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Non Invasive Imaging

CORONARY VASOMOTOR DYSFUNCTION, MYOCARDIAL INJURY AND DIASTOLIC DYSFUNCTION IN PATIENTS WITHOUT OVERT CORONARY ARTERY DISEASE

Poster Contributions
Hall C
Saturday, March 29, 2014, 10:00 a.m.-10:45 a.m.

Session Title: Cardiac Positron Emission Tomography: Current and Newer Applications
Abstract Category: 16. Non Invasive Imaging: Nuclear
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Background: The relationship between coronary vasomotor dysfunction, low-level myocardial injury and diastolic dysfunction in pts without overt coronary artery disease (CAD) is not known.

Methods: We studied 201 consecutive pts without known CAD who underwent cardiac troponin (Tn) testing 14d prior to stress positron emission tomography (PET), and echo within 90d of PET. Pts with flow-limiting CAD or LVEF <40% were excluded. Rest and stress myocardial blood flow (MBF, mL/min/g) was quantified, and coronary flow reserve (CFR) estimated from stress/rest MBF. Early diastolic flow (E) and septal relaxation (E') velocities were obtained via transmitral and tissue Doppler, respectively.

Results: Compared to pts without elevated E/E' (n=146), those with E/E' >15 (n=55) had higher pretest clinical scores and rates of detectable Tn, and lower LVEF and CFR. Stratifying patients by Tn detectability revealed strong correlations between CFR and E' (r = 0.49, P<0.001) and E/E' (r = -0.50, P<0.001), respectively, in Tn-detectable but not Tn-undetectable pts. After adjusting for pretest clinical score, LVEF, renal function, Tn and CFR, a significant association remained between E/E' >15 and impaired CFR (OR 2.69, 95%CI 1.29-5.62), but not detectable Tn (OR 2.01, 95%CI 0.94-4.31).

Conclusions: Impaired CFR associated independently with elevated LV filling pressures in pts without overt CAD. The link between coronary vasomotor dysfunction and LV diastolic dysfunction was strongest for those with detectable Tn.