ROC comparing all CMRI mPAP predictive models for making a diagnosis of PH

Abstract P45 Figure 1 ROC comparing all CMRI mPAP predictive models for making a diagnosis of PH

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P46   **ASSESSMENT OF AORTIC STIFFNESS AND CORRELATION WITH LUNG FUNCTION IN PATIENTS WITH COPD USING CARDIAC MAGNETIC RESONANCE**

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Introduction: COPD has been associated with increased cardiovascular risk, although the mechanisms for this are still unclear. Proposed theories include increased systemic inflammation and accelerated ageing resulting in arterial stiffness. We aimed to evaluate aortic distensibility using cardiac MRI in patients with COPD compared to an age-matched non COPD, 'healthy' smoker control group.

Methods we recruited 49 subjects, of which 27 had diagnosis of COPD and FEV1/FVC < 70%; and 21 age-matched normal smoker controls (mean age 64 years ± 10). We acquired data including age, gender, smoking status, number of packs of cigarettes per year, and FEV1/FVC ratio. MRI images were acquired using a 3.0T scanner, and analysed using CVI42 software. Left ventricle and right ventricle function and volumes were evaluated using short axis SSFP cine. Aortic distensibility was measured using a validated method that takes in consideration aortic maximal and minimal areas from axial SSFP cine acquired perpendicular to the vessel.

Results Aortic distensibility was reduced in the COPD patients compared to control (0.0022610×10^{-3} mm Hg^{-1} vs 0.004337×10^{-3} mm Hg^{-1}, $p = 0.003$). The distensibility of descending aorta was similar in both groups ($p = 0.06$). Ejection fraction and biventricular volumes were also similar in the two groups. Univariant analysis demonstrated a significant relationship between ascending aorta distensibility and FEV1/FVC ratio. There was no difference when comparing distensibility with smoking status or number of packs per year. Linear regression demonstrated that the degree of aortic distensibility was directly proportional to FEV1/FVC ratio

Conclusion Patients with COPD have significantly increased aortic stiffness measured by cardiac magnetic resonance. This was observed in the presence of normal LV/RV systolic function in both groups. This difference was related to FEV1/FVC, and was independent of smoking. Preserved FEV1/FVC showed more elastic ascending aortas. Reduced aortic distensibility could represent the early phase changes in cardiovascular function but further research is needed.
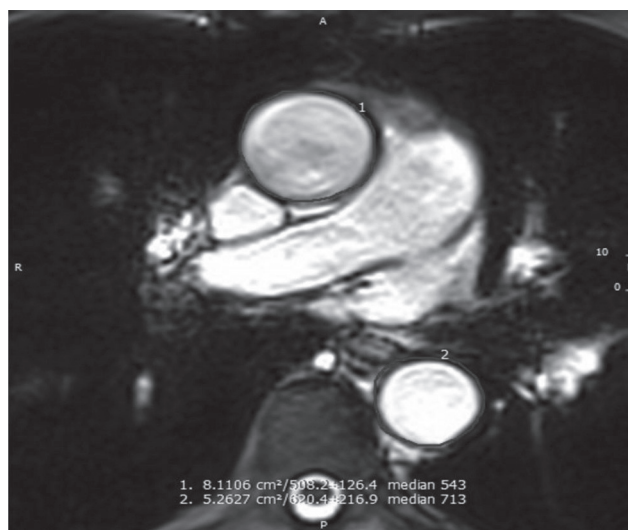
Abstract P46 Figure 1 Contouring of ascending and descending aortic area on axial SSFP cine

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P47   **THE INFLUENCE OF MUSCLE MASS IN THE ASSESSMENT OF LOWER LIMB STRENGTH IN COPD**

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Introduction and objectives Lower limb muscle strength measured by Quadriceps Maximal Voluntary Contraction (QMVC) provides valuable functional and prognostic information in people with COPD. Reference equations providing normal values for QMVC have been reported, some requiring measurement of muscle mass. It is unclear whether including muscle mass in the calculation significantly alters predicted values in COPD. We addressed this question by deriving reference equations for QMVC with and without the inclusion of whole body assessment of muscle mass in a cohort of healthy volunteers and