023 MYOCARDIAL PERFUSION RESERVE FALLS IN DIABETES AND WITH INCREASING AGE – A PERFUSION MAPPING STUDY

[1]Kristopher Knott, [1]Claudia Camaioni, [1,2]Anish Bhuva, [1,2]Gabriella Captur, [3]Hui Xue, [1,2]Charlotte Manisty, [1]Christos Bourantas, [4]Sven Plein, [3]Peter Kellman, [1,2]James C Moon. *[1]Barts Heart Centre, The Cardiovascular Magnetic Resonance Imaging Unit and The Inherited Cardiovascular Diseases Unit, St Bartholomew's Hospital, West Smithfield, London, UK; [2]Institute of Cardiovascular Science, University College London, London, WC1E 6BT, UK; [3]National Heart, Lung, and Blood Institute, National Institutes of Health, DHHS, Bethesda, MD, USA; [4]University of Leeds, Leeds, LS2 9JT, UK*

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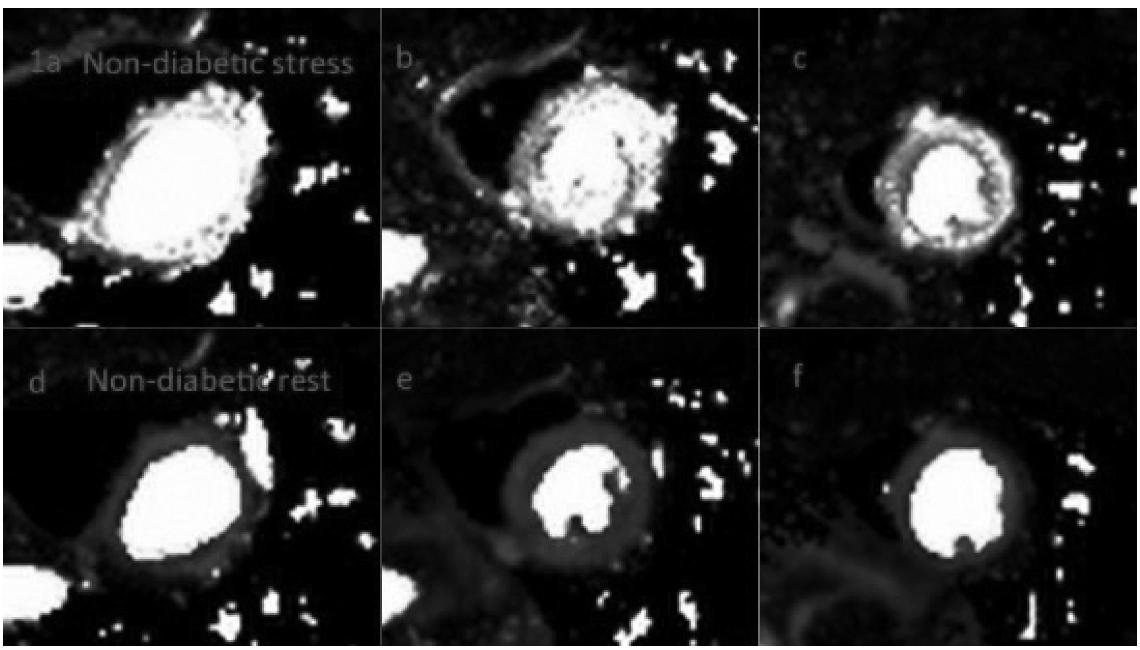
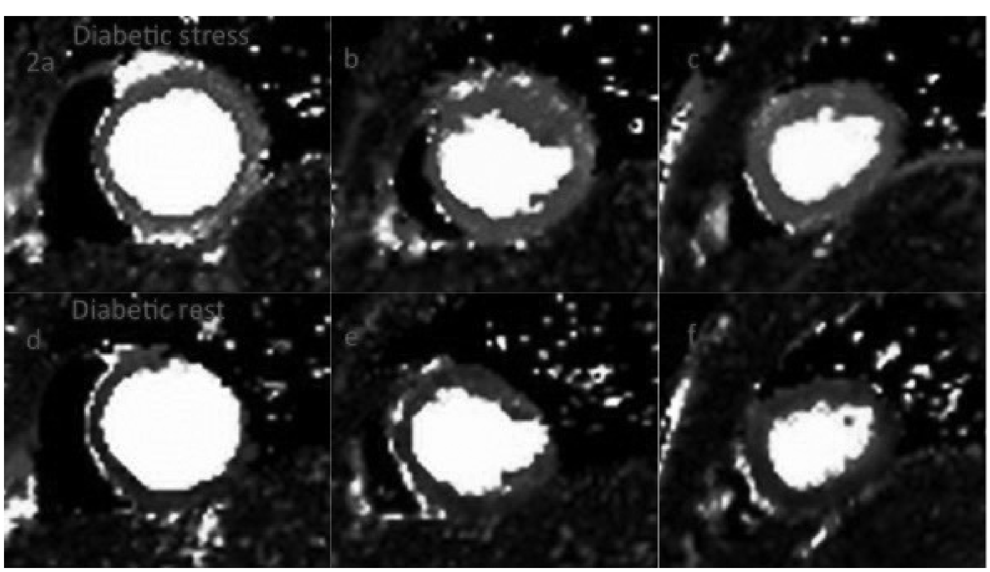
Objectives Myocardial perfusion reserve (MPR) is the ratio of myocardial blood flow (MBF) at stress to rest. A reduced MPR has been associated with a poor prognosis in quantitative Positron Emission Tomography studies. A likely mechanism is microvascular disease. Patients with diabetes mellitus often have microvascular disease and may have reduced MPR. We used automated in-line perfusion mapping, to quantify MBF at a pixel level in order to assess the MPR in patients with diabetes and other patients referred for clinical perfusion CMR.

