undergo physiological assessment, according to COMPLETE eligibility criteria, even though very few were actually enrolled on this basis. Of the 60%, only 32% were physiologically significant; and, of all the NCLs, only 47% were physiologically significant. Further work is required to determine whether virtual FFR might provide a cost-effective means of identifying patients who will benefit from NCL revascularisation.

Conflict of Interest none

### Abstract 114

#### PREDICTING SURGICAL OUTCOMES IN CARCINOID HEART DISEASE USING TRANSTHORACIC ECHOCARDIOGRAPHY

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Background Carcinoid heart disease (CHD) develops as a complication of neuroendocrine tumours (NET). The prognosis of CHD without intervention is poor; 3 year survival is estimated at 31%. Surgical valve replacement is the only treatment for CHD, but is associated with a high 30-day mortality (10-15%) and prolonged recovery.

Aim To identify pre-operative transthoracic echocardiogram (PTTE) findings that could determine which patients have a high likelihood of post-surgical mortality at 1 year.

Methods This retrospective observational cohort study recruited 88 patients with a confirmed diagnosis of CHD between 2005-19 at University Hospital Birmingham; 49 (56%) of these were treated surgically. Indications for surgery were: stable NET, symptomatic severe valvular dysfunction, progressive RV dilatation or RV dysfunction, absence of significant comorbidities. Surgery was not offered to those patients who were unlikely to benefit, either due to frailty or short life expectancy, or if the disease severity which did not warrant surgical intervention. Patient demographics are reported in Table 1. All patients underwent a standard PTTE. PTTE parameters assessed included: right ventricular (RV) size, RV function (qualitative), TAPSE, RV fractional area change, RV S wave velocity, left ventricular (LV) size, LV ejection fraction and valvular velocities. Surgery was performed by a single surgical team using bioprosthetic valve replacements. Across the patient population there were 48 tricuspid, 39 pulmonary, six aortic and four mitral replacements. Five patients also underwent a coronary bypass graft procedure; 12 had a patent foramen ovale closure and 23 required implantation of a permanent pacemaker.

Results Patients were followed up for a median of 15 months (IQR: 6.59) after surgery, during which time there were 33 deaths, giving a median survival time of 30 months (IQR: 7-85). Increasingly severe RV dilatation was significantly associated with shorter survival (p=0.032). The estimated survival rate at three years was 67% in those with normal RV size, compared to 24% in the severe RV group (Figure 1). RV basal diameter was then further assessed. ROC curve analysis for the outcome of one year survival returned an area under the curve of 0.66 (SE=0.10). Youden’s index identified RV diameter >4.8cm to be the optimal cut-off for identifying high-risk patients. One year mortality rates were 26% (7/27) vs. 75% (9/12) in those with RV basal diameter of ≤4.8 vs. >4.8cm (p=0.006).

### Table 1

<table>
<thead>
<tr>
<th>Pre-operative factors</th>
<th>N</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Review (Years)</td>
<td>49</td>
<td>64.4 ± 7.6</td>
</tr>
<tr>
<td>Gender (% Female)</td>
<td>49</td>
<td>45% (22/49)</td>
</tr>
<tr>
<td>BMI</td>
<td>49</td>
<td>23.6 (21.9 - 26.9)</td>
</tr>
<tr>
<td>Active Weight Loss</td>
<td>27</td>
<td>44% (12/27)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>40</td>
<td>15% (6/40)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>40</td>
<td>58% (23/40)</td>
</tr>
<tr>
<td>Smoker</td>
<td>40</td>
<td>15% (6/40)</td>
</tr>
<tr>
<td>NYHA Class ≥ 2</td>
<td>41</td>
<td>88% (36/41)</td>
</tr>
<tr>
<td>Urinary 5HIAA (Umol/d)</td>
<td>35</td>
<td>719 (341 - 1222)</td>
</tr>
</tbody>
</table>

Conclusion A pre-operative right ventricular basal diameter >4.8cm is associated with a near three-fold increase in post-operative mortality at one year. These findings highlight the importance of regular imaging in order to optimise the timing of surgery in patients with CHD.

Conflict of Interest None

### Abstract 115

#### CARDIOVASCULAR EFFECTS OF LIVING KIDNEY DONATION: A FIVE YEAR LONGITUDINAL STUDY

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Background The inverse association between estimated glomerular filtration rate (eGFR) and cardiovascular risk is well recognised but not fully explained. Kidney donation is known to reduce renal function by approximately 30% and allows the prospective study of the cardiovascular effects of a reduced eGFR in healthy subjects without confounding comorbidities. We report five year results in a group of kidney donors and healthy controls who underwent extensive cardiovascular assessment.

