A pilot study of the relationship between SYNTAX score and myocardial ischemia with exercise induced left ventricle dilatation as assessed by myocardial perfusion imaging

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Background: Although the Synergy between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery (SYNTAX) score is used to characterize coronary anatomy based on 9 anatomic criteria such as lesion location and complexity, the relationship between SYNTAX score and myocardial ischemia has yet to be elucidated. The main aim of our study was to identify the value of exercise induced LV dilatation and to know whether or not it was a sign of balanced ischemia or 3 vessel disease and its relation to the SYNTAX score as regards to lesion complexity.

Methods and results: Our study included 65 patients that were divided into two groups. The first group had 33 patients with no exercise induced left ventricular (LV) dilatation (mean age: 56.27 ± 11.49 years; range: 32–80 years; 26 male patients; 7 female patients). The second group had 32 patients with exercise induced LV dilatation (mean age: 57.22 ± 6.58 years; range: 40–76 years; 28 male patients; 4 female patients). The patients were consecutively included in our study. All patients included into the study underwent one-day stress-rest 99mTc-sestamibi single photon emission computed tomography myocardial perfusion imaging (SPECT)(MPI) using treadmill exercise test and were then divided into one of two groups, according to whether or not they had exercise induced LV dilatation in their MPI images. Summed stress score (SSS), summed rest score (SRS) and summed difference score (SDS) were calculated using the acquired images. Their values were then used to estimate the percentage of ischemia. All patients underwent Coronary angiography and the SYNTAX score was calculated using the SYNTAX score calculator available at www.syntaxscore.com. The relationship between the SYNTAX score and the percentage of ischemia in both groups was compared. The results showed that the group with LV dilatation had higher SYNTAX scores. And the SYNTAX score correlated positively with the percentage of ischemia. While the group with no exercise induced LV dilatation had no correlation between the SYNTAX score and the percentage of ischemia. There was no statistically significant relation between exercise induced LV dilatation and the number of affected vessels even when moderate lesions were considered. The SRS, SSS and the SDS correlated positively in both groups with the percentage of ischemia. While the SSS and the SDS correlated positively with the SYNTAX score only in the group with exercise induced LV dilatation.

Conclusion: From these results we can concur that exercise induced LV dilatation is a sign of increased severity of coronary artery disease. Also that the percentage of ischemia correlates with the SYNTAX score only when exercise induced LV dilatation is present.

The value of left atrial deformation analysis as a predictor of severity of coronary artery disease

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Study design: A total 30 patients with stable coronary artery disease (SCAD) with coronary artery stenosis (>50%) who was admitted for elective coronary angiography at Ain Shams University hospitals was included in the study. Measurements of conventional echocardiographic parameters as well as peak LA longitudinal strain during ventricular systole (PALS) and peak LA Contraction strain during atrial systole (PACS) were calculated. Also the syntax score was calculated for all patients.

Results: Patients were categorized into 3 groups: low SYNTAX score of <23 (Group I), moderate syntax score 23-33 (Group II) and high syntax score of >33 (Group III). PALS (Group I: 29.80 ± 4.48, Group II: 22.44 ± 1.42, Group III: 19.53 ± 4.46; p < 0.001) and PACS (Group I: 13.43 ± 4.05, Group II: 10.84 ± 2.47, Group III: 7.19 ± 0.71; p < 0.022). Correlation analysis indicated inverse correlation between SX score level and LA strain parameters (PALS and PACS) (r = 0.861; p < 0.001).

Conclusion: Left atrial deformation analysis by 2D Speckle tracking Doppler Echocardiography can predict the severity of coronary artery disease. In addition left a trial diastolic dysfunction occurs despite normal LV diastolic function in patients with CAD and PALS is a sensitive echocardiographic parameter for estimating severity coronary stenosis in patients with SCAD.

Radial versus femoral access for primary percutaneous interventions in acute myocardial infarction in over 55 years old patients

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Background: The transfemoral approach (TFA) has been until presently the main-stay for arterial access PCI in the setting of acute STEMI, while the transradial approach (TRA) is gaining ground in elective and to a lesser extent in primary procedures. The number of over 55 years old patients undergoing percutaneous coronary intervention has increased over the last few decades. Studies have demonstrated that old age is a significant predictor of failure in procedures performed using the radial route due to tortuosity and that it is associated with a greater need for conversion to an alternate access route. However, old age is a significant risk factor for severe bleeding and vascular complications related to the procedure. Although access through the radial artery is an attractive approach for PCI in elderly patients, due to its potential to reduce vascular complications and therefore to reduce bleeding, the technical challenges typically encountered using the radial approach and the potentially reduced rate of success of the procedure in these patients may discourage interventionists from using it in this scenario.

Aim of the Work: Our study aimed to evaluate safety (expressed as potential reduction of bleeding complications) in the TRA compared to TFA in over 55 years old patients presenting with acute STEMI who are referred for primary PCI, and to assess the efficacy (expressed as door-to-balloon time) of TRA in comparison to TFA.

Patients and Methods: This study was conducted on 40 patients presenting to Nasser Institute with recent onset of acute STEMI undergoing revascularization via primary PCI in the period from December 2016 till December 2017, the patients were divided into 2 equal groups, for the first group primary PCI was performed via TFA while for the second group via TRA.