

TITLE

Coronary calcium scores in patients with normal myocardial perfusion

AUTHORS

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ABSTRACT

Objectives Normal myocardial perfusion is associated with a low cardiac risk, whereas increasing coronary calcium scores (CCS) are associated with an increased risk. Using a hybrid SPECT-CT system, we looked at the CCS among patients with normal myocardial perfusion to identify possibly explanatory risk factors.

Methods Patients with known or suspected coronary artery disease referred for outpatient SPECT-CT myocardial perfusion imaging were evaluated. Patients were assessed using a 16-slice CT scanner for CCS and attenuation correction SPECT imaging using Tc99m sestamibi. A one-day rest stress protocol was used. Only patients with normal myocardial perfusion were evaluated. Means are given +/- standard deviation.

Results There were a total of 2351 patients with normal perfusion. The minimum CCS was 0, the maximum was 6915, and the mean was 139 +/- 461. There were 209 patients with a CCS > 400 (9%) and 1301 with a score of 0 (55%), with the remaining 841 having a score of 1 to 400 (36%). A higher CCS was significantly correlated with age, hypertension, hypercholesterolemia, smoking, diabetes, male sex, and a positive family history. The strongest correlations were with age (Pearson correlation $r=0.33$) and hyperlipidemia ($r=0.158$). There was no significant correlation between CCS and obesity or postmenopausal status. After controlling for exercise capacity, there was a significant correlation between CCS and age, hypertension, and hyperlipidemia, but not with smoking status, family history, or diabetes.

Conclusions Approximately 10% of patients with normal myocardial perfusion had a CCS over 400. Age and hyperlipidemia were the strongest risk factors for having a high CCS in the setting of normal myocardial perfusion. Findings support the utility of CCS in selected patient groups with normal myocardial perfusion.

CITATION

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