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Abstract 23: High Coronary Calcium Score and Diagnostic Accuracy of CT Coronary Angiography

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Introduction: In the UK, CT coronary angiography (CTCA) is recommended as a first line investigative tool to assess coronary artery disease. However, the impact of a rising Agatston calcium score (ACS) upon CTCA diagnostic accuracy is debatable. A mixed body of literature advocates the use of ACS as a gatekeeper to the use of CTCA with cutoff values ranging widely from 400 to > 1000. This study seeks to evaluate the diagnostic accuracy of CTCA in patients with a high ACS with a view to changing local practice at our tertiary centre.

Methods: A retrospective study was performed. Sectra PACS and EPR were searched to identify patients who had undergone a CTCA with an ACS of > 400 and had a further investigation or follow up at our institution. 57 patients were included in this study. The total patient ACS was recorded and disease severity was documented from the CT reports. Correlation between the CT report and further investigations included reviewing myocardial perfusion studies, stress MRI/echocardiogram and invasive coronary angiogram. Data was processed, diagnostic accuracy of CT was evaluated in comparison to the further investigations and thresholds for future scanning in patients with high ACS for our institution were determined.

Results: Mean (SD) age was 63.8 (10.2) years and 40 were men. Of these, 38/57 (66.7%) had further investigations. 13/57 (22.8%) patients had at least one artery on CTCA that was deemed not-reportable due to the degree of calcification. The mean total ACS for these cases was 1383 compared to 987 for fully reportable CTCA studies ($p = 0.05$). For 21/38 (55.3%) cases there was a good level of diagnostic agreement between CTCA and the follow-up investigation. The mean total ACS for these cases was 1032 compared to 1361 for poor diagnostic agreement ($p = 0.17$).

Conclusions: In this small study, the mean total ACS for a fully reportable and diagnostically accurate CTCA study was 987 and 1032 respectively. Therefore, in our institution, we propose a new total ACS cut-off of ≤1000 for progression to CTCA.

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