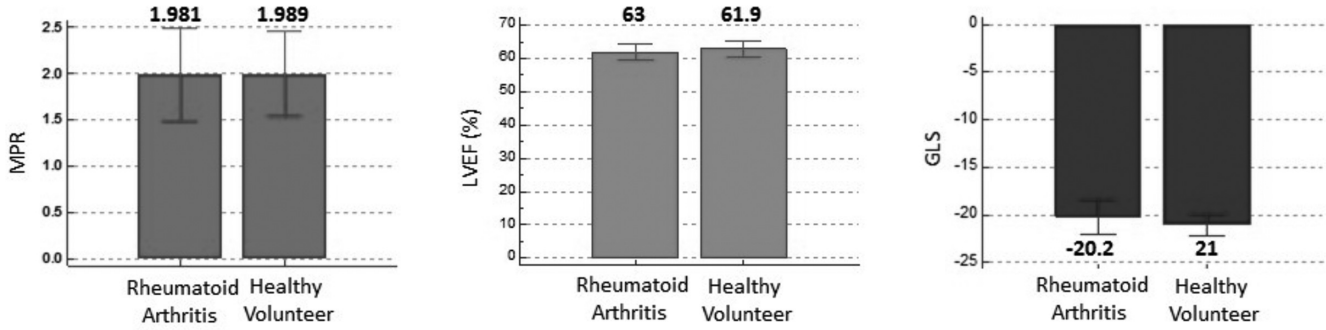

Abstract 10 Figure 1 Graphs illustrating mean values for MPR, LVEF and GLS in RA and HV

were calculated using bSSFP images (CVI [42], Circle Cardiovascular Imaging, Calgary, Canada).

Results Mean age of RA patients was 48 ± 16 and mean age of HV 47 ± 14. Of the RA patients, 4 were male and 8 female. Of the HV, 2 were male and 10 female. Mean MPR values were 1.98 ± 0.79 and 1.99 ± 0.72 (P = 0.88) for RA and HV respectively (Figure 1). Mean values for LVEF were 63 ± 4 and 62 ± 4% (P = 0.48) respectively for RA patients and HV. Mean values for GLS were −20.2 and −21 ± 0.4 (P = 0.396) for RA and HV respectively.

Conclusion These findings suggest treatment naïve RA patients have no detectable abnormalities on perfusion CMR. Therefore, whilst present in established RA, coronary microvascular dysfunction may not yet have developed in early RA. No abnormalities of LV systolic function were evident and may be a later manifestation of RA.

11 LEFT VENTRICULAR END DIASTOLIC FILLING PRESSURE PREDICTED BY LEFT ATRIAL STRAIN MEASURED BY FEATURE TRACKING

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Introduction Left ventricular end-diastolic filling pressure (LVEDP) is an invasive measure of LV function obtained at cardiac catheterisation (CC) that predicts prognosis and guides therapeutic strategy. Echocardiographic E/E' ratio has been shown to be inaccurate for estimation of LVEDP. Feature-tracking cardiovascular magnetic resonance (FT-CMR) is a novel method for quantification of myocardial deformation and can be used to quantitatively assess left atrial (LA) function. Currently there is no validated MRI parameter that estimates LVEDP. We hypothesised that LA strain correlates to LVEDP.

Methods 14 patients in sinus rhythm, with severe AS underwent a 1.5T CMR protocol (Ingenia, Phillips Healthcare, Best, The Netherlands). LVEDP was recorded at the time of CC by standard techniques. 4 chamber and mid ventricular short axis steady state free procession cine images were obtained: LA endocardial and epicardial borders were traced manually on the end-diastolic slice and strain measurements were calculated using commercially available post-processing software (CVI42, Circle Cardiovascular Imaging, Calgary, Alberta, Canada).

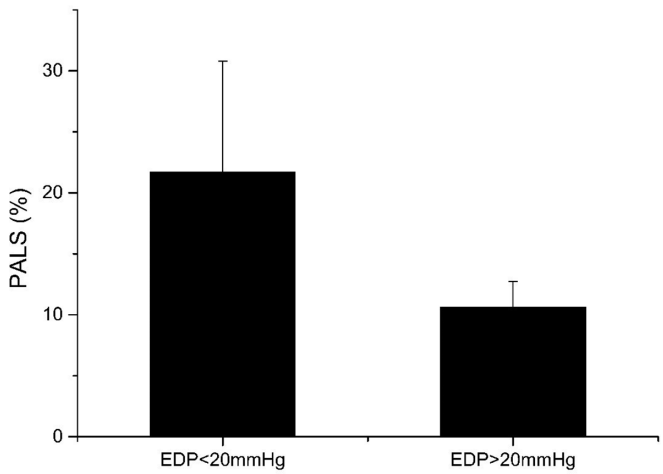
Results Patients were divided into 2 groups: low EDP (13 ± 2.4mmHg) and high EDP (36.1 ± 3.4mmHg) (p < 0.01). Both groups were evenly matched for baseline demographics (Table 1). Peak atrial longitudinal strain (PALS) was significantly different between low EDP and high EDP group (−21.7 ± 8.5 versus −11.1 ± 2.1% p = 0.01) (Figure 1). In multivariable analysis of demographics and CMR parameters PALS was the only determinant of LVEDP independent of other factors (Beta −0.93 p = 0.01). There was a moderate negative correlation between increasing invasive LVEDP and PALS (Pearson's correlation coefficient −0.647, p = 0.009).

Conclusion LA function (PALS) as measured by FT-CMR is independently associated with LVEDP and may have a role in predicting LV filling pressures via a routine CMR protocol.

Abstract 11 Table 1 Baseline demographics

	Low EDP (n = 7)	High EDP (n = 7)	p-Value
Age (years)	80.2 ± 5.6	77 ± 5.0	0.38
Hypertension (%)	71.4	57.1	0.83
MI (%)	42.9	57.1	0.73
DM (%)	14.3	14.3	0.93
PPG (mmHg)	92.5 ± 20	84.4 ± 9.22	0.45
LVEF (%)	58.9 ± 6.55	57.8 ± 8.1	0.81
PALS (%)	−21.7 ± 8.5	−11.1 ± 2.1	0.01

LVEF: left ventricular ejection fraction; MI: previous myocardial infarction; DM: Diabetes mellitus; PPG: peak pressure gradient; PALS: peak atrial longitudinal strain



Abstract 11 Figure 1 PALS grouped by invasive LVEDP (mean and SD error bars)