Abstract 119 Table 1

	All patients (n=34)	Normal CMR (n=20)	Abnormal CMR (n=14)	p value
Age (years (median, IQR))	54.3±8.9*	57.5 (19.7)	48.5 (17.0)	0.6
Male gender (no, %)	19 (55.8%)	11 (55.0%)	8 (57.1%)	0.59
BMI (mean, kg/m2)	28.3±5.6	27.6±4.9	29.3±6.5	0.37
LVEDV (ml (median, IQR))	155.0 (58.0)	133.0 (41.5)	182.5 (60.5)	0.012
LVESV (ml (median, IQR))	51.0 (26.0)	48.0 (12.5)	71.5 (39.5)	0.005
LVEF (ml (mean, SD))	60.6±13.9	66.1±5.5	55.7±13.6	0.004
LV thickness (mm (median, IQR))	11.0 (7.4)	9.0 (6.1)	12.5 (9.4)	0.059
LVMI (g/m² (median, IQR))	72.5±18.1*	64.0 (15.0)	83.0 (14.5)	0.001

*mean, SD. IQR.

Conclusions There is a high rate of sub-clinical cardiomyopathy (41%) detected by CMR in asymptomatic patients with LBBB despite normal echocardiograms. These findings support the claim that CMR is a valuable adjunct to conventional investigations in asymptomatic LBBB. Further studies are needed to evaluate the prognostic implications of CMR abnormalities in this cohort of patients.
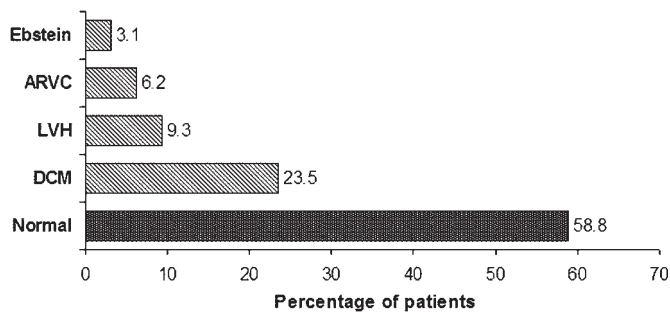
Abstract 119 Figure 1   CMR findings in asymptomatic patients with LBBB and normal echocardiogram.

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120 **COMPARISON AND REPRODUCIBILITY OF STANDARD AND HIGH TEMPORAL RESOLUTION MYOCARDIAL TISSUE TAGGING IN PATIENTS WITH SEVERE AORTIC STENOSIS**

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Objectives The aim of this study was to compare and assess the reproducibility of left ventricular (LV) circumferential peak systolic strain (PeakEcc) and strain rate (SR) measurements using standard and high temporal resolution myocardial tissue tagging in patients with severe aortic stenosis (AS).

Background Myocardial tissue tagging with cardiac magnetic resonance (CMR) can be used to quantify strain and SR, however, there are little data on the reproducibility. Diastolic SR may be of particular interest as it may be the most sensitive marker of diastolic dysfunction often occurring early in the course of disease.

