Heavy Coronary Calcification in The Egyptian Patients: Prevalence, Patient Characteristics and Clinical Outcomes

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BACKGROUND

Coronary artery calcification (CAC) is a well-established surrogate marker of the total burden of coronary atherosclerosis. The CAC score (CACS), as measured on coronary computed tomography (CT), is associated with the prevalence of coronary artery disease as well as cardiovascular morbidity and mortality.

OBJECTIVE

To determine the prevalence of heavy calcification in the Egyptian patients by MSCT (multi- slice CT), their clinical characteristics and the relation to their clinical outcomes.

MATERIALS AND METHODS

A retrospective and prospective study of 500 participants that were referred to ICC scan center for coronary MSCT. CACS was measured by 64-128-MSCT and patients were classified in to two groups, heavy (CACS>400) and non-heavy (CACS≤400) calcification groups. Both were screened for traditional risk factors and were followed up for a period ranged from 12 to 24 months for the occurrence of MACE (major adverse cardiovascular events) which in this study was identified as cardiac death, nonfatal MI, unstable angina, revascularization and nonfatal stroke.

RESULTS

The incidence of patients with heavy calcification was 120 patients (24% of the study population). In the heavy calcification group 70.8% were males in comparison to 52.1% in the non-heavy group. The median age in the heavy group was significantly higher (65 years in comparison to 56.5 years in the non- heavy group). The incidence of diabetes and hypertension was significantly higher in the heavy group than the non-heavy one (54% and 75.8% in the heavy group versus 33.3% and 65.8% in the non-heavy one). There was a statistically significant positive difference in cardiac deaths, unstable angina and revascularization between the heavy and non-heavy groups (3.3% versus 0% for cardiac deaths (P=0.003), 5% versus 0.5% for unstable angina (P=0.003), 29.2% versus 14.2% for PCI (P<0.001) and 5% versus 1.1% for CABG (P=0.015)).

CONCLUSION

Egyptian patients with heavy calcification were shown to be older in age and have higher incidence of diabetes and hypertension than those with non-heavy calcification. They also showed a higher risk for incident cardiac death, unstable angina and revascularization. CACS may lead to improvement in risk stratification in asymptomatic Egyptian patients in the intermediate risk category.

KEYWORDS

Cardiac Rehabilitation, Left Ventricular Systolic Function, Ejection Fraction, Left Ventricular Diastolic Function, Doppler Imaging, Speckle Tracking Echocardiography, Global Longitudinal Strain.