Evaluation of Left Ventricular Function After Revascularization of Chronic Total Occlusion of Left Anterior Descending Coronary Artery Using Speckle Tracking Echocardiography

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Background:

Revascularization of a chronic total coronary occlusion (CTO) of left anterior descending (LAD) artery lead to recovery of the hibernating myocardium that will improve left ventricular (LV) function

Aim and objectives:

The purpose of this study was to evaluate the role of two dimensional speckle tracking echocardiography (2D-STE) in evaluation of the LV systolic function in patients had CTO of LAD at 1 day as well as at 3 months after revascularization

Methods:

This prospective observational study included 100 patients who were diagnosed by coronary angiography to have CTO of LAD.

The study was performed at the Cardiology Departments of Benha University Hospitals and Maadi Military Hospital. In accordance with established protocols. Using (2D-STE) was to measure global longitudinal strain (GLS) and LV functions. Follow-up of patients was done at day 1 and 3 months later after PCI.

Result:

100 patients included in this study, with a mean age 58.55±7.98 years. (GLS) and wall motion score index (WMAI) difference at baseline and follow-up shows a positive correlation with left ventricular ejection fraction (LVEF) changes at baseline and follow-up ($p<0.001$).Mean of baseline left ventricular end systolic volume (LVESV) was 61.52±15.14 and follow-up LVESV was 50.60±14.07 with statistical difference ($p=0.047$). Mean value of baseline GLS (-14.26±0.93) and follow-up GLS was (-18.66±0.92) ($p<0.001$).

Conclusion:

Revascularization of CTO of LAD improve LV function. In patients undergoing CTO revascularization, change in longitudinal strain (LS) and GLS was more accurate and sensitive predictors for improvement LV function at 3 months follow-up.

Keywords: Left Ventricular ejection fraction; Percutaneous Coronary Intervention, Speckle tracking echocardiography