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## Longitudinal 2D strain analysis to predict coronary artery disease in patients without regional wall motion abnormality

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**Aims:** Speckle-tracking imaging is a novel method for assessing left ventricular function and ischemic changes. The aim of this study was to predict the presence of coronary artery disease by longitudinal 2D strain analysis using speckle tracking echocardiography in patients with stable or unstable angina with no regional wall motion abnormality at rest.

**Methods:** This cross-sectional study included a total of 66 patients (mean age,  $51.92 \pm 8.9$  years) with suspected coronary artery disease, without regional wall motion abnormality on resting echocardiography who underwent coronary angiography. Longitudinal 2D strain analysis by speckle tracking echocardiography was performed in all patients before coronary angiography. Global and segmental peak systolic longitudinal strain were recorded & computed by offline dedicated software semi-automatically on bull's-eye report. The patients were divided into two groups according to the coronary angiographic findings; group-I: significant coronary artery disease on coronary angiogram (n=35), group-II: normal coronaries on coronary angiogram (n=31). All the baseline characteristics and outcomes were then compared between the two groups.

**Results:** Peak systolic longitudinal strain values of all left ventricular segments were obtained successfully in 66 patients. Peak systolic longitudinal strain (both global and segmental) was significantly decreased in patients with significant coronary artery disease on coronary angiogram group. Receiver operating characteristic curve analysis demonstrated that global peak systolic longitudinal strain could effectively detect patients with coronary artery disease (area under receiver operating characteristic curve=0.877, 95% CI=0.749–0.960). According to receiver operating characteristic curve analysis, -18.77% appeared to be a good cutoff value for predicting those with significant coronary artery disease (specificity 77.4% and sensitivity 82.9%).

**Conclusion:** The present study showed that resting peak systolic longitudinal strain (global & segmental) is significantly reduced and highly sensitive to detect significant coronary artery disease in patients with stable & unstable angina, even when resting wall motion and LV ejection fraction were normal. It is also observed that 2DSTE seems capable in identifying high risk patients with left main & triple vessel disease.

### Biography

MD Saqif Shahriar has done his graduation in 2006 from Sir Salimullah Medical College. He has completed his postgraduate fellowship & completed his MD in cardiology with a good result & become the younger Cardiologist in Bangladesh in 2014. He has a good experience in clinical & Interventional cardiology. He is involved in cardiovascular research work & has some publications. He is now working as a Registrar Cardiologist in National institute of Cardiovascular diseases, Bangladesh.

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