Methods A 5 year longitudinal, parallel group, blinded endpoint study of living kidney donors (n=50) and healthy

Conflict of Interest None

Conclusion A pre-operative right ventricular basal diameter >4.8cm is associated with a near three-fold increase in post-operative mortality at one year. These findings highlight the importance of regular imaging in order to optimise the timing of surgery in patients with CHD.
controls (n=45). Participants underwent office and 24-hr ambulatory blood pressure measures, multi-parametric cardiac magnetic resonance imaging (MRI) (3 Tesla), measurement of arterial stiffness (SphygmoCor), carotid intima-media thickness and blood and urine analysis at baseline, one year and 5 years from donation.

**Results** The eGFR in donors at baseline was 95 ± 15ml/min/1.73m², 65 ± 13ml/min/1.73m² at one year and 67 ± 14ml/min/1.73m² at 5 years. Left ventricular (LV) mass was 112g at baseline in both groups and was not different at 5 years (113 ± 31 vs. 115 ± 30, p=0.707). There was also no difference in LV volumes, LV geometry, LV function, T1 times or extracellular volume (ECV) on MRI. Office and ambulatory blood pressures did not differ from controls at any time point. Pulse wave velocity was higher in donors at one year but not significantly different by 5 years. At 5 years, there was no significant differences in the prevalence of a detectable troponin or mean plasma NT pro-BNP.

**Conclusion** The stable reduction in eGFR to levels of 60-70 ml/min/1.73m² after live kidney donation does not lead to deleterious changes in cardiovascular structure and function or biomarkers of cardiovascular disease at 5 years. Factors associated with kidney disease other than an isolated fall in eGFR are likely to explain the increased cardiovascular risk in patients with chronic kidney disease. Figure A and B: Longitudinal change in LV mass and PWV before and after donation in donors and controls. Black solid lines are means with confidence intervals for donors and dashed lines represent controls. Black squares indicate study visits. A; Left ventricular mass (g) and B; Adjusted pulse wave velocity (m/s) (adjusted for mean arterial pressure and heart rate).

**Conflict of Interest** None

**116 SUBCLINICAL MYOCARDIAL INFLAMMATION IN ASYMPTOMATIC MEN LIVING WITH HIV (MLWH): H-ART TO HEART SUB-STUDY**

Gavin Mannathan, Nnenna Ngwu, James Johnson, Callum Little, Tushar Kotecha, Nargis Hemat, Liza Chacko, Sana Adam, Sabine Kinloch, Tristan Barber, Fiona Burns, Marianna Fontanna, Margaret Johnson, Ruby Rakhi, Royal Free London NHS Foundation Trust; Royal Free Hospital; University College London; St. George’s Medical School

**Introduction** Human immunodeficiency virus (HIV)/ acquired immune deficiency syndrome (AIDS) was traditionally associated with severe heart failure, pulmonary hypertension and myocarditis but this is rarely seen following the advent of antiretroviral therapy (ART). Previous studies in asymptomatic people living with HIV (PLWH) have revealed a high burden of cardiovascular disease (CVD), and subclinical myocardial inflammation as detected by cardiac magnetic resonance imaging (CMR).

The H-ART to Heart study was designed to assess the prevalence of CVD in PLWH. In this sub-study, we aim to assess bio-markers, structural and functional cardiac changes associated with HIV using CMR.

**Methods** In this cross-sectional study, we recruited asymptomatic Caucasian men who have sex with men (MSM) diagnosed with HIV > 10yrs ago, aged 35-55 years, with undetectable viral loads on ART. They were compared to HIV-negative age and ethnicity MSM matched controls. Those with Q-Risk3 CVD risk factors (hypertension, hyperlipidaemia, diabetes, smoking, inflammatory arthritis, depression, severe mental illness) or hepatitis co-infection were excluded.

Assessments included blood pressure (BP); bloods for inflammation; transthoracic echocardiography for all participants and stress perfusion CMR with multiparametric mapping for PLWH. We compared CMR results with a previously selected control group of healthy volunteers with no cardiovascular risk factors.

**Results** 45 participants were recruited (26 MLWH; 19 HIV-MSM), mean results for MLWH were as follows: duration of HIV 17.8±6.4yrs, duration on ART 10.7±5.2yrs, nadir CD4 count 318±145 cells/μL, current CD4 count 610±150 cells/μL and current viral load <40 copies/mL . There were no significant differences in baseline data (Table 1). Although not significant, detectable inflammatory markers were more...