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A NEGATIVE STRESS PERFUSION CMR SAFELY PERMITS DEFERRAL OF REVASCULARISATION IN PATIENTS WITH AN INDETERMINATE CORONARY STENOSIS

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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Background: A number of patients undergoing assessment for ischemic heart disease proceed straight to coronary angiography without prior non-invasive functional tests. When an indeterminate coronary lesion is then encountered, the functional significance of that stenosis is often unclear. Invasive assessment with fractional flow reserve (FFR) can clarify the situation but is not always available and involves significant expense. Non-invasive tests are then frequently requested to guide treatment. Adenosine stress perfusion imaging has been shown to have a high sensitivity and specificity for detecting ischemic heart disease. We sought to determine the ability of stress perfusion cardiac magnetic resonance (CMR) to guide management in these patients.

Methods: Consecutive patients with an indeterminate coronary stenosis on coronary angiography with referral for subsequent adenosine stress CMR were evaluated. Only those with single vessel disease were evaluated. All lesions were angiographically indeterminate (30-70% stenosis). Perfusion imaging was obtained at stress (adenosine 140 µg/kg/min) and rest on a 1.5T scanner. Late enhancement was assessed with dual pass gadolinium (total dose 0.2mmol/kg). Patient records, hospital databases and national death registries were reviewed. We defined major adverse cardiac events (MACE) as cardiovascular death, myocardial infarction, revascularisation and ischemic hospitalisation.

Results: Thirty nine patients, with clinical follow up for a median 25 months (IQR 22-28), were evaluated. Mean age 64 years, 23 (59%) male and 19 (49%) had previous myocardial infarction. Thirteen (33%) had a positive CMR, following which percutaneous coronary intervention (PCI) was undertaken. Of the 26 with a negative CMR, MACE occurred in 12% (3 of 26). These were all PCI events, one undergoing PCI within weeks at the discretion of the physician, with 2 symptom driven, secondary to lesion progression at 9 and 10 months.

Conclusions: A negative adenosine stress perfusion CMR reliably risk stratifies patients with an indeterminate stenosis such that revascularisation can be safely deferred. The MACE rate in this group is comparable to that seen in FFR studies.