ASSESSING PATIENT BENEFIT FROM THE REVASCULARISATION OF CHRONICALLY OCCLUDED CORONARY ARTERIES BY ADVANCED CARDIOVASCULAR MRI TECHNIQUES

doi:10.1136/heartjnl-2011-300198.125

1N J Artis, 2A Crean, 1A Zaman, 1S Sorbron, 1A N Mather, 1S G Ball, 1S Plein, 1J P Greenwood. 1University of Leeds, Leeds, UK; 2Toronto General Hospital, Toronto, Canada

Background Cardiovascular magnetic resonance (CMR) imaging can provide an array of information about cardiac function and anatomy. The utility of CMR in the setting of coronary artery chronic total occlusion (CTO) has not been fully investigated. We set out to examine the ability of CMR to show regional improvements in left ventricular (LV) function and perfusion and to investigate if any features were able to predict those that benefit from revascularisation.

Methods Twenty-seven patients with single vessel CTO were recruited from clinical waiting lists and underwent a comprehensive CMR assessment prior to and 6 months following attempted CTO revascularisation. A multi-parametric CMR protocol was performed which included cine imaging to assess regional wall thickness/thickening and global LV function, rest and adenosine stress perfusion imaging (Fermi model), low dose dobutamine stress to assess inotropic reserve, and late gadolinium enhancement (LGE) imaging to determine scar location and extent. Using the AHA 16 segment model only segments supplied by the CTO artery were studied for functional improvement. Data are presented as mean (SD).

Results Procedural success in terms of revascularisation of the occluded artery was achieved in 23 of the 27 patients (85%, 20 with PCI and 3 with CABG). In those with successful revascularisation by PCI LV volumes reduced (EDV 185 (54) vs 174 (50) p<0.05; ESV 85(60) vs 77(58) p<0.001) and the left ventricular ejection fraction improved (56.5(12)% vs 58.9(12)% p=0.01). During adenosine stress imaging there was a significant improvement in absolute myocardial blood flow in the revascularised segments (from 1.87(0.51) to 3.77 (0.67) ml/g/min p<0.001) but not in the remote regions (from 3.76 (0.52) to 3.95(0.58) ml/g/min p=ns). LGE was only present in 25 (20%) revascularised segments. In these segments there was a strong inverse correlation between the extent of scar and improvement in segmental systolic thickening (r=-0.756, p<0.001). There was a weaker association between the segmental response to low dose dobutamine and the degree of functional improvement following successful revascularisation (Pearson r=0.249, p<0.01).

Conclusion Following revascularisation of CTO, myocardial perfusion increases and both regional and global systolic function improves. While the majority of subjects in this study had no scar on LGE imaging, when segments are scarred there is a negative correlation with improvement in regional systolic thickening.

THE IMPACT OF NICE GUIDELINES FOR THE INVESTIGATION OF CHEST PAIN ON OUTPATIENT CARDIOLOGY SERVICES IN THE UK

doi:10.1136/heartjnl-2011-300198.126

1C Patterson, 2E Nicol, 3L Bryan, 4T Woodcock, 1S Padley, 1D Bell. 1Imperial College, London, UK; 2Royal Brompton Hospital, London, UK; 3Chelsea and Westminster Hospital, London, UK; 4NIHR CLAHRC for Northwest London, London, UK

Abstract 125 Figure 2 Relationship of improvement in segmental systolic thickening against segmental scar (top panel) and change in thickening with low dose dobutamine (bottom panel).