Half-Dose Tc99 Sestamibi Stress Myocardial Perfusion Is as Accurate as Full Dose Scan

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Background: Recently, iterative image reconstruction software (evolution for cardiac, GE) has allowed to obtain equivalent image quality with half dose (HD) TC99 Sestamibi while performing stress myocardial perfusion imaging (MPI) as compared to full dose (FD) myocardial perfusion imaging (MPI). However angiographic correlation has not been explored so far.
Objective: To compare sensitivity and specificity between patients undergoing stress HD MPI as compared to FD MPI and invasive angiography within 60 days.
Methods: 37 patients (Age 64.4±4 years, 59.5% men, BMI 28.1±6.6 kg/m2, known CAD 46%) underwent stress-rest HDMPI and 20 patients (Age 63.3±4 years 85% men, BMI 26.9±4.7, known CAD 50%) FD MPI during the same period. All patients underwent invasive coronary angiography within 60 days.
Results: Mean administered and effective radiation dose were 20. 6±10.8 mCi and 6.2±3.2 mSv for the HD MPI as compared to 38.7±13.1 mCi and 11.6±3.9 mSv for the FD MPI group ($p<0.0001$). Sensitivity, specificity, positive and negative predictive value were 89%, 63%, 89%, 63% for the HD MPI and 81% 75% 92% 50% for the FD MPI group (p= NS , respectively).
Conclusion: Preliminary results suggest HD MPI is equally sensitive and specific as compared to FD MPI to predict obstructive coronary disease. Larger patient population is still warranted to perform HD MPI as a routine protocol.