Specificity of ENC2015 was established with co-infusion of the Factor XIIIa inhibitor, iodoacetamide. 18F-ENC2015 biodistribution, kinetics, radiometabolism and ability to bind to an acutely thrombosed artery in vivo were characterised in rats.

Results Both Cy5 and fluorine-18 labelled ENC2015 rapidly and specifically bound to both low and high shear thrombi. Both thrombus fluorescence and PET radioactivity was inhibited by a factor XIIIa inhibitor. There was no metabolism of 18F-ENC2015 for over 8 hours when incubated ex vivo in whole human blood. In vivo, approximately 42.0% of parent radiotracer remained in the blood 60 min post-administration. Biodistribution studies demonstrated low uptake and rapid clearance from tissues with elimination via the urinary system. In an in vivo rat model of arterial thrombosis, 18F-ENC2015 uptake was markedly increased in the thrombosed carotid artery compared to the contralateral patent artery (mean standard uptake value ratio of 2.40 versus 0.74, $p < 0.0001$).

Conclusion ENC2015 rapidly and selectively binds to acute thrombus in both an ex vivo human translational model and an in vivo rodent model of arterial thrombosis. This probe holds promise for the non-invasive identification of thrombus formation in cardiovascular disease.

Figure 1. Biodistribution and thrombus binding of 18F-ENC2015 in rats. Panel A shows images of the time averaged uptake within the thrombus and skin incision compared with the contralateral vessel. Panel B is a decay corrected time activity curve showing 18F-ENC2015 kinetics (mean SUV, $n=3$) within our in vivo thrombosis model. Note the rapid blood pool clearance of 18F-ENC2015 with early uptake in the skin incision which tails off to equilibrate with the arterial thrombus between 60 and 90 mins. Panel C demonstrates the mean change in SUV ratio of the thrombosed vessel compared with contralateral vessel and LV blood pool over time ($n=3$). Thrombus vs contralateral vessel SUV from 35 to 180 minutes p value < 0.0001 (paired t -test).

Conflict of Interest None

8 AN ANALYSIS OF EXTRA CARDIAC FINDINGS GENERATED BY THE EXPANSION OF CT CORONARY ANGIOGRAPHY AT A DISTRICT GENERAL HOSPITAL

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Introduction The updated 2016 NICE guidelines for stable chest pain recommend CT coronary angiography (CTCA) as the first line investigation for all patients presenting with stable chest pain. The implementation of these guidelines has led to the expansion of CTCA services. The CT scanning field of view extends beyond the heart resulting in extra-cardiac findings, which can require further investigation. Our aim was to assess the impact of the expansion of CTCA on the volume of extra cardiac findings, and to quantify the frequency and cost of the downstream tests generated.

Methods We undertook a retrospective audit of all CTCAs performed between January 2017 and June 2018 at a district general hospital. Extra-cardiac findings in the CTCA report were classified according to whether they were clinically

significant or insignificant. We analysed which scans required downstream investigation and follow up, and the financial implications using standardized NHS England tariffs.

Results A total of 652 scans were performed with a total of 202 (26.2%) individual incidental extra-cardiac findings, 106 (16.3%) were deemed to be clinically significant requiring further investigation or referral to a specialist clinic. The extra-cardiac findings were abdominal (45), thoracic (42), cardiac (14), and involving breast tissue (5). The most common specific extra-cardiac findings were liver cysts (36) and pulmonary nodules (22). Two lung malignancies was identified.

There were a total of 122 further investigations or referrals generated by extra-cardiac findings. The most common downstream investigations required were abdominal ultrasound (40), CT thorax (21), and echocardiogram (12). Referral to a specialist clinic for further assessment was required in 31 patients including 5 to a triple assessment breast clinic.

The total additional cost of imaging investigations or onwards referral to a specialist clinic was £12,464. Broken down by category, thoracic findings required £7,828, abdominal findings £1,710, cardiac findings £2,226, and breast findings £700. The added cost on average per patient for investigating and referring on extra-cardiac findings was £19.

Conclusion Our data suggests that CTCA generates a significant number of clinically relevant extra-cardiac findings that require further investigation. These have additional costs and generate significant workload for the rapid access chest pain clinic. Importantly, we identified significant delays in the downstream investigations in the absence of robust referral pathways. The expansion of CTCA to even older patients will increase the extra-cardiac findings and will require hospitals to develop referral pathways and to clearly delineate responsibility for further investigation, follow up and onwards referral of important findings. Although somewhat controversial due to ethical considerations of missing potentially pre-malignant and malignant conditions, limiting the scanning field of view to scan just the heart, may reduce the number of incidental findings and limit radiation exposure¹.

REFERENCE

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Conflict of Interest None

9 EFFECT OF COFFEE CONSUMPTION ON ARTERIAL STIFFNESS FROM UK BIOBANK IMAGING STUDY

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Introduction Coffee is widely reported to be the world's most popular drink and previous studies revealed acute increases in arterial stiffness with its consumption. But, the reported