Supplemental File

Left ventricular ejection fraction and global longitudinal strain calculated by artificial intelligence increases diagnostic accuracy of stress echocardiography

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Running title: AI-calculated LVEF and GLS in stress echocardiography

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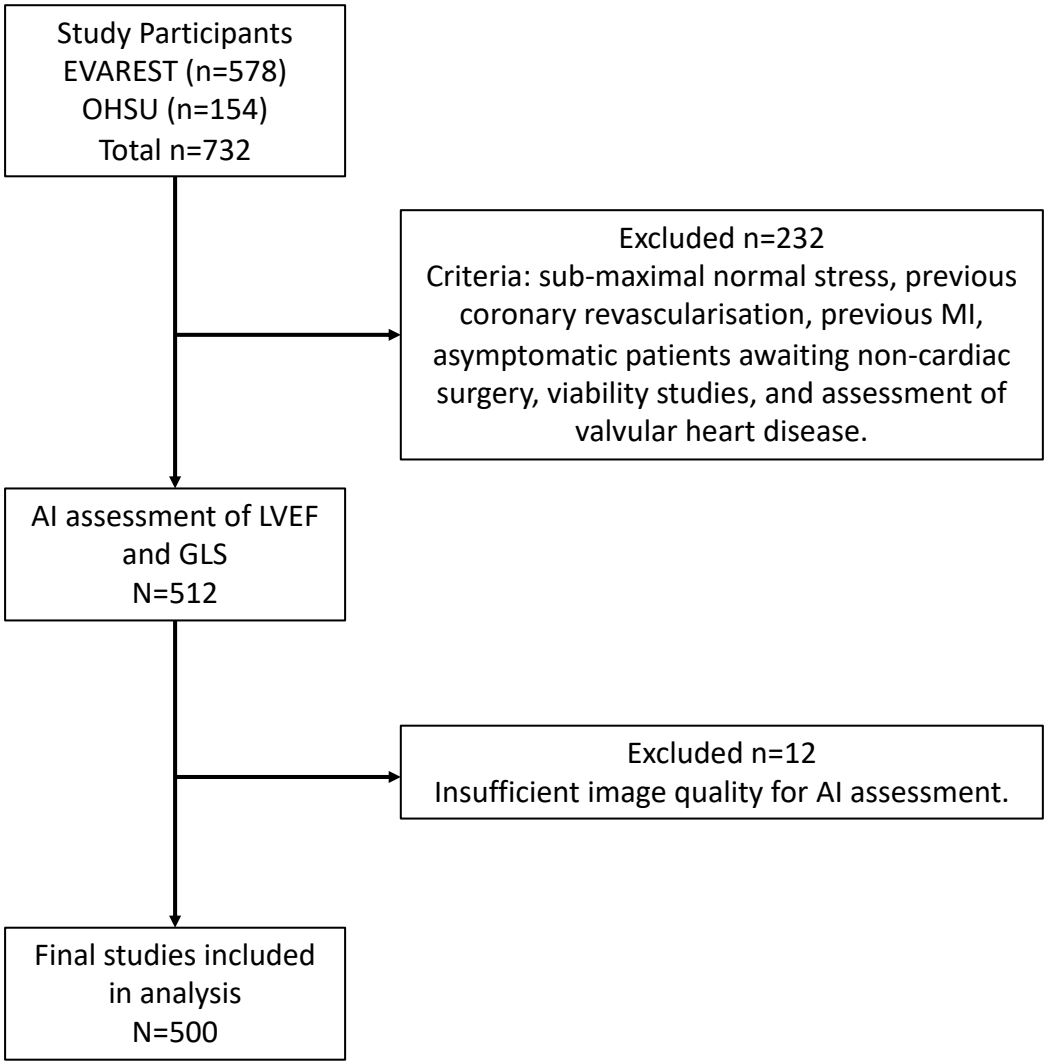
Supplementary Figure 1. Study flow diagram.



Supplementary Table 1. Wall motion score reproducibility.

	All **(n = 20)** **ICC (95% CI)**	**Ischaemic only** **(n=12)** **ICC (95% CI)**
Inter-operator variability	0.88 (72, 95)	0.76 (35,92)
Intra-operator variability	0.94 (0.86, 0.98)	0.88 (0.64, 0.96)

Supplementary Table 2. Extent, significance and management of significant CAD in study population. PCI, percutaneous coronary intervention. CABG, coronary artery bypass graft.

