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Impact of cardiac rehabilitation and optimization of pharmacological therapy in a patient with ischemic cardiomyopathy following complex percutaneous coronary intervention

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Introduction: Cardiac rehabilitation is an essential component of post-myocardial infarction care, particularly in patients with heart failure with reduced ejection fraction (HFrEF). In patients with multiple comorbidities and severe functional limitations, early rehabilitation requires an individualized, multidisciplinary approach.[1]

Case report: We present the case of a 60-year-old male patient with arterial hypertension, type 2 diabetes mellitus, chronic obstructive pulmonary disease, pulmonary hypertension, and obesity. The patient was hospitalized for non-ST-elevation myocardial infarction (NSTEMI), complicated by acute heart failure and pulmonary embolism. Echocardiography revealed dilation of all cardiac chambers, regional wall motion abnormalities, and severely reduced left ventricular systolic function (ejection fraction <25%). Contrast-enhanced echocardiography excluded left ventricular apical thrombus. The patient was treated with dobutamine and intensified diuretic therapy. Complex percutaneous coronary intervention (PCI) was performed with mechanical circulatory support Impella and intravascular ultrasound (IVUS) guidance. Two drug-eluting stents were implanted in the left anterior descending coronary artery and one in the right coronary artery. The procedure was completed without significant complications. Following acute treatment, the patient was enrolled in a 21-day inpatient cardiac rehabilitation program. At admission, he had severely impaired functional capacity, required a wheelchair for longer distances, and exhibited marked lower-limb muscle weakness. The baseline six-minute walk test (6MWT) could not be performed due to functional limitations. The rehabilitation program included progressive mobilization, individualized supervised exercise training, patient education, and psychological support. During rehabilitation, the fixed-dose combination of perindopril, amlodipine, and atorvastatin was discontinued, and sacubitril/valsartan and a fixed-dose combination of ezetimibe/atorvastatin were initiated. Sacubitril/valsartan was well tolerated, without symptomatic hypotension. NT-proBNP levels decreased from 3,463 to 1,472 pg/mL (57.5% reduction). At discharge, the patient was able to walk independently without assistive devices. He covered 130 meters on the 6MWT (25% of the predicted distance), stopping due to quadriceps pain. No significant arrhythmias were observed during supervised exercise sessions.

Conclusion: This case highlights the benefits of individualized early inpatient cardiac rehabilitation following complex PCI in a patient with severe HFrEF. Combined with further optimization of guideline-directed medical therapy for HFrEF, rehabilitation was associated with clinical stabilization, improved independent mobility, and a substantial reduction in NT-proBNP levels, although functional capacity remained markedly limited.

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LITERATURE

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