

Effect of Cardiac Rehabilitation on Ejection Fraction after Percutaneous coronary Intervention

Sarah Medhat Mohammed kamel^{1*}, Hany Ezzat Obaya²

¹Physiotherapist, National Heart Institute, Cairo, Egypt.

²Lecturer of Physical Therapy, Department of Cardiopulmonary/Respiratory Disorder and Geriatrics, Faculty of Physical Therapy, Cairo University, Egypt.

Abstract: Background: Coronary artery disease (CAD) is the main cause of death worldwide, and impair the patient's quality of life (QoL). Left ventricular ejection fraction (LVEF) as a clinical index of myocardial contractility and its pumping action is a well established predictor of mortality and long term prognosis in acute myocardial infarction (AMI). clinical trials have shown significant improvement in LVEF after exercise training and exercise could be effectively and safely used with low risk and moderate risk CAD patients. The aim of this study was to determine the effect of cardiac rehabilitation (CR) on ejection fraction and QoL after percutaneous coronary intervention (PCI).

Subjects and Methods: Sixty patients had been recruited from National Heart Institute (NHI), Cairo, Egypt. They were randomly assigned to 2 groups. Study group was 30 patients (21 men and 9 women, mean age was 52.2 ± 4.9 years) that had been received aerobic moderate intensity exercise training on bicycle ergometer for 50 minutes, 3 times/week, day after day, for 3 months, while control group was 30 patients (20 men and 10 women, mean age was 53.4 ± 4.8 years) that had been received the traditional cardiac care without any exercise training in form of routine pharmacological therapy and lifestyle education. All patients were within the first year after PCI. Doppler echocardiography was used to measure LVEF, left ventricle end diastolic diameter (LVEDD) and left ventricle end systolic diameter (LVESD), and Nottingham health profile (NHP) questionnaire was used to measure differences in QoL between both groups. Both measurements were done before and after the study.

Results: At the end of the study, a significant increase was observed in LVEF ($P < 0.05$), without any significant changes in LVEDD and LVESD, also, improvement in QoL were observed in the study group ($P < 0.05$) when compared to control group.

Conclusion: CR could improve LVEF and QoL after PCI. Aerobic exercise is a good method that improves cardiac contractility and ejection fraction (EF), and did not have adverse effects on LVEDD and LVESD nor cause severe cardiovascular complications.

Key words: Cardiac Rehabilitation, Percutaneous Coronary Intervention, Left Ventricular Ejection Fraction, Quality Of Life.