



E1756

JACC March 12, 2013

Volume 61, Issue 10

TCT@ACC-i2: Invasive and Interventional Cardiology

BASAL STENOSIS RESISTANCE INDEX AND INSTANTANEOUS WAVE-FREE RATIO HAVE THE SAME DIAGNOSTIC PERFORMANCE AS FRACTIONAL FLOW RESERVE TO DETECT MYOCARDIAL ISCHEMIA USING MYOCARDIAL PERFUSION IMAGING

Oral Contributions

West, Room 2004

Sunday, March 10, 2013, 8:15 a.m.-8:25 a.m.

Session Title: Intravascular Imaging and Physiologic Assessment

Abstract Category: 38. TCT@ACC-i2: Intravascular Imaging and Physiology

Presentation Number: 2907-3

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Background: Despite its clinical benefit, adoption of fractional flow reserve (FFR)-guided revascularization remains limited, partly due to the prerequisite for vasodilator administration. Basal stenosis resistance index (BSR) and instantaneous wave-free ratio (iFR) are vasodilator-free indices of functional lesion severity which have been proposed as an alternative to FFR. In absence of a direct comparison of iFR and BSR, we sought to determine an iFR cut-off value for myocardial ischemia on non-invasive imaging, and to compare its agreement with BSR and FFR.

Methods: In 68 patients, including 85 coronary lesions, undergoing myocardial perfusion scintigraphy (MPS), FFR, BSR and iFR were determined. Receiver operating characteristics (ROC) curves were used to determine discriminative value for reversible perfusion defects on MPS. Classification agreement was determined according to adopted cut-off values, and in its absence an optimal cut-off value was determined for iFR by ROC analysis.

Results: Discriminative value by area under the ROC curve (AUC) was not statistically different between FFR, BSR and iFR (AUC:0.85, 0.82, and 0.81 respectively, $P>0.25$). The optimal cut-off value for iFR was 0.88, and at their respective cut-off values, overall classification agreement according to MPS results was equal between BSR, iFR and FFR (Table: $P>0.05$).

Conclusions: The iFR cut-off value for ischemia on MPS is 0.88. Both BSR and iFR mirror FFR in terms of diagnostic accuracy for myocardial ischemia on MPS.

Parameter	BSR	iFR	FFR	FFR
Cut-off value	0.66	0.88	0.75	0.8
False Positive	12.9	14.1	15.3	18.8
False Negative	10.6	10.6	9.4	4.7
Total Inaccurate	23.5	24.7	24.7	23.5
Positive predictive value	67.6	65.7	64.9	63.6
Negative predictive value	82.4	82.0	83.3	90.2
Sensitivity	71.9	71.9	75.0	87.5
Specificity	79.2	77.4	75.5	69.8