Coronary Artery Disease, Acute Coronary Syndromes, Acute Cardiac Care –
Coronary Artery Disease: Angiography, Invasive Imaging, FFR

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Diagnostic reliability of quantitative flow ratio for detection of myocardial ischemia compared with other angiographic and experience-dependent visual predicted indices

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Background: Quantitative flow ratio (QFR) is an image-based virtual fractional flow reserve (FFR) computed by three dimensional quantitative coronary angiography (3D-QCA) and estimated flow velocity. Several studies have reported that QFR had a good diagnostic performance as compared with wire-based FFR or instantaneous wave-free ratio (iFR).

Purpose: We compared the diagnostic reliability of QFR for detection of myocardial ischemia with other angiographic and visual predicted indices.

Methods: In 301 coronary lesions (263 patients) from our QFR database for previously-reported two studies, the diagnostic reliability of QFR, several angiographic and visual predicted indices were investigated using ROC analysis as reference of FFR≤0.8 or iFR≤0.89. Visual predicted FFR were estimated by 3 physicians (25-year experienced expert, 10-year experienced senior physician and 3-year experienced trainee) blinded to other indices.

Results: Area under the curve (AUC) of each index in ROC analysis is shown in Table.

Conclusion: QFR was reliable index detecting myocardial ischemia compared with other angiographic and experience-dependent visual predicted indices.

Diagnostic performance of each index for FFR ≤080 and iFR ≤0.89

	for FFR ≤0.80		for iFR≤0.89	
	n	AUC	n	AUC
3D-QCA				
Min. lumen diam.	220	0.74	156	0.69
% Diam stenosis	220	0.73	156	0.66
% Area stenosis	220	0.67	156	0.64
QFR	220	0.92	156	0.91
Visual predicted FFR				
by expert physician	69	0.82	69	0.77
by senior physician	69	0.72	69	0.68
by trainee	69	0.68	69	0.55