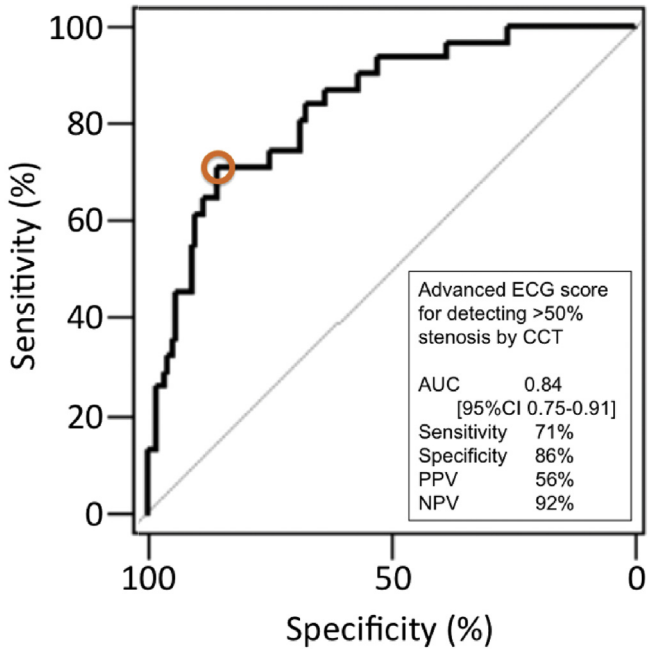
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Figure 1: Receiver operating characteristic (ROC) curve showing the diagnostic accuracy of the A-ECG CCT score.



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ASSESSING THE APPROPRIATENESS AND EFFECTIVENESS OF CORONARY CT ANGIOGRAPHY IN COVID-19 PATIENTS WITH CHEST PAIN

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Introduction: Coronary CT angiography (CCTA) is well established for chest pain (CP) evaluation to assess coronary artery stenosis. However, the appropriateness of CCTA for COVID-19 patients with CP is unclear because a cardiac cause of CP in COVID 19 patients can be multifactorial, from direct viral myocardial injury to secondary hypercoagulability and to coronary stenosis. The purpose of this report is to examine the appropriateness of CCTA for CP evaluation in laboratory confirmed COVID 19 patients.
Methods: We retrospectively reviewed consecutive COVID 19 patients with CP between March 7, 2020 and January 2021. COVID-19 diagnosis was confirmed using the reverse transcriptase polymerase chain reaction (RT-PCR) test (Cobas SARS-CoV-2, Roche, Indiana, USA and the Xpert Xpress SARS-CoV-2, Cepheid, California, USA). A waiver for individual consent was approved by the Institutional Review Board. Patient's demographic data, vital signs, ECG and laboratory results were collected. The European Consortium clinical pre-test probability score for coronary artery disease was calculated where the low pretest probability was defined as <5%, intermediate probability 5-70% and high probability>70%. Patients less than 40 years old (N=3) were treated as if they were 40 years of age in order to calculate their score. The score was calculated to predict coronary stenosis >50% by CCTA, which was performed using a 320-detector CT (Acquilion One, Vision, Canon, USA) with prospective ECG gating.
Results: Among 40 patients studied, 21 were female and the mean age was 53 years. No patient was known to have pre-existing coronary artery disease. Based on the clinical criteria there were 11 patients having low pretest probability <5% and the remaining 29 having intermediate probability ranging from 5% to 47%. None had high pretest probability. ST/T wave abnormalities were found in 14 (35%) and Q wave abnormality in 5 (13%) patients. Out of the 38 patients with calcium score imaging performed, 23 (61%) had zero calcium score. To minimize radiation exposure 2 patients did not receive calcium score imaging due to young age (<30 years). The subsequent CCTA was normal in one and severely abnormal with 3-vessel disease in the other. Among the patients with low pretest probability (N=11) none had significant coronary stenosis of >50%. Of the remaining 29 patients with intermediate probability, 8 (28%) had significant stenosis. The ECG findings of ST/T or Q wave abnormalities did not differentiate those with or without significant coronary stenosis by CCTA.
Conclusions: In this case series we found that clinical risk stratification using The European Consortium pre-test probability score was effective in COVID-19 patients with CP. Thus, clinical risk stratification combined with CCTA remains to be appropriate and effective for coronary artery disease evaluation in COVID 19 patients with CP.

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DISRUPTIVE POWER OF CTCA IN A DGH'S ENDEAVOUR TOWARDS VALUE BASED HEALTH CARE

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Introduction: In 2016, NICE CG 95 was revised to recommend CT coronary angiography (CTCA) as the first line test for angina or non-anginal chest pain with ECG abnormalities. Additional capacity modelling, to deliver this guideline, performed by the British Society of Cardiac Imaging, demonstrated a mismatch with current capacity. There is an additional disparity between a district general hospital (DGH) and tertiary centres to deliver CTCA in England. The initial point of contact for patients will be their local DHG. 5 years on, we sought to assess the local impact CTCA has had; to establish if it truly has offered an acceptable alternative to invasive coronary angiography (ICA) in our population of approximately 800,000, and to predict its fiscal impact.
Methods: Utilising data collected through local audit, we ascertained the absolute numbers of CTCA and ICA being performed in the trust between 2018 and 2020, and the outcome for these patients in regards to disease severity. Economic modelling utilized the same 2014/15 hospital resource group tariffs as utilized by NICE in guidance MTG32.
Results: Between 2018 and 2020, there has been a steady decline in the number of ICAs performed (2018 n=637; 2020 n=453), with a proportionate increase in the utilization of CTCA (2018 n=423; 2020 n=664). Total number of diagnostic procedures has remained consistent. A linear extrapolation predicts 850 CTCAs vs 240 ICA in 2022. This equates to significant cost savings, with total predicted cost of anatomical imaging in 2022 being nearly half that of 2018. £488,920 [2022] vs £885,607 [2018]. At present, ~7% of CTCA patients also undergo HeartFlow CT FFR analysis. This technology has been provided by NHS England with no additional local commissioning costs however this is soon to change. The presented costing assumes a generous 10% of CTCA patients in 2022 undergo this additional level of testing.We found no difference between age or co-morbidities in patients referred for CTCA of ICA. In addition, there was no significant difference in onward referrals for revascularisation 23% in the CTCA group after use of CT FFR reduced onwards referral by 60% and 18% following invasive angiography.
Conclusions: Despite initial challenges to service delivery, in line with national guidance, CTCA now represents the locally preferred investigation. This is associated with highly significant cost savings, particular when viewed at the level of a district general hospital.