Official title: **Comprehensive Evaluation of Patients with Chest Pain Using Cardiac Computed Tomography: Value of Adding Regadenoson Stress Perfusion Imaging to Noninvasive Coronary Angiography**

Brief title: **Stress CT Perfusion in Patients with Chest Pain**

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Study protocol

We prospectively enrolled 150 consecutive patients referred for CT coronary angiography (CTCA) who agreed to undergo additional imaging with regadenoson (0.4mg, Astellas). Of the 150 patients, 105 received regadenoson and underwent an additional CT scan at peak vasodilator stress. Images were acquired using retrospective gating (256-channel, Philips). Custom analysis software was used to generate 3D displays of normalized subendocardial x-ray attenuation co-registered with coronary arteries, which allow detection of regadenoson stress-induced perfusion defects (SPD) in the territory of each coronary artery affected by disease. Hemodynamically significant stenosis was determined using two different criteria in parallel: (1) a combination of stenosis >50% on CTCA concomitant with an SPD, reflecting together the anatomical severity and the hemodynamic impact of stenosis, and (2) abnormal CT-FFR. These determinations were compared to each other on a per coronary artery basis.

Statistical Methods

To determine the level of agreement between the above two approaches for determination of hemodynamic significance of coronary stenosis, 2x2 contingency tables were created for each comparison with numbers of arteries where the two techniques indicated the presence or absence of significant disease. These tables were used to calculate the overall level of agreement (in percent of the total number of arteries studied), which was also assessed using kappa-statistics.