP decreased to 604.7 ng/L and EF improved to 55%, with other laboratory results essentially normal. Following 26 days of integrated Chinese and Western medicine treatment combined with cardiac rehabilitation exercise intervention, the patient's cardiac function improved from NYHA Class III to Class I, and she was discharged on July 11, 2023. The patient has since

attended regular follow-up visits at the cardiology outpatient clinic and has returned to normal life.

2.1 Nursing Assessment

2.1.1 Risk Factor Assessment Nurses should comprehensively understand the patient's condition, identify relevant risk factors based on various assessment scales, and be familiar with HF clinical manifestations, past medical history, examination results, and laboratory indicators, including the 6-minute walk test results.

2.1.3 Quality of Life Assessment The Barthel Index for activities of daily living was 85 points at admission, indicating partial dependence. Fall risk score was 60 points, classified as high-risk for falls, requiring nursing assistance and guidance [4].

2.2 Nursing Goals

Based on the admission assessment, personalized nursing goals were established for the recovery period: improve cardiac function status, enhance daily living capacity, and provide education on HF diet and rehabilitation exercise.

2.3 Nursing Measures

2.3.1 Acute HF Phase Management During acute dyspnea episodes, the patient should rest in semi-recumbent or sitting position. Oxygen therapy was administered intermittently or continuously at 2-4 L/min. Anti-HF medications were given as prescribed, with close monitoring of dyspnea and HF improvement. Body weight was measured regularly, with 24-hour fluid intake and output recorded and abdominal circumference measured when necessary. Diuretics were used as ordered, with careful observation of therapeutic effects and side effects. A salt- and fluid-restricted diet was implemented (salt $ $5 g/day, water $ $1.5 L/day) with small, frequent meals to avoid overeating. The diet was light, easily digestible, and nutritious.

2.3.2 Recovery Phase Prescription A scientific, personalized exercise program was developed and implemented under close medical supervision and monitoring to improve cardiac reserve and function. Abdominal breathing training and lower limb muscle strength training were used to alleviate post-activity chest tightness and dyspnea. The cardiac rehabilitation program followed the "five prescriptions" framework:

Exercise Prescription:
General aerobic exercise began with marching in place (10 repetitions per set, 2 sets daily), progressing to walking as tolerated. This large muscle group involvement helps improve maximal oxygen uptake and exercise tolerance in cardiovascular patients.

Resistance Training:
Lower limb muscle training included calf raises (10 repetitions per set, 2 sets daily). Upper limb muscle training used 0.5 kg dumbbells (10 repetitions per set, 2 sets daily, performed in separate sessions).

Flexibility Exercise:
Abdominal breathing exercises (10 repetitions per session, 2 sessions daily).

Traditional Exercise:
Baduanjin (Eight Pieces of Brocade) and acupoint massage (Shaofu, Laogong, and Neiguan points) to relieve chest tightness, calm the mind, and regulate qi, serving as daily health maintenance [5].

Medication Prescription:
Qishen Yiqi Dripping Pills, a representative traditional Chinese medicine formulation, is recommended in the 2024 Chinese Guidelines for the Diagnosis and Treatment of Heart Failure in Primary Care for HFrEF pharmacological management [6].

Psychological Prescription:
Given the frequent comorbidity of psychological issues in cardiovascular disease, "psycho-cardiology" nursing was implemented based on the patient's dual-heart score to identify and address psychological barriers. Traditional Chinese medicine non-pharmacological therapies such as acupoint application and music therapy are widely accepted by patients.

Nutrition Prescription:
Adequate energy intake (25-30 kcal/kg/day based on ideal body weight) was provided according to dry weight (weight without edema), activity limitation, and HF severity. Sodium was restricted to $ $3 g salt daily based on fluid and sodium retention status. Adequate calcium supplementation is important in HF management. A low-fat diet with omega-3 polyunsaturated fatty acids (1 g daily from fish or supplements) reduces triglycerides, prevents atrial fibrillation, and may decrease HF mortality. High-quality protein should exceed two-thirds of total protein intake. B vitamins should be supplemented due to risk of thiamine deficiency from restricted diet, diuretic use, and aging; higher folate and vitamin B6 intake is associated with reduced HF and stroke mortality and may lower hyperhomocysteinemia [7].

Smoking Cessation Prescription:
Smoking is harmful to health, with cardiovascular disease accounting for 35%-40% of smoking-related deaths, making smoking cessation crucial for cardiovascular disease prevention.

3. Discussion

Chronic heart failure is a recurrent clinical syndrome caused by cardiac dysfunction and impaired ventricular systolic and diastolic function [8-9]. With

population aging and changing lifestyles, cardiovascular disease incidence continues to rise, showing a high clinical trend. Without timely and effective intervention, mortality increases significantly, making it a major clinical concern. Cardiac rehabilitation is crucial for chronic HF patients, as rehabilitation exercise can improve cardiac function, enhance quality of life, reduce recurrence rates, help patients better cope with disease, and increase awareness of cardiac rehabilitation, thereby achieving comprehensive cardiac recovery.

Note: Figure translations are in progress. See original paper for figures.