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P192 -RELATIONSHIP BETWEEN AORTIC DISTENSIBILITY, CORONARY ARTERY CALCIFICATION AND LEFT VENTRICULAR MASS IN RENAL TRANSPLANT RECIPIENTS: ASSESSMENTS FROM A CLINICAL TRIAL

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Introduction and Aims: Arterial stiffness and calcification are associated with left ventricular mass in patients undergoing haemodialysis. These are independent risk factors for the augmented cardiovascular risk profile of patients with end-stage renal disease (ESRD). Left ventricular mass and arterial stiffness have been shown to improve in some reports following successful kidney transplantation. We sought to determine whether arterial stiffness and calcification are associated with left ventricular mass index (LVMI) in prevalent renal transplant recipients participating in a clinical trial.

Methods: We included renal transplant recipients >1 year post-transplant participating in a trial of vitamin K supplementation (ISRCTN22012044). Participants had biochemical, anthropologic and sociodemographic data recorded at baseline. Aortic distensibility (AD) and LVMI were determined by cardiac magnetic resonance imaging; non-contrast computed tomography was used to obtain coronary artery calcification score (CACS). High CACS was considered >160 units. Logistic regression analysis was used to assess baseline factors associated with AD, CACS and LVMI. Correlation testing was performed to determine association between AD, CACS and LVMI. Analyses were conducted using rrr and stats packages for R statistical software.

Results: Ninety patients were recruited and had appropriate baseline data for analysis: 70% were male, mean age was 57.6 (SD 9.4) years, mean eGFR was 52.5 (SD 20.9) ml/min and 36.7% were current or ex-smokers. Median duration of transplant was 7.8 (IQR 3.5-13.9) years and median duration of ESRD was 11.2 (IQR 6.2-21.0) years. CACS >160 units was identified in 58.9% participants. AD was associated with age ($\beta = -0.72$ per 10 year increase, $p < 0.001$) and duration of ESRD ($\beta = -0.04$ per year, $p = 0.007$); CACS was associated with duration of ESRD ($\beta = 42.2$ per year, $p = 0.013$); LVMI was associated with male sex ($\beta = 15.10$, $p < 0.001$), mean arterial pressure (2.74 per 10mmHg increase, $p = 0.02$) and lower eGFR ($\beta = -0.29$ per ml/min, $p = 0.004$); none were associated with traditional markers of CKD mineral and bone disorder, vitamin D or smoking status. AD was correlated with CACS ($r = -0.26$, $p = 0.016$), with significantly higher AD in those with CACS >160 units versus CACS <160 units (3.34 vs 2.48×10^{-3} mmHg⁻¹, $p = 0.02$; see Figure), but neither AD nor CACS were correlated with LVMI ($r = -0.05$, $p = 0.61$; $r = 0.19$, $p = 0.08$ respectively).

Conclusion: In this population of prevalent renal transplant patients, there was a heavy burden of coronary artery calcification, which was associated with aortic stiffness but not with LVMI. Targeted treatments towards these potentially modifiable risk factors may improve cardiovascular risk in the renal transplant population.