P15 ASSESSMENT OF BLOOD FLOW PATTERNS IN PATIENTS WITH TYPE B AORTIC DISSECTION BY 4-DIMENSIONAL FLOW PHASE CONTRAST MAGNETIC RESONANCE IMAGING – A PILOT STUDY
N Khan, P Hall-Barrientos, A Radjenovic, P Douglas, G Roditi. Institute of Clinical Sciences, Glasgow UK

Introduction Clinical course for patients with type B aortic dissection is unpredictable. In addition to morphological factors, flow dynamics is integral. Early identification of patients at risk of aortic expansion and rupture will allow elective endoluminal stent graft placement. 4D flow MRI allows evaluation of flow patterns in large volumetric field of view but can be time consuming. Aim of this pilot study was to apply rapid 4D-PC MRI to visualize and quantify flow characteristics in patients with aortic dissection.

Methods Imaging of the thoracic aorta was acquired using an accelerated WIP sequence (785k) on Siemens Prisma (3.0 Tesla). Following optimisation on healthy volunteers, 7 patients with stable medically managed Type B aortic dissection were studied. Centre lines from true lumen in normal proximal aorta through true and false lumens were generated allowing haemodynamic parameters assessment at multiple levels. Measurements relating to velocities, flows, regurgitant fraction, pressure gradients and maps of wall shear stress were recorded using Circle CVi42 and proprietary Siemens software. Animated 4D visualisations were qualitatively assessed for vorticity.

Results 4D flow was successfully acquired in all subjects in acceptable times (< 8 minutes). True lumen flow parameters correlated well with conventional acquisitions, but centreline definition can be challenging in false lumen where there is slow flow with current software. Example animated image datasets will be presented with narrative description.

Conclusion Future work will focus on optimisation to preserve low flow visualisation prior to a prospective study of patients to identify those who would benefit from endovascular therapy.

P16 RUBIDIUM MYOCARDIAL PERFUSION PET-CT: INITIAL EXPERIENCE IN FIRST 100 PATIENTS
Leanne Price, Alexander Asher, Robin Chung, Abhishek Joshi, Simao Liu, Andrew Morley-Smith, Sara Tyebally, Leon Menezes. Nuclear Medicine, Bart’s Heart Centre, St. Bartholomew’s Hospital, London UK; Cardiology, Bart’s Heart Centre, St. Bartholomew’s Hospital, London UK

Introduction Positron Emission Tomography/Computed Tomography (PET/CT) has many advantages over Single Photon Emission Computed Tomography in Myocardial Perfusion Imaging (MPI). However, UK availability, has been limited. We describe a new Rubidium (Rb) PET MPI service; the third in the National Health Service in England.

Methods Audit of the first 100 patients from November 2019 to January 2020. 66 men, 34 women, mean age 65 ±11, mean Body Mass Index 28.3 ±6.8. Imaging comprised CT for attenuation correction, CT for Agatston scoring if no known Coronary Artery Disease (CAD) or prior intervention, and PET with and without adenosine vasodilation.

Results The commonest indication was symptoms post-revascularization (36%). 31% had had previous percutaneous intervention, 15% had had previous coronary surgery. 21% had had prior cardiac CT. The mean wait from request to scan was 30 days. 98% were reported the same or next working day. 96% received 140 mcg/kg/min adenosine, 4% received 210 mcg/kg/min. Two patients did not show adequate vasodilation. All PET MPI scans were diagnostic quality. 43% had Agatston scoring. The mean total Agatston score was 511. The normalcy rate for PET MPS was 60%. The prevalence of infarction was 20%. The mean Myocardial Flow Reserve was 2.3 ±0.8.

Conclusion Rb PET MPI is feasible and high quality in a new service. It provides detailed coronary assessment, with plaque burden, relative perfusion and absolute myocardial blood flow quantification. It will be an essential contributor to patient diagnosis, treatment response and risk stratification.