Method Over 7 months, stress perfusion CMR with perfusion mapping was performed on 1201 clinically referred patients. Of these, we identified 121 who had also had angiography (invasive or CT) within 6 months (mean 6.4 weeks). Patients with unobstructed epicardial coronary arteries (<50% stenosis) were used in the final analysis (n=45). Global LV MPR was averaged across 3 short axis LV slice perfusion maps. The



Abstract 023 Figure 1 Perfusion maps (basal mid and apical LV slices) for a 50-year-old male with unobstructed coronary arteries at stress (a-c) and rest (d-f). The MPR is 4.54.



Abstract 023 Figure 2 Perfusion maps for a 63-year-old male with diabetes and hypertension. The MPR is 2.34.

MPR of patients with diabetes (n=10) was compared to those without. Patient age, sex, body surface area (BSA), LV end-diastolic volume (EDV), ejection fraction (EF) and the presence or absence of hypertension and late gadolinium enhancement (LGE) were recorded. A multivariable analysis was performed to determine the contributions of these factors to the MPR.
Results Global LV MPR was: 3.07 across all patients, 2.33 for those with diabetes and 3.27 in those without diabetes ($p=0.009$). Multivariable analysis indicated that diabetes and age were negatively associated with MPR even after adjustment for sex, BSA, LGE, hypertension, LV EF and EDV ($p<0.05$ for each group).
Conclusion In patients with non-obstructive epicardial coronary artery disease, the myocardial perfusion reserve falls with diabetes and increasing age. This is immediately visualisable by used automated in-line perfusion mapping.

024 SPECTRUM AND SIGNIFICANCE OF CMR FINDINGS IN CARDIAC TRANSTHYRETIN AMYLOIDOSIS

[1]Ana Martinez-Naharro, [2]Thomas A Treibel, [2]Amna Abdel-Gadir, [2]Heerajnarain Bulluck, [1]Giulia Zumbo, [1]Daniel S Knight, [1]Tushar Kotecha, [1]Rohin Francis, [1]David Hutt, [1]Tamer Rezk, [2]Stefania Rosmini, [1]Cristina Quarta, [1]Carol J Whelan, [3]Peter Kellman, [1]Julian D Gillmore, [2]James C Moon, [1]Philip N Hawkins, [1]Marianna Fontana. [1]*CMR Unit, Royal Free Hospital, University College London, UK*; [2]*Barts Heart Centre, West Smithfield, London, UK*; [3]*National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, Maryland, USA*

