Differential coronary artery calcification detected by electron beam computed tomography as an indicator of coronary stenosis among patients with stable angina pectoris

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摘要

Abstract

BACKGROUND: The detection of coronary artery calcification by electron beam computed tomography (EBCT) has been suggested as an indicator of atherosclerosis and coronary artery disease (CAD). There is no consensus on the correlation between coronary calcification and angiographically significant stenosis on an artery-by-artery basis. OBJECTIVE: To examine the relationship between coronary calcification score (CCS) and the presence of significant CAD on an artery-by-artery basis in patients with stable angina pectoris. METHODS AND RESULTS: EBCT and coronary angiogram (CAG) were evaluated in 71 patients with stable angina and in nine control subjects. The CCSs of each of the four major coronary arteries were highest in patients with significant CAD (n=43), followed by patients with insignificant CAD (n=5), patients with syndrome X (n=23) and control subjects, respectively. Calcification scores of the four major coronary arteries appeared to have different predictive power for significant stenosis on the same vessel. For left main (LM) and left anterior descending (LAD) coronary arteries, CCSs of vessels with significant stenoses were not different from those without significant stenoses (values expressed as medians: LM 0 versus 1; LAD 98.5 versus 70; not significant). Calcification scores of left circumflex (LCX) and right coronary arteries (RCA) were significantly higher in vessels with significant stenosis (LCX 49.5 versus 0; RCA 53 versus 1; $P<0.05$). CCSs appeared to be moderately useful to predict significant stenoses in these two vessels (areas under receiver operating characteristic curves: LCX 0.68+/-0.08, 95% CI 0.52 to 0.81; RCA 0.71+/-0.08, 95% CI 0.55 to 0.84). CONCLUSIONS: The CCSs of RCA and LCX arteries, but not those of LM and LAD arteries, may predict significant angiographic stenosis on an artery-by-artery basis among patients with stable angina pectoris.