ABSTRACT

Background: The coronary artery calcium score (CACS) is a method of quantitatively evaluating the presence and degree of calcification within the coronary arteries. It is a validated screening tool for coronary artery disease. However, it has been proposed that patients of South-Asian descent have a higher incidence of non-calcified coronary plaques, potentially resulting in a lower sensitivity of CACS in this population.

Methods: This was a retrospective analysis of patients who underwent both CACS and coronary computed tomography angiography (CCTA). Quantification of CACS was achieved using the Agatston method. South-Asian and Caucasian patients presenting with a first episode of chest pain were selected and grouped according to ethnicity. The sensitivity and specificity of a positive CACS for detecting significant stenosis (>50%) in the two groups were evaluated.

Results: A total of 1402 patients (SA = 878, C= 524) were included in this study. The mean age was 56.8 ± 13.1 and 60.9% were male. 612 (43.7%) patients had a normal CCTA, 306 (21.8%) had <50% stenosis and 484 (34.5%) had significant stenosis. Overall, sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of CACS for >50% stenosis was 93.0%, 68.1%, 60.6% and 94.8%. There were no significant differences between the two groups in terms of sensitivity, specificity, PPV, and NPV.

Conclusion: A positive CACS is equally sensitive in detecting >50% stenosis in both South-Asians and Caucasians.