

value of global longitudinal peak systolic strain derived by 2-d speckle tracking in detection of obstructive coronary artery disease

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ABSTRACT

BACKGROUND

Non-invasive identification of patients with coronary artery disease (CAD) remains a clinical challenge despite the widespread use of imaging and provocative tests and Speckle tracking echocardiography has been validated for assessment of global and regional left ventricular myocardial function which is affected in patients with obstructive CAD

OBJECTIVE

Early detection of obstructive coronary artery disease using average global longitudinal Peak Systolic strain (GLPS-Avg) derived by 2-D Speckle Tracking.

PATIENTS AND METHODS

75 patients with chronic stable angina were enrolled in this prospective case control study, (Mean age was 56.69 ± 6.96 y, 35 were males), 42.7 % were diabetic and all patients were assessed by thorough history taking, clinical examination, 12 lead surface ECG, conventional, speckle Echocardiography and coronary angiography in Mansoura specialized medical hospital over a period of 7 months from march 2017 to October 2017

RESULTS

Statistically significant decrease was found in GLPS-Avg values in patients with obstructive CAD when

compared to patients with normal coronary angiography ($p < 0.001$) and in patients with 3 or more risk factors when compared to patients with one or two risk factors ($p = 0.014$), And when syntax score was increasing among patients with obstructive CAD a significant decrease in median GLPS-Avg values was noted ($p < 0.001$), but when regional systolic strain values were compared to affected coronary arteries no significant difference was found ($p = 0.844$) i.e almost identical correlation between affected segments by speckle tracking and obstructed arteries by coronary angiography.

Multivariate logistic regression analysis showed that GLPS-Avg was found as a predictor for obstructive coronary artery disease in patients with chronic stable angina ($p = 0.028$ with odds ratio 31.4 and 95% CI (1.85-535))

ROC curves were established and cutoff value was determined for GLPS-Avg as -16 with 89.8% sensitivity and 100% specificity

CONCLUSION

longitudinal strain derived by speckle tracking can be used as non-invasive simple test for evaluation of patients with chronic stable angina and as a predictor for presence or absence of obstructive CAD

KEYWORDS

Speckle Tracking – Coronary artery disease – Coronary Angiography.