Effect of PCI on Cardiac Function in Chronic Stable Angina Patients with "Normal" Ejection Fraction: A Tissue Doppler Study

Abstract

Background: Patients with stable coronary artery disease may have subtle derangements in their cardiac function before evident changes occur in conventional echocardiography-derived ejection fraction (EF). These derangements manifest firstly in the longitudinal before circumferential LV function. The effect of percutaneous coronary intervention (PCI) on ventricular function in patients with chronic stable angina has shown controversial results. In the current study, we tried to assess the impact of PCI on myocardial systolic and diastolic function using different noninvasive indices in patients with stable coronary artery disease.

Methods: A total of 50 patients scheduled for elective PCI were enrolled in this study. All had chronic stable angina and a left ventricular ejection fraction >55%. All underwent echocardiographic evaluation of left ventricular function using EF and Myocardial Performance Index (MPI), in addition to pulsed-wave tissue Doppler imaging (TDI) at the mitral and lateral tricuspid annulus. All indices were measured one day before and 5 days after PCI.

Results: 44% of the patients were males and 56% were females. The mean age was 55.5 ± 9.1 years. There was a significant improvement of the mean systolic myocardial velocity S′ wave in the LV as a whole and the lateral RV annulus 5 days after intervention irrespective of the lesion site. There was also a highly significant improvement in anterior S′ wave velocities 5 days after intervention.

Conclusion: Pulsed wave tissue Doppler is more sensitive in post-PCI monitoring and follow up of systolic function in patients with chronic stable angina and seemingly normal baseline cardiac function.