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Underuse and Misuse of Newer Antidiabetic Medications with Established Positive Cardiovascular Outcome

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Background: Ischemic Heart Disease (IHD) is the leading cause of death worldwide. The primary pathological process resulting in IHD is coronary artery atherosclerosis. Despite advances in CT scan technology, the Agatston method is still the most popular method for measuring coronary artery calcification. Various studies have shown that determining the degree of calcification using Coronary Artery Calcium Score (CACS) is the most reliable noninvasive method of risk assessment. Coronary CT Angiography (CCTA) might be required following CACS measurements. However, there is no consensus regarding a specific CACS cut-off for determining the need for CCTA.

Objectives: This study aimed to compare the severity of coronary calcification to CTA findings. **Methods:** This retrospective study was conducted on 261 patients with cardiovascular risk factors or atypical symptoms. An ECG-gated multi-detector CT scan was performed to calculate CACS using the Agatston method. Then, CCTA was performed by injection of the IV contrast agent. The presence of significant coronary artery stenosis was defined as $\geq 50\%$ diameter reduction in CCTA images. Univariate and multivariate analyses were performed using binary logistic regression.

Results: Among the patients, 58.2% had no stenosis and 17.6% had significant stenosis. According to the results of univariate analysis, higher age, hypertension, and lower estimated Glomerular Filtration Rate (eGFR) were associated with a significant increase in coronary artery stenosis. Following multivariate analysis, only GFR was suggested as an independent risk factor, which indicated the important role of GFR as a confounder. Approximately half of the cases (48.6%) had no calcification (CACS = 0), among whom only one patient (0.8%) had significant stenosis on CCTA images. In the minimal subgroup ($0 < \text{CACS} \leq 10$), one patient (3.1%) showed significant stenosis ($P < 0.01$). The results revealed a gradual and independent association between higher CAC scores and increase in the incidence of significant stenosis.

Conclusions: Due to the low prevalence of significant stenosis in patients with $\text{CACS} \leq 10$, CCTA is not recommended in this group, resulting in less radiation exposure and reduced health system costs. In patients with $\text{CACS} > 10$, the likelihood of significant stenosis requiring invasive treatment increases.

Biography

Dr Syed Raza graduated from Aligarh University in India in 1993. After completing his postgraduate degree in Medicine from the same university, he moved to the UK for higher specialist studies. He successfully completed MRCP and CCT and later also awarded Fellow of the Royal College of Physicians of Edinburgh. He was awarded professor John Goodwin prize for outstanding performance in Diploma Cardiology exam at Hammersmith Hospital, University of London in 2001.

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