

Cardiac Rehabilitation in Heart Transplant Recipients with Hemiplegic Comorbidity: Two Cases Report

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INTRODUCTION

After heart transplantation (HTPL), patients require lifelong immunosuppression drugs to prevent rejection of the graft. These drugs have potential adverse complications such as diabetes, gout or hypertension together with HTPL-specific atherosclerosis. Cardiac rehabilitation (CR) in HTPL recipients has been documented to be effective in reversing the pathophysiological consequences of cardiac denervation and prevent immunosuppression-induced adverse effects. Ischemic stroke represents the most common cerebrovascular complication after HTPL. We report two cases of successful CR in HTPL recipients with hemiplegic comorbidity.

CASE 1

One year ago, a 59-year-old man was admitted for treatment of exertional dyspnea. His diagnoses were 3-vessel coronary artery disease and dilated cardiomyopathy with LVEF of 10%. After undergoing coronary bypass surgery, his cardiac function worsened and he thus took subsequent HTPL. Two weeks after HTPL, the patient experienced left side weakness due to right anterior cerebral artery infarction. A year after HTPL, this patient was referred to our hospital for cardiac rehabilitation with left foot drop. He then performed ECG-monitored aerobic exercise training and a FES device was applied on the tibialis anterior muscle during gait training. The exercise intensity was set according to the Borg's rate of perceived exertion (RPE) scale of 13-14 for 30 minutes per session, 2 times a day for 12 weeks. After the 12-week program, the patient's VO₂max improved from 11.9 to 15.0 mL/kg/min (3.4 to 4.3 METs). No adverse cardiovascular event was observed throughout the entire CR program.

CASE 2

A 54-year-old woman, who had previously undergone aortic valve replacement and Maze procedure, was diagnosed with right MCA infarction. A year later, she presented at a hospital due to newly developed dyspnea. Echocardiogram showed prosthetic valve failure. Although the valve replacement was performed again, the prosthetic valve failure did not resolve and she thus took subsequent HTPL. She was referred to our hospital a year after and her left side weakness remained sequelae. Since her physical function was not sufficient for treadmill training, she started ECG-monitored aerobic exercise training on a reclined bicycle ergometer and the FES device was used for indoor gait training. The exercise intensity was set at an RPE of 13-14 for 30 minutes per session, 2 times a day for 6 weeks. As a Result of the CR program, the speed increased from 30 to 50 RPM and the workload of watts increased from 0 to 2. No adverse cardiovascular event occurred throughout the entire course of the exercise program.

CONCLUSION

Ischemic stroke is a major cerebrovascular comorbidity after HTPL and sequelae of stroke can be a big obstacle to CR and to gaining optimal exercise capacity. In our experience, CR after HTPL can be safe and effective for improving exercise capacity, even in patients with hemiplegic comorbidity.