Methods Eight patients with isolated severe AS without obstructive coronary artery disease were prospectively enrolled. They underwent CMR in a 1.5T scanner (Siemens Avanto) on two separate occasions, median interval 12 days. Complementary tagged (CSPAMM) images were acquired with both a single breath-hold (SBH: temporal resolution 42 ms), and a multiple brief expiration breath-hold (MBH: high temporal resolution 17 ms) sequence. Mid-wall PeakEcc was measured in the LV at mid-ventricular level with HARP Version 2.7 (Diagnosoft, USA). SR was calculated from the strain data; SR=Ecc2-Ecc1/Time2-Time1. PeakEcc, peak systolic and diastolic SR were read from curves of strain and SR against time.
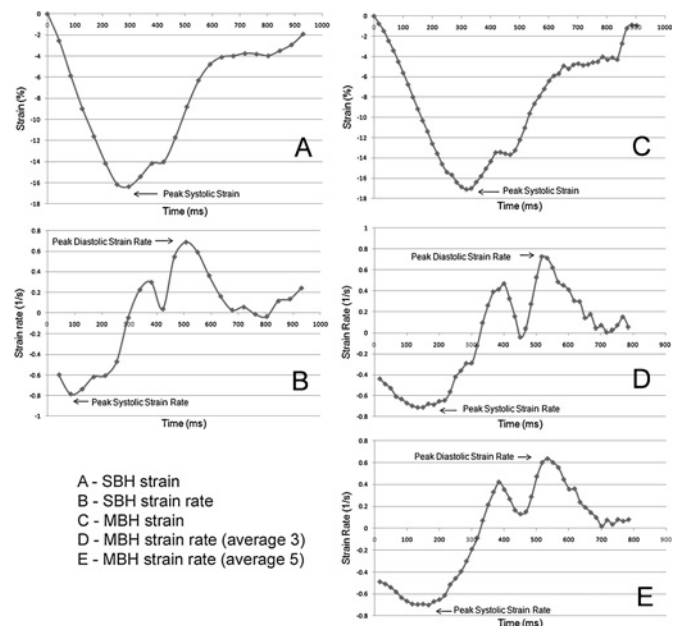
The MBH SR curves were filtered with a moving average (MA) to reduce noise sensitivity, results from a sample width of three and five were examined. Differences between SBH and MBH were assessed using Wilcoxon signed-rank test as not all measures were normally distributed. Reproducibility assessments were carried out on all techniques.

Results PeakEcc was significantly higher with MBH vs SBH, but reproducibility was slightly worse. Results are summarised in Abstract 120 table 1. Systolic SR was approximately equal with all techniques although MBH using MA of five led to a borderline significant reduction. Diastolic SR was higher when measured with MBH although only significant using MA of three. Systolic and diastolic SR measures were more reproducible with MBH compared with SBH, except for the diastolic SR using MA of three, which was substantially worse. Strain and SR curves for the same patient are shown in Abstract 120 figure 1.

Abstract 120 Table 1

	Peak systolic strain (%)	Peak systolic strain rate (1/s)	Peak diastolic strain rate (1/s)
SBH	−13.7±2.4	−0.74±0.15	0.75±0.27
MBH (MA of three)	−15.1±3.1 (p=0.023 vs SBH)	−0.73±0.11 (p=0.877 vs SBH)	1.12±0.54 (p=0.017 vs SBH)
MBH (MA of five)	−15.1±3.1 (p=0.023 vs SBH)	−0.69±0.10 (p=0.049 vs SBH)	0.91±0.36 (p=0.535 vs SBH)
SBH reproducibility (MD±SD; CoV; B-A)	0.50±1.52; 11.1%; −2.5 to 3.5	−0.01±0.13; 18.1%; −0.26 to 0.28	−0.04±0.16; 21.0%; −0.36 to 0.27
MBH reproducibility (MA of three) (MD±SD; CoV; B-A)	1.13±2.23; 14.7%; −3.3 to 5.6	0.06±0.04; 5.3%; −0.02 to 0.14	−0.13±0.44; 39.0%; −1.00 to 0.75
MBH reproducibility (MA of five) (MD±SD; CoV; B-A)	1.13±2.23; 14.7%; −3.3 to 5.6	0.04±0.05; 7.8%; −0.07 to 0.15	0.09±0.15; 16.9%; −0.39 to 0.22
MD±SD=mean difference ± SD	CoV=coefficient of variation	B−A=Bland−Altman 95% limits of agreement	

A - SBH strain
B - SBH strain rate
C - MBH strain
D - MBH strain rate (average 3)
E - MBH strain rate (average 5)

Abstract 120 Figure 1

Conclusions It is likely than SBH may be adequate or even superior to MBH for assessment of PeakEcc. The increased temporal resolution of MBH may be advantageous for examining systolic and diastolic SR; a MA of five for diastolic SR may be the preferred method for quantification given the improved reproducibility of this measure.