hyperaemic coronary flow reserve. Thus, we hypothesised that patients in AF would achieve splenic switch-off less frequently than those in sinus rhythm (SR).

Methods 1100 adenosine stress CMR studies were retrospectively identified from a prospectively maintained clinical CMR database over a 5-year period (2016–2021). 71 patients in AF on ECG at the time of CMR were identified. The SR cohort was drawn by propensity score matching to the AF group for age, sex, and body mass index. The adenosine dose administered, symptoms, and heart-rate change observed during infusion and scan result were recorded. Splenic switch-off was evaluated subjectively through visual assessment and semi-quantitatively via changes in splenic and myocardial signal intensity from rest to stress. Multivariate logistic regression analysis assessed for predictors of splenic switch-off.

Results 70 AF patients were matched to 70 in SR (mean age: 72 ± 8 years vs 72 ± 9 years, $p=0.96$; %male: 86% vs 84%, $p=0.81$). Subjective splenic switch-off occurred significantly less frequently in AF than in SR (34/70 [49%] vs 53/70 [76%], $p=0.003$). Objective assessment supported this, with a smaller splenic signal intensity difference between stress and rest in AF vs SR (median splenic stress:rest peak signal intensity ratio 0.92 [IQR, 0.61–1.11] vs 0.56 [IQR, 0.45–0.75], $p<0.001$). A heart-rate increase over 10bpm in response to adenosine was a significant predictor of visual splenic switch-off in SR patients but not in AF patients. Fewer AF patients had inducible ischaemia than SR patients (9/70 [13%] vs 17/69 [25%], $p=0.058$). However, this difference was not driven by inducible ischaemia rates between AF and SR patients who did not achieve splenic switch-off (6/36 [17%] vs 4/17 [24%], $p=0.403$).

Conclusions In this retrospective propensity matched study, splenic switch-off occurred significantly less frequently in patients with AF. This may risk the under-diagnosis of inducible ischaemia, but requires further assessment.

3 RATIONALE AND DESIGN OF THE MEDICAL RESEARCH COUNCIL PRECISION MEDICINE WITH ZIBOTENTAN IN MICROVASCULAR ANGINA (PRIZE) TRIAL MRI SUB-STUDY

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Introduction Microvascular angina is caused by cardiac small vessel disease and dysregulation of the endothelin system is implicated. The chronic elevation of circulating ET-1 in microvascular angina may be influenced by genetic factors. The minor G allele of the non-coding single nucleotide polymorphism (SNP) rs9349379 enhances expression of the endothelin 1 gene in human vascular cells, increasing circulating concentrations of ET-1. The prevalence of this allele is higher in patients with microvascular angina. Zibotentan is a potent, selective inhibitor of the ETA receptor. We have identified zibotentan as a potential disease-modifying therapy for patients with microvascular angina.

The Precision medicine with Zibotentan in microvascular angina (PRIZE) trial is a prospective, randomized, double-blind, placebo-controlled, sequential cross-over trial. We will assess the efficacy and safety of adjunctive treatment with oral zibotentan (10 mg daily) in patients with microvascular angina and assess whether rs9349379 (minor G allele; population prevalence ~36%) acts as a theragnostic biomarker of the response to treatment with zibotentan. The participants will receive a single-blind placebo run-in followed by treatment with either 10 mg of zibotentan daily for 12 weeks then placebo for 12 weeks, or vice versa, in random order.

After randomisation in PRIZE, subjects will be invited to participate in the cardiac MRI sub-study. Myocardial perfusion is generally impaired in patients with microvascular angina. The rationale for undertaking this MRI sub-study is to determine whether, compared with placebo, treatment with zibotentan improves myocardial blood flow.

Methods Patients will undergo multiparametric CMR at three points (baseline prior to therapy and after each 12 week treatment phase). At each scan they will have assessments of myocardial blood flow (both rest and stress using the Kellman quantitative perfusion method), left ventricular function and mass, aortic stiffness assessment and tissue characterisation (T1 mapping (MOLLI and ShMOLLI), T2 mapping and late gadolinium enhancement imaging).

Conclusion PRIZE invokes precision medicine in microvascular angina. Should our hypotheses be confirmed, this developmental trial will inform the rationale and design for undertaking a larger multicentre trial. The MRI sub-study contributes to this study by providing vital mechanistic and safety information.

