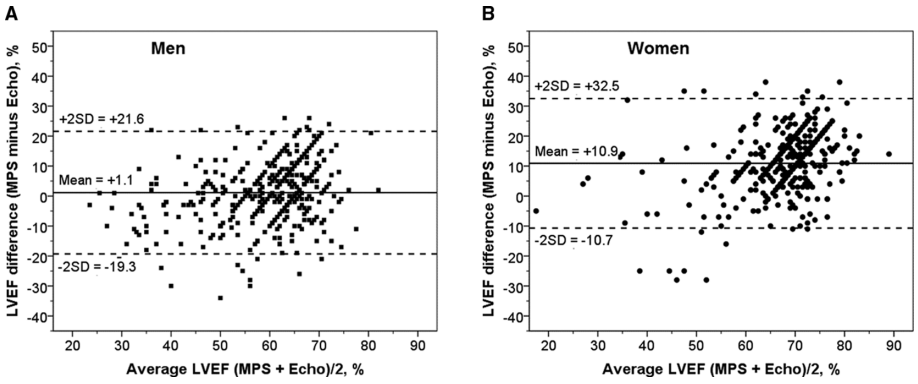


Abstract 12 Figure 2

of agreement (±2SD)=-19.3 to +21.6) in men (figure 2a) but +10.9% (-10.7 to +32.5) in women (figure 2b). A one-tailed t-test showed LVEF difference diverged from zero only marginally in men (mean difference=+1.1, 95%CI=+0.1 to +2.1, p=0.028) but more in women (+10.9, +9.8 to +12.1, p<0.001). The LVEF difference correlated significantly with average LVEF itself in both men (r=0.305, p<0.001) and women (r=0.361, p<0.001), and with age in women (r=0.117, p=0.031). Similar results were observed for the subset (MPS and Echo performed within 1month apart): LVEF difference was +1.3% (-18.1 to +20.7) in men and +11.3% (-10.6 to +33.2) in women. The LVEF difference again correlated significantly with average LVEF in men (r=0.361, p<0.001) and women (r=0.392, p<0.001), but not with age in either sex.

Conclusion Caution should be taken when interpreting LVEF measured by different techniques due to their wide limits of agreement and systematic bias, more markedly in women. Our data however cannot provide an underlying explanation for these differences but physiological and anatomical differences between men and women may contribute, e.g. cardiac morphology, haemodynamics and body habitus.

Conflict of Interest None

13 ABSTRACT WITHDRAWN

14 EFFICACY OF HANDHELD ECHOCARDIOGRAPHY AT GRADING LEFT VENTRICULAR AND LEFT-SIDED VALVULAR DYSFUNCTION COMPARED TO STANDARD TRANSTHORACIC ECHOCARDIOGRAPHY BEFORE AND AFTER EDUCATIONAL INTERVENTION AT A CENTRAL LONDON TEACHING HOSPITAL

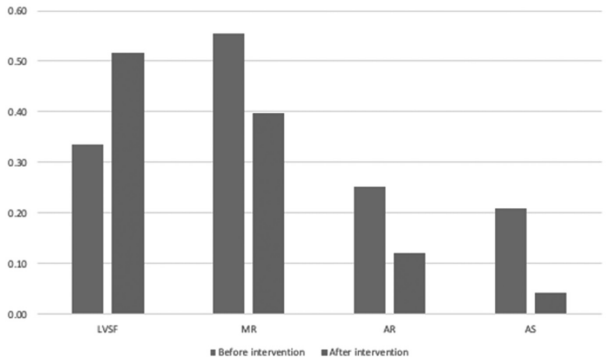
[1]Holli Evans*, [1]Benjamin Low, [2]Balrik Kailey, [1]Punam Pabari. *[1]Imperial College Healthcare NHS Trust; [2]NIHR ACF Cardiology, Imperial College London*

10.1136/heartjnl-2019-BCS.13

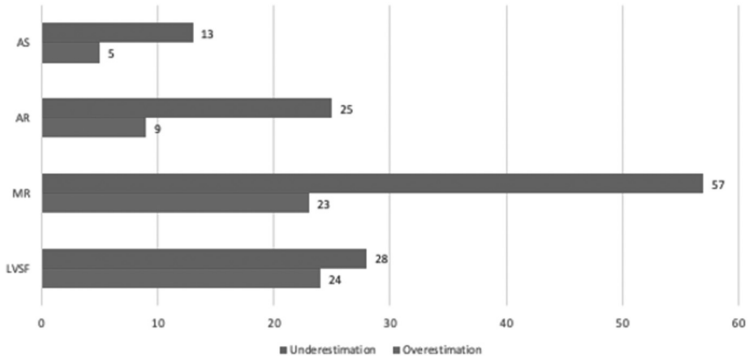
Introduction The use of handheld echocardiography (hTTE) is increasing, due to its diagnostic value in a number of clinical scenarios coupled with its availability, portability and relatively low cost1. The well-documented limitations of hTTE compared to standard TTE (sTTE) include operator experience in both image acquisition and interpretation2. Our first aim was to quantify the discrepancy when assessing left-sided cardiac pathology. Secondly, we aimed to identify whether this was amenable to improvement following educational intervention.