		All	Non-ischaemic (*n*=370)		Ischaemic (*n*=130)	
			Normal AI systolic function	Abnormal AI systolic function	Normal AI systolic function	Abnormal AI systolic function
***n*, (%age of participants)**		500 (100%)	239 (48%)	131 (26%)	29 (48%)	101 (20%)
Angiography, *n* (%age)		118 (24%)	5 (3%)	6 (5%)	18 (62%)	89 (88%)
Significant CAD, *n* (%age of angiograms)		74 (63%)	2 (40%)	2 (33%)	6 (33%)	64 (63%)
Vessels with significant CAD, *n* (%age of significant CAD)	1	34 (29%)	0 (0%)	1 (50%)	4 (67%)	29 (45%)
	2	30 (25%)	2 (100%)	0 (0%)	1 (17%)	27 (42%)
	3	10 (8%)	0 (0%)	1 (50%)	1 (17%)	8 (13%)

Supplementary Table 3. Haemodynamic response during SE. HR, heart rate; APMHR, age-predicted maximum HR, sBP, systolic blood pressure; dBP, diastolic blood pressure; RPP, rate-pressure product

			No CAD (*n*=426)	**Significant CAD (*n*=74)**	***P*-value**
All SEs	HR (beats/min)	Baseline	76 ± 14	74 ± 13	0.238
		Peak	140 ±14	132 ± 17	**<0.001**
		%age APMHR	89 ± 8	87 ± 10	0.079
	sBP (mmHg)	Baseline	140 ± 21	142 ± 21	0.434
		Peak	150 ± 33	169 ± 30	**<0.001**
	dBP (mmHg)	Baseline	77 ± 13	78 ± 12	0.759
		Peak	74 ± 16	80 ± 16	**0.004**
	Peak RPP (beats·mmHg/min)		21101 ± 5258	22482 ± 5037	**0.04**
Dobutamine SEs	HR (beats/min)	Baseline	77 ± 14	73 ± 14	0.2
		Peak	138 ± 14	132 ± 12	**0.009**
		%age APMHR	89 ± 9	88 ± 9	0.574
	sBP (mmHg)	Baseline	141 ± 22	141 ± 27	0.065
		Peak	141 ± 27	158 ± 29	**0.002**
	dBP (mmHg)	Baseline	76 ± 13	78 ± 14	0.518
		Peak	70 ± 15	73 ± 11	0.384

	Peak RPP (beats.mmHg/min)		19458 ± 4033	20791 ± 4495	0.09
Exercise SEs	HR (beats/min)	Baseline	74 ± 14	75 ± 14	0.975
		Peak	146 ± 15	134 ± 21	**<0.001**
		%age APMHR	91 ± 8	87 ± 12	**0.024**
	sBP (mmHg)	Baseline	136 ± 16	137 ± 18	0.640
		Peak	180 ± 34	177 ± 28	0.716
	dBP (mmHg)	Baseline	80 ± 11	77 ± 10	0.236
		Peak	87 ± 14	86 ± 16	0.694
	Peak RPP (beats.mmHg/min)		26150 ± 5146	23679 ± 5108	**0.024**

Supplementary Table 4. Freedom from significant CAD between different participant groups over the 12 months. Participant groups are shown as graphed in the Kaplan-Meier curves shown in Figure 3. Normal AI systolic function at peak is defined as peak GLS ≤ or peak LVEF ≥ 64%; abnormal AI systolic function at peak is defined as peak GLS > -17.2% and peak LVEF < 64%. CI, confidence interval

Figure	Participant group	%age	95% CI	*P*-value
3A	Peak LVEF ≥ 64%	95%	92% – 97%	<0.001
	Peak LVEF < 64%	58%	49% – 65%	
3B	Peak GLS ≤ 17.2%	95%	92% – 98%	0.007
	Peak GLS > 17.2%	67%	59% – 73%	
3C	Normal AI systolic function at peak	94%	91% – 96%	<0.001
	Abnormal AI systolic function at peak	54%	43% – 62%	
3D	Non-ischaemic	99%	97% – 100%	0.01
	Ischaemic	32%	23% – 42%	
3E	Non-ischaemic with normal AI systolic function at peak	99%	97% – 100%	<0.001
	Non-ischaemic with abnormal AI systolic function at peak	98%	94% – 100%	
	Ischaemic with normal AI systolic function at peak	68%	42% – 84%	
	Ischaemic with abnormal AI systolic function at peak	23%	14% – 33%	

Supplementary Figure 2. Comparing of the incremental benefit of incorporating AI-calculated LV systolic function at peak stress to standard clinical assessment using bootstrapping of logistic regression models.