190 Association between mitral annular calcification and coronary artery disease
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Objective: To determine whether there is an association between mitral annular calcification (MAC) and coronary artery disease (CAD).

Methods: 386 patients aged 65 years old underwent transthoracic echocardiography and coronary arteriography at the same time.

Results: 1. The age of patients with calcium deposits was older than that of patients without calcium deposits (P<0.01). Of the risk factors studied, hypertension (P<0.05) and diabetes mellitus (P<0.01) were significantly associated with MAC. Hypertension (P<0.01), diabetes mellitus (P<0.05) and a smoking history (P<0.05) were significantly more prevalent in patients with MAC than those without MAC. Hypertension was significantly more frequent in patients with AVA (P<0.05). 2. There was a progressive increase in age (P<0.01), prevalence of patients with calcium deposits (P<0.01) and diabetes (P<0.05) with an increasing number of sites with calcium deposits. 3. Compared with patients with no calcium deposits, those with calcium deposits had a significantly higher positive prevalence of coronary artery calcification (P<0.01), and there was a progressive increase in positive prevalence of coronary artery calcification (P<0.01). 4. Multiple logistic analyses identified the multiple calcium deposits (P<0.01), age (P<0.01), male gender (P<0.001), diabetes mellitus (P<0.001), and hypercholesterolemia (P<0.001) as significant predictors of the positive prevalence of coronary artery calcification. The multiple calcium deposits (P<0.01), age (P<0.01), and diabetes mellitus (P<0.01) were significant predictors in female patients. In patients aged >65 years, the multiple calcium deposits (P<0.01), age (P<0.01), diabetes mellitus (P<0.05), smoking history (P<0.05) and male gender (P<0.05) were statistically significant predictors of the positive prevalence of coronary artery calcification.

Conclusions: There is a significant association between the presence of calcium deposits and coronary artery disease. The presence of multiple calcium deposits is an independent predictor of coronary artery disease.

202 Coronary artery wall thickness of the left anterior descending artery using high resolution transthoracic echocardiography in intra and inter-operator variability
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The ability of angiography to detect early atherosclerotic changes in the coronary arteries is limited by arterial remodeling. Failure to detect early atherosclerosis may represent a missed opportunity for pre-emptive treatment. The optimal method for detection of subclinical coronary arteriosclerosis would be non-invasive and would focus on the arterial wall rather than the lumen. A recent study has shown that high resolution transthoracic echocardiography (HRTCE) can be used to visualise and make accurate measurements of the proximal left anterior descending artery (LAD) wall. Moreover, these measurements differ between patients with coronary disease and normal volunteers.

We used HRTCE to visualise and measure the LAD anterior and posterior wall thickness and vessel lumen and external diameters to determine the intra- and inter-operator variability of these measurements. Thirty volunteers without a history of cardiac disease underwent a HRTCE assessment of their LAD by two different operators on three separate occasions.

Results: The correlations for intra-operator variability were r = 0.86 (P<0.001), r = 0.66 (P<0.01), r = 0.81 (P<0.01) and r = 0.85 (P<0.001) for anterior and posterior wall thickness and lumen and external diameters respectively. The correlations for inter-operator variability were r = 0.88 (P<0.001), r = 0.82 (P<0.001), r = 0.76 (P<0.01) and r = 0.70 (P<0.001) for anterior and posterior wall thickness and luminal and external diameters respectively.

Conclusion: HRTCE measurement of the LAD vessel is reproducible within and between operators in normal volunteers. This technique therefore warrants further study as a potential screening modality for subclinical coronary arteriosclerosis.

203 Coronary flow reserve (CFR) for diagnosis of a significant left anterior descending artery stenosis: influence of coronary risk factors
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Background: A value of CFR < 2, noninvasively determined, has provided a useful tool for diagnosis of a significant left anterior descending artery (LAD) stenosis in selected populations. However recent studies have showed that cardiovascular risk factors affect CFR reducing its value for diagnosis of a significant LAD stenosis (SSL).

Methods: 383 patients (mean age 59±10 years, 72% men, 26% diabetes, 56% hypertension, 24% dyslipidemia, 53% smokers), without previous anterior myocardial infarction, underwent transthoracic echocardiographic CFR evaluation. Blood flow velocity was measured in the mid distal part of LAD at rest and during injection of high dose dipyridamole (0.54 mg/kg iv) in 6 minutes using high frequency transducer. CFR was calculated as the ratio of hyperemic to basal peak diastolic flow velocity. All patients underwent coronary angiography in a week after CFR evaluation. SSL was defined as the presence of SSL stenosis >50%. Patients were divided in high score (HSF) and low score (LSF) patients according to the presence of more than two cardiovascular risk factors (such as diabetes, hypertension, hyperlipidaemia, smoke and age > 65 years).

Results: CFR value wasn’t significantly different between HSF and LSF (2.17±0.70 vs 2.26±0.66 n.s) while patients with SSL had a significantly reduced CFR value compared to patients without SSL (1.82±0.68 vs 2.2±0.5, p<0.001). In 241 patients without SSL, a multivariate logistic regression analysis showed that hypertension (beta -0.4, p<0.005), age (beta -0.2, p<0.05), diabetes (beta -0.38, p<0.05) and number of risk factors (beta 0.27, p<0.01) were independent factors influencing CFR. In 142 patients with SSL, LAD stenosis (beta -0.32, p<0.001) was the only independent predictor of a reduced CFR in a multivariate logistic regression analysis.

Conclusion: Our results suggest that cardiovascular risk factors don’t reduce the clinical value of CFR evaluation for diagnosis of SSL. In fact even if cardiovascular risk factors can reduce CFR in patients without SSL, a CFR value < 2 is a reliable cut-off point for the detection of SSL.

204 A new acute coronary syndrome: “Left ventricular apical ballooning syndrome”. Clinical and echocardiographic findings, response to provocative stress-echo and echocardiographic follow-up
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Purpose: Left ventricular apical ballooning syndrome (LVABS) is an acute coronary syndrome mimicking ST-elevation myocardial infarction (STEMI) so far observed mainly in Japan, characterized by transient apical and diastolic contraction of the apex in absence of significant coronary disease, whose pathogenetic mechanisms are as yet unclear. In this study we describe the clinical and echocardiographic find-