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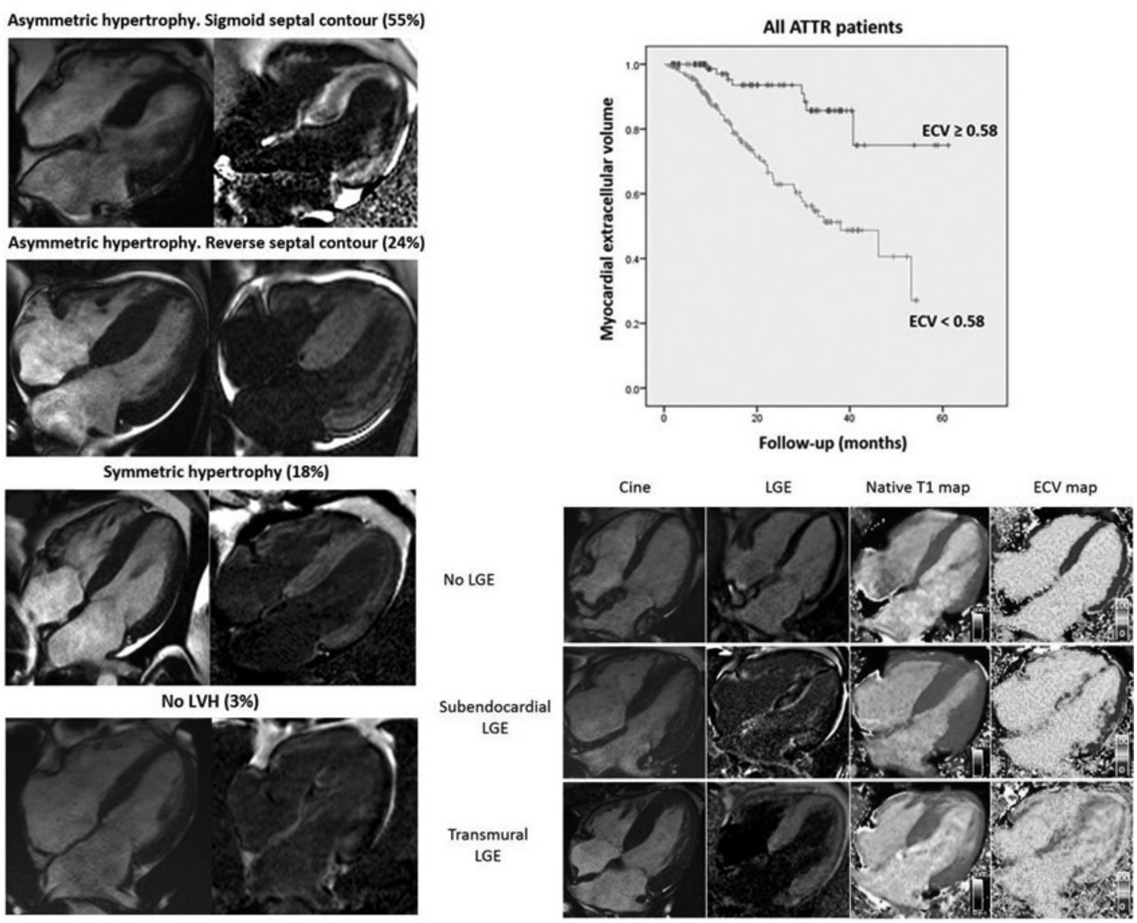
Background Cardiac transthyretin amyloidosis (ATTR amyloidosis) is an increasingly recognised cause of heart failure. Cardiovascular magnetic resonance (CMR) with late gadolinium enhancement (LGE) and T1 mapping is emerging as a reference standard for diagnosis and characterisation of cardiac amyloid.



Abstract 024 Figure 1 Left: four-chamber SSEP cine image in diastole and corresponding late gadolinium enhancement (LGE) images of four patients; asymmetric hypertropy with sigmoid septal contour and transmural LGE (top); asymmetric hypertrophy with reverse septal contour and transmural LGE (second from top); symmetric hypertrophy pattern and transmural LGE (third from top); eft ventricular hypertrophy and subendocardial LGE (bottom). Right top; Kaplan-Meier curve for ECV. Right bottom: four-chamber SSFP cine image in diastole and corresponding LGE images, native T1 maps and ECV maps of there patients, showing no LGE (top), subendocardial LGE (middle) and transmural LGE (bottom).