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INCORPORATION OF MYOCARDIAL CONTRAST ECHOCARDIOGRAPHY INTO A CLINICAL STRESS ECHOCARDIOGRAPHY SERVICE IS FEASIBLE AND IMPROVES THE DIAGNOSTIC ACCURACY BEYOND THAT PROVIDED BY WALL MOTION ASSESSMENT ONLY

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doi:10.1136/heartjnl-2013-304019.120

Introduction Myocardial contrast echocardiography (MCE) has been shown in clinical trials to improve the diagnostic accuracy of stress echocardiography (SE). However, the feasibility and value of MCE incorporated into a clinical SE service in a 'real-world' setting is unknown.

Hypothesis We hypothesised that evaluation of myocardial perfusion—as well as wall motion—is feasible and improves the diagnostic accuracy of the clinical SE service in our centre.

Methods We performed MCE during SE in all patients undergoing pharmacological stress and patients undergoing treadmill exercise whom we suspected may not attain a high workload or target heart rate. We documented prospectively demographic variables, reason for referral, stress modality, amount of contrast used and value of MCE, which was assigned to one of four pre-determined categories: incremental benefit over wall motion (WM) analysis, more confidence with WM analysis, no benefit over WM analysis or other (eg, uninterpretable MCE images). All MCE studies were analysed by the performing cardiologist together with an expert reader.

Results Over a 21 month period, 893 patients underwent SE and 220 (25%) of these also underwent MCE by 8 different operators. Mean (±SD) age was 64±13 years. MCE demonstrated excellent feasibility, with diagnostic images obtained in 207/220 (94%) studies. Mean contrast use was 2.8 vials per study. MCE data provided incremental benefit over WM analysis in 56 (25%) cases, gave greater confidence with WM analysis in 46 (21%) cases, had no added value over WM analysis in 103 (47%) cases and was

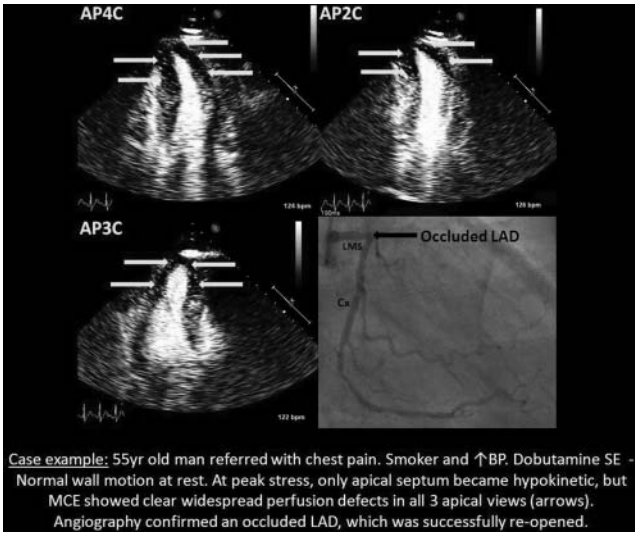

Figure 1

uninterpretable in 13 (6%) cases. In patients with inducible ischaemia, mean (±SD) number of ischaemic segments was 3.8±3.2 by WM and 5.2±3.3 by MCE ($p<0.001$). Of the 78/220 patients that underwent angiography, perfusion data agreed with angiographic findings in 66 (85%) cases. Amongst these patients, agreement between MCE and angiography findings were 26/29 (90%) and 20/26 (77%) in those in whom MCE data was of incremental benefit and added confidence to wall motion assessment, respectively.

Conclusions MCE, performed by multiple operators, is feasible when incorporated into a clinical SE service. MCE data is either of incremental benefit over WM analysis or gives more confidence with WM analysis in a significant proportion (approximately 50%) of cases.