Methods We retrospectively identified 119 patients who underwent both hTTE and sTTE. Cardiology specialist trainees (STs) performed hTTE and this was compared to sTTE performed by blinded BSE accredited sonographers (gold standard). The parameters assessed and the grading system used is detailed below (table 1). Concordance between hTTE and sTTE was evaluated, both pre- and post-education, by the weighted Kappa statistic. Educational intervention included information given to all cardiology trainees highlighting both the overall cohort performance and confidential individualised feedback. Following this a further 29 patients who underwent both hTTE and sTTE were identified.

Results The average error for all parameters was 0.34 with fair agreement (k = 0.38). Figure 1 and Table 2 highlight the average error for each parameter. Where discrepancy existed, hTTE tended to underestimate severity of each parameter, with the exception of LVSF which was equivocal. The greatest discrepancy was seen when grading MR, and of 80 discordant scans, 57 were due to an underestimation (figure 2). The majority of error was in severe MR. As predicted, performance improved through years of training; ST3s consistently had the highest error compared to other grades, particularly when assessing MR. This improved significantly after education (0.66 to 0.33). Preliminary analysis post-education has shown an increase in overall agreement and a reduction in error when grading valvular pathology, but an increase in error when grading LVSD.



Abstract 14 Figure 1 Graph demonstrating average error in each parameter before and after intervention



Abstract 14 Figure 2 Graph demonstrating the proportion of underestimation and overestimation in discordant scans across each parameter

Abstract 14 Table 1 Severity grading system used to assess left ventricular systolic function (LVSF), mitral regurgitation (MR), aortic regurgitation (AR) and aortic stenosis (AS)

Severity	Grading Score
Normal/preserved	0
Mild	1
Moderate	2
Severe	3

Abstract 14 Table 2 Table showing average error for each parameter pre- and post-intervention with respective weighted kappa statistics (⍰)

Parameter	Pre-intervention		Post-intervention	
	Average Error	*k*	Average Error	*k*
LVSD	0.34	0.51	0.52	0.53
MR	0.55	0.29	0.40	0.34
AR	0.25	0.35	0.12	0.75
AS	0.21	0.37	0.04	0.51
Total	0.34	0.38	0.27	0.53

Kappa values of <0.2 were interpreted as poor, 0.21–0.4 as fair, 0.41–0.6 as moderate, 0.61–0.8 as good, and 0.81–1.00 as excellent.

Conclusion Our results are concordant with previous studies demonstrating that diagnostic accuracy of hTTE is heavily influenced by operator experience. It is less known how much training should be given to operators before hTTE assessment is reliable enough to base clinical decisions upon. However with simple education, we hope to demonstrate that discrepancy between hTTE and sTTE can be reduced. Moving forwards, we plan to introduce a dedicated training day for new ST3 cardiology trainees and observe how this influences performance. The discrepancy and underestimation with hTTE raises the question of clinical implications, particularly of underestimating MR. It may be the case that cardiology trainees should be more prudent when commenting on MR, spend slightly longer obtaining images if MR is present and liaise more closely with medical colleagues informing them about the limitations of HHE.

Conflict of Interest None

15 IMPROVEMENT IN DIAGNOSIS OF ISCHAEMIC CARDIOMYOPATHY BY CARDIOVASCULAR MAGNETIC RESONANCE

[1]Vijay Shyam-Sundar*, [2]Peter Swoboda, [2]Richard Cubbon, [2]John Greenwood, [2]Mark Kearney, [2]Sven Plein, [2]Klaus Witte. *[1]Leeds General Infirmary; [2]LICAMM, University of Leeds*

10.1136/heartjnl-2019-BCS.14

Background Risk stratification in heart failure is important as it enables personalised care. A diagnosis of ischaemic cardiomyopathy (ICM) is important as it has a higher risk than non-ischaemic cardiomyopathy (NICM) and it may be treated with an ICD. Results of the Danish Study to Assess the Efficacy of ICDs in Patients with Non-ischemic Systolic Heart Failure on Mortality (DANISH) trial have suggested the prognostic benefit from defibrillator therapy in patients with NICM may be less than previously thought. Late gadolinium enhancement (LGE) cardiovascular magnetic resonance (CMR) in a subendocardial or transmural pattern is validated for the detection of prior myocardial infarction. We hypothesised that the use of LGE CMR would alter the diagnosis of ICM in patients with newly presenting heart failure.

Methods We identified patients in the Leeds Heart Failure registry who had a clinically indicated CMR scan including LGE imaging. We also collected data on coronary angiogram findings, presence of previous myocardial infarction (MI), and revascularisation status (percutaneous coronary intervention and/or coronary bypass grafting). We classified patients with ICM by current American College of Cardiology (ACC) definition as used in trials such as the Surgical Treatment of Ischaemic Heart Failure Trial (STICH) by any of:

1. Prior MI
2. Prior revascularisation and significant coronary artery disease
3. 75% stenosis of the Left Main Stem or left anterior descending coronary artery
4. 75 % stenosis of both the Right coronary artery and the left circumflex arteryICM was defined by CMR findings when a subendocardial or transmural pattern of LGE was identified