Abstracts

P9 CORONARY ARTERY CALCIFICATION ON THORACIC CT IS ASSOCIATED WITH PULMONARY HYPERTENSION AND IS AN INDEPENDENT PREDICTOR OF MORTALITY IN SYSTEMIC SCLEROSIS

1Jennifer Rossdale, 2John Gray, 2Pia Charters, 3Tim Burnett, 3Maredudd Harris, 3Calum Jones, 4Davyd Greenish, 3Jessica Bartlett, 3Andrew Gilroy, 1Jamie Sanghera, 3Graham Robinson, 4,5John D Pauling, 6Sarah Skeoch, 7Victoria Flower, 8Rob Mackenzie Ross, 2Jay Suntharalingam, 3Jonathan CL Rodrigues. 1Respiratory Department, Royal United Hospitals Bath NHS Foundation Trust, UK; 2Cardiology Department, Royal United Hospitals Bath NHS Foundation Trust, UK; 3Radiology Department, Royal United Hospitals Bath NHS Foundation Trust, UK; 4Rheumatology Department, Royal United Hospitals Bath NHS Foundation Trust, UK; 5Rheumatology Department, North Bristol NHS Foundation Trust, UK.

10.1136/heartjnl-2022-BSCI.14

Objective Coronary artery calcification (CAC) on thoracic computed tomography (CT) is a known biomarker of coronary artery disease and mortality. Systemic Sclerosis (SSc) is a pro-inflammatory condition; microvascular inflammation is increasingly hypothesised to drive pulmonary hypertension (PH) in SSc. Inflammation is also a driver of CAD. We hypothesised that CAC would be prevalent and associated with mortality in SSc.

Methods Retrospective analysis of 262 CTs in SSc patients from a prospectively maintained clinical database at a tertiary Rheumatology/PH service March 2007-March 2021 (mean age 65±12, 14% male). 86/262 (33%) had interstitial lung disease (ILD), 128/262 (49%) had PH. CTs were re-reviewed for CAC; severity was graded by experienced readers using a four-point scale per vessel and summed for total CAC score (CACS).

Results CAC was present in 152/265 (57%). All-cause mortality occurred in 65/262 (25%) patients over mean 5±3 years follow-up. Presence of CAC was associated with >2 times risk of death (Hazard ratio [HR] 2.41; 95% CI 1.3–4.5; p=0.006), correcting for age and gender. PH was predictive of mortality (HR 3.6, 95%CI 1.4–9.3, p=0.007), corrected for age and gender; ILD was not (HR 1.3, 95% CI 0.8–2.2, p=0.34). PH was significantly associated with CAC (X²=7.7, p=0.009). In contrast, ILD had no significant association with CAC (X²=0.57, p=0.81).

Conclusion CAC is common in SSc and is associated with PH. PH and CAC are predictors of mortality in SSc and both have a hypothesised pro-inflammatory driver. Further validation is required to assess the potential role for anti-inflammatory therapies.

P10 ACTIVITY OF THE SPLEEN AND BONE MARROW IN RELATION TO CARDIO-PULMONARY INJURY IN PATIENTS WITH ACUTE COVID-19 EVALUATED BY 18F-FLUORODEOXYGLUCOSE POSITRON EMISSION TOMOGRAPHY/COMPUTED TOMOGRAPHY IMAGING

1Florence Moosy, 2Rachel Scott, 1Ahmed El-Medany, 3Sudhir Vinayak, 2Kevin P Horn, 3Stephen R Bowen, 4Khadij Makhdomi, 5Kevin Onyankwa, 5Marijah Obino, 5Edward Nganga, 6Michael Chung, 7Anoop SV Shah, 8Shiriel R Alam, 9Samuel Gitau. 1North Bristol Trust, UK; 2Aga Khan University, Kenya; 3Medical University of South Carolina, USA; 4University of Washington, USA; 5Emory University, USA; 6London School of Hygiene and Tropical Medicine, UK.

10.1136/heartjnl-2022-BSCI.15

Objective COVID-19 primarily causes pneumonitis but can also cause myocarditis. Injury may be due to a generalised inflammatory immune process or by direct viral infection. Using 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG-PET/CT) and cardiac magnetic resonance (CMR) imaging we correlated the metabolic activity/injury between the reticuloendothelial system (bone marrow [BM] and spleen) and myocardial/pulmonary tissue.

Methods 18F-FDG-PET/CT (n=29, fasted n=27) and CMR (n=23) were performed on hospitalised patients with acute COVID-19. 18F-FDG PET/CT standardised uptake values (SUV) were measured in the spleen, spinal BM, myocardial and pulmonary tissue. Cardiac target-to-background ratio (TBR) was calculated by indexing to blood-pool SUV. Myocarditis was assessed using the sensitive 2018 Lake Louise criteria (LLC), and viral load (by cycle threshold).

Results 13 patients had myocarditis on CMR (57%), 8 (30%) visually on 18F-FDG-PET/CT. There was no statistical difference comparing LLC positive and negative patients for BM (4.21±0.30, 4.98±0.56, P=0.23), spleen (4.40±0.40, 5.15±0.08, P=0.38) and lung (4.08±0.72, 4.16±0.91, P=0.94) SUV. Lung SUV was significantly associated with BM (r=0.61, P<0.001) and spleen (r=0.48, P<0.05) SUV. Cardiac TBR, T1 and T2 mapping showed no significant association with BM and spleen SUV (P>0.05 for all). Cycle threshold did not correlate with either cardiac TBR and T1 or T2 (p=0.05 for all).

Conclusion Reticuloendothelial system activation strongly correlated with lung activity, suggesting pulmonary injury is part of a systemic inflammatory process. Cardiac inflammation was not associated with either spleen, BM or viral load, suggesting injury is multifactorial.

P11 RADIOGRAPHER LED CTCAM – THE BEGINNING OF THE END FOR ROUTINE FACILITATING BETA BLOCKER THERAPY

1Gareth Morgan-Hughes, 7Rebecca McNally, 2Stelios Iacovides, 3Prabhsh Kirat-Rai, 2Nang Thiriphoo, 1Ali Powell, 2Tej Pandher, 2Ross Thorpe, 2Lou Mayo, 2Carl Roobottom. 1Respiratory Department, University Hospitals Plymouth, CA_2020;

Objective Since inception computerised tomographic coronary angiography (CTCA) has required facilitating beta blockers (BB). However, CT technology has improved rapidly as has radiographer and reporter expertise. Utilising this, we instituted a radiographer led cardiac CT service (RLCCTS), without routine BB, which we then studied for quality control (QC).

Methods RLCCTS started October 2021 using the Revolution Apex CT System (GE Healthcare UK), with 20-minute slots. QC study was registered with the clinical audit team, University Hospitals Plymouth, CA 2020–21-118. Uniform reporting was agreed including indication, BB administration, demographics, dose length product (DLP) and the coronary artery disease – reporting and data system (CAD-RADS) score. Uncertain CAD-RADS meant a non-diagnostic scan (NDS). Six months data was collected; stable chest pain patients (SCPP), who have national CTCA QC indicators, were analysed using descriptive statistics.

Results Of 1475 patients, 447 were not SCPP - known CAD (157); valves (286); removed (4, data incomplete) leaving 1028 SCPP CTCAM for analysis. Demographics - mean age 63 years, BMI 29, 50.4% female. BB therapy - 4 patients (2