4 INTER-MODALITY AGREEMENT AND TEST-RETEST REPRODUCIBILITY OF CMR AND ECHOCARDIOGRAPHY FOR ASSESSING MYOCARDIAL DEFORMATION IN TYPE 2 DIABETES MELLITUS

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Background Inter-modality agreement allows interchangeable use of imaging modalities that is crucial for clinical decision-making, while the reproducibility of a technique is fundamental for monitoring disease progression or response to treatment. We aimed to investigate the test-retest reproducibility and inter-modality agreement of transthoracic echocardiography (TTE) and cardiac magnetic resonance (CMR) imaging in assessing left ventricular (LV) and left atrial (LA) myocardial deformation in people with type 2 diabetes mellitus (T2D).

Abstract 4 Table 1 Test-retest reproducibility of myocardial deformation in TTE and CMR

Parameter	Scan 1 (Mean ±SD)	Scan 2 (Mean ±SD)	Bias (Limits of agreement)	ICC	ICC_p- value	CoV (%)
TTE						
LV_GLS (%)	-17.2±2.4	-16.8±1.6	-0.37 (-5.44, 4.70)	0.36	0.272	15.25
LV_MCS (%)	-25.4±4.0	-23.9±2.8	-1.54 (-11.9, 8.86)	0.4	0.686	21.53
LAS_r (%)	33.8±3.7	31.4±6.8	2.45 (-10.9, 15.8)	0.35	0.26	20.9
LAS_cd (%)	16.7±3.4	15.0±4.2	1.64 (-4.11, 7.38)	0.8	0.008*	18.5
LAS_bp (%)	17.1±3.2	16.3±4.4	0.81 (-9.17, 10.8)	0.23	0.362	30.4
CMR						
LV_GLS (%)	-17.4±2.2	-17.0±2.5	-0.37 (-5.11, 4.36)	0.65	0.078	14.1
LV_MCS (%)	-19.9±2.0	-19.2±3.6	-0.66 (-7.18, 5.86)	0.53	0.146	17
LAS_r (%)	29.2±6.5	27.9±7.8	1.26 (-9.74, 12.3)	0.83	0.009*	19.6
LAS_cd (%)	15.1±6.0	12.6±5.3	2.57 (-7.30, 12.4)	0.73	0.024*	36.3
LAS_bp (%)	14.0±5.9	15.4±6.0	-1.31 (-11.4, 8.73)	0.78	0.020*	34.9

Abbreviations: LV_GLS= Left ventricular global longitudinal strain, LV_MCS= Left ventricular mid circumferential strain, LAS_r = Left atrial strain at reservoir phase, LAS_cd = Left atrial strain at conduit phase, LAS_bp = Left atrial strain at booster pump phase.

Abstract 4 Figure 1 Bland-Altman plot for test-retest reproducibility of LV global longitudinal strain and LA reservoir strain in TTE and CMR

Methods Participants with T2D and no cardiovascular disease underwent TTE and CMR on the same day and again 11±4 days later. Images were analysed using TomTec-ARENA (v2.4, 2D-CPA) for TTE, where Medis Suite (v3.1, medical imaging system) was used for CMR images. LV global longitudinal strain (GLS) was calculated using an average of 2-, 3- and 4-chamber values and LV mid-circumferential strain (LV_MCS) was calculated from the mid short-axis cine at papillary muscles level. In addition, LA strain (LAS), corresponding to LA reservoir, conduit, and booster pump (contraction function), was calculated using the average of 4- and 2-chamber values. The exact same analysis technique was used for both imaging modalities, and blinded analysis was performed by the same observer.

Results 10 participants with T2D (mean age 65.6±7.3 years, 50% male) were studied. The LV_MCS and reservoir LAS were significantly lower on CMR compared to TTE, though there was no difference in GLS, with narrow limits of agreement between CMR and TTE values. Of all strain parameters, GLS had the best test-retest reproducibility, with almost identical bias and limits of agreement on Bland-Altman analysis and similar CoV (~15%). The test-retest reproducibility for LV_MCS and reservoir LAS were better on CMR than TTE

(table 1 & figure 1). TTE was more reproducible for conduit LAS (CoV 18.5%, ICC =0.80).

Conclusion Both CMR and TTE gave similar values for GLS, with good inter-modality agreement and equally good test-retest reproducibility, suggesting the potential use of both modalities for monitoring GLS in disease and in response to treatment. The test-retest reproducibility of LV_MCS and reservoir LAS was better on CMR, whilst TTE was better for assessing conduit LAS.

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ABSTRACT WITHDRAWN