Impact of Revascularization Via PCI in Ischemic Cardiomyopathy on LV Function and Clinical Outcomes

Mahmoud Shalaby [1], Mahmoud Hassanein [2], Tarek Elzawawy [2], Dr Doaa Elkholy [3]

[1] Senior Fellow, Alexandria University, [2] Professor of Cardiology, Alexandria University, Consultant and Lecturer of Cardiology, Alexandria University

Background:

The primary rationale for coronary revascularization in ischemic cardiomyopathy is based on reducing chronic ischemia and restoring function in hibernating myocardium. There is a knowledge gap regarding the functional and clinical benefits of PCI in patients with ICM, particularly in relation to myocardial viability assessment.

Aim and objectives:

The aim of the study was to identify the Impact of revascularization by Percutaneous coronary intervention in patients with ischemic cardiomyopathy on left ventricular function and regional wall motion.

Methods:

Our study was done in a single tertiary center. The study enrolled 60 patients, prospectively, with stable ICM (LVEF <40% and significant coronary artery disease). Dobutamine stress echocardiography (DSE) was used to assess myocardial viability, and PCI was performed according to standard guidelines. Patients were followed at three- and six-months post-procedure. Primary outcome was LVEF changes. Secondary outcomes were NYHA and CCS classifications, six-minute walk test (6MWT) performance, hospitalization and mortality rates.

Result:

The primary outcome: We found a significant increase in the ejection fraction (EF) over six months, with values ranging from 25.0% to 40.0% at baseline, 25.0% to 50.0% at 3 months, and 25.0% to 55.0% at 6 months. The mean EF improved from 36.10% to 37.53% at 3 months and 38.64% at 6 months ($p = 0.001$).

The secondary outcomes: Statistically Significant improvements in NYHA classification were observed, with Class I patients increasing from 16.7% at 3 months to 27.6% at 6 months, Class II patients rising from 71.7% to 62.1%, and Class III decreasing from 11.7% to 8.6% ($p < 0.001$). CCS classification showed 80.0% in Stage 1 at 3 months, rising to 82.8% at 6 months, also showing significant improvement ($p < 0.001$). The 6-minute walk test (6MWT) showed improvement in scores, with a mean score of 351.50 at baseline, 368.17 at 3 months, and 399.2 at 6 months, with statistical significance ($p = 0.001$ at 3 months, $p < 0.001$ at 6 months).

Conclusion:

This study highlights the significant benefits of viability guidance in revascularization in patients with ischemic cardiomyopathy, particularly in improving ejection fraction (EF), functional status, and quality of life.

Keywords:

PCI, viability, Ischemic cardiomyopathy