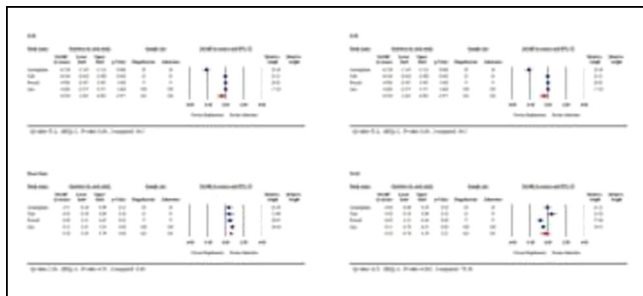


(Sdm 0.58, CI = [0.38, 0.78] P=0.00). Changes in MAP were not statistically significant (Sdm -0.3, CI = [-0.78, 0.18] p 0.22), more drop in MAP with Regadenoson arm (Sdm -0.53, CI = [-.89, -0.17] P=0.004) was seen with sensitivity analysis. There was more high degree AV block with Adenosine (OR 0.19 [0.04,0.9], P = .04).



CONCLUSIONS Regadenoson is effective in measuring FFR. It is associated with less high degree AV block. Large RCT are needed to further demonstrate the clinical outcomes and cost effectiveness of it. Its use in complex multiple lesions needing serial FFR measurements is to be studied.

CATEGORIES IMAGING: FFR and Physiologic Lesion Assessment

TCT-300

Combining baseline distal-to-aortic pressure ratio and fractional flow reserve in the assessment of coronary stenosis severity

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BACKGROUND Pd/Pa is always accessible before FFR assessment, and emerging data supports the notion that baseline indices can determine the ischemic potential of coronary stenosis in selected subsets. We sought to understand 1) the physiological basis of baseline distal-to-aortic pressure ratio (Pd/Pa) and fractional flow reserve (FFR) agreement and discordance, using coronary flow reserve (CFR), stenosis resistance (SR) and microcirculatory resistance (MR) measurements; and form there, 2) to investigate the potential value of combining Pd/Pa with FFR in the diagnostic rationale.

METHODS 467 stenosed vessels from 363 patients were investigated with pressure and flow sensors during baseline and hyperemia: 168 vessels (135 patients) with thermodilution-derived flow, and 299 vessels (228 patients) with Doppler-derived flow.

RESULTS Pd/Pa correlated more strongly with CFR than FFR (p difference=0.129; p for ρ comparison<0.001). Although Pd/Pa and FFR were closely correlated (ρ =0.798; 95% CI: 0.767 to 0.828), categorical discordance was observed in 19.3% of total vessels. Such discordance was associated with the patients' clinical profile and characterized by contrastive changes in SR, MR and the underlying CFR. Notably, all stenosis with Pd/Pa≤0.83 (n=74, 15.8%) progressed to FFR≤0.80, and although no Pd/Pa cut-off was able to exclude the development of FFR≤0.80 in the high end of values, only 15 (10.1%) vessels with Pd/Pa≥0.96 (n=149, 31.9%) developed FFR≤0.80, from which none had definite ischemia, as defined by CFR≤1.74.

CONCLUSIONS Combining baseline Pd/Pa with FFR seems to provide a more comprehensive physiological examination of stenosed coronary arteries, and a closer pressure-based appraisal of the flow reserve of the downstream myocardial bed.

CATEGORIES IMAGING: FFR and Physiologic Lesion Assessment

KEYWORDS Fractional flow reserve

TCT-301

Lesion-specific myocardial mass: A new index for diagnosis and treatment of coronary artery disease

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BACKGROUND Accurate quantification of the myocardial mass by coronary computed tomography angiography (CCTA) has become available. And lesion-specific myocardial mass (LMM) could be estimated with clinical applications of allometric scaling law. The aim of this study was to estimate the influence of the amount of lesion-specific myocardial mass (LMM) on the diagnostic performance of %DS or MLD to predict functional ischemia defined as fractional flow reserve (FFR) < 0.80.

METHODS CCTA and FFR were performed to evaluate 208 lesions in 132 patients. Index of myocardial ischemia was defined as FFR < 0.80. Total and lesion-specific myocardial mass was estimated using CCTA measurements based on allometric scaling method. And the LMM was defined as each myocardial mass per each supply vessel. Bivariate analysis was performed to estimate correlation between FFR and %DS or MLD in accordance with the amount of LMM.

RESULTS Ischemia was observed in 102 lesions. The mean FFR value was 0.63 ± 0.13. Mean total myocardial mass of CCTA was 108.20 (g) and mean LMM was 36.51 (g). Lesions with positive FFR had larger mean LMM. %DS and FFR showed modest negative correlation with high sensitivity but low specificity was observed. At the same anatomical severity of stenosis, lesions with larger LMM tend to produce more functionally significant ischemia. Interestingly, this tendency was not observed according to the reference diameter. At the same MLD, functionally significant ischemia was produced at lesions with larger LMM. Further, based on these slope of regression lines, lesions can be divided into 2 groups according to FFR value. So we assumed that, lesions with larger LMM and/or smaller MLD will produce more significant functional ischemia. We made new index with LMM divided by MLD and assessed its diagnostic performance to predict functionally significant ischemia. With the best cut-off value of 38.4, the AUC of the ROC were 0.82 with 62% of sensitivity and 90% of specificity. And the diagnostic performance of LMM/MLD was higher than that of %DS.

CONCLUSIONS Lesion-specific myocardial mass (LMM) can be calculated from CT by allometric scaling law. The larger the amount of LMM, the better the correlation between FFR and MLD was observed in this study. LMM showed weak correlation with RD and MLD, and weak negative correlation with DS%. A new index, LMM/MLD was predictive for ischemia as well as DS%(FFR <0.8). Our study suggests that 1mm of MLD CT can supply 34.8(g) of myocardium. In conclusion, functional severity of coronary artery stenosis depends on the amount of lesion-specific myocardial mass of the index vessel.

CATEGORIES IMAGING: FFR and Physiologic Lesion Assessment

TCT-302

Comparison Between Thermodilution And Doppler Flow Velocity Derived Quantification Of Microvascular Function After Acute Myocardial Infarction

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BACKGROUND The prognostic value of the quantification of coronary microvascular function following an acute myocardial infarction is becoming increasingly acknowledged. Invasive interrogation of coronary microvascular function can be performed using either a thermodilution based technique to quantify coronary blood flow or Doppler flow to assess coronary flow velocity. For the contemporary