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Association between mitral annular calcification and coronary artery disease
H.G. Chu, R.Q. Guo, S.M. Wang. Renmin Hospital, Wuhan University. Department of Ultrasound, Wuhan, China

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

Method: 366 patients aged 65 years old underwent contrast-enhanced echocardiography and coronary angiography 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). 2. Diabetes, hypertension (P<0.05), hyperlipidemia, smoking and coronary artery disease (CAD) were significantly associated with MAC. 3. There was a progressive increase in positive prevalence of coronary artery calcification (P<0.01) and coronary artery disease (P<0.05). 4. Macela achieved positive prevalence of coronary artery disease (P<0.01) and MAC (P<0.001). 5. MAC (P<0.01) was the independent predictor of coronary artery disease, and the multiple calcium deposits (P<0.01) showed a positive correlation (P<0.001) with multiple calcium deposits (P<0.01). 6. The presence of multiple calcium deposits (P<0.001) was an independent predictor of coronary artery disease.

Conclusions: There is a significant association between the presence of calcium deposits and coronary artery disease. Coronary angiography should be undertaken to the patients with MAC diagnosed by transthoracic echocardiography as a common.

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Association between mitral annular calcification, aortic valve annulus calcification and aortic valve calcification with coronary artery disease
H.G. Chu, R.Q. Guo, S.M. Wang. Renmin Hospital, Wuhan University. Department of Ultrasound, Wuhan, China

Objective: To determine whether there is an association between mitral annular calcification (MAC), aortic valve annulus calcification (AVAC), and aortic valve calcification (AVC) with coronary artery disease (CAD) in subjects aged <65 years old.

Results: 1. The presence of MAC was significantly associated with AVAC (P<0.01) and AVC (P<0.001). 2. The presence of AVAC was significantly associated with AVC (P<0.01). 3. The presence of MAC was significantly associated with coronary artery disease (P<0.01). 4. The presence of AVAC was significantly associated with coronary artery disease (P<0.001). 5. The presence of AVC was significantly associated with coronary artery disease (P<0.001).

Conclusions: 1. The presence of MAC is an independent predictor of coronary artery disease. 2. The presence of AVAC is an independent predictor of coronary artery disease. 3. The presence of AVC is an independent predictor of coronary artery disease.

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Effectiveness of Intravascular ultrasound in drug-eluting stents age
H. Fujikura, Y. Hasa, T. Kiso, K. Kozuma, C. Ganesa, J. Taguchi. Tokai University, Hachioji Hospital, Department of Cardiology, Hachioji, Japan

Purpose: Drug-eluting stents (DESs) have been developed to prevent in-stent restenosis following percutaneous coronary revascularization, and its effectiveness in the prevention of restenosis has been confirmed in the world. Intravascular ultrasound (IVUS) is effective to determine a strategy of percutaneous coronary intervention using bare metal stents. We evaluated whether IVUS could be useful to determine a strategy for chronic total occlusion (CTO) in DES age.

Methods: 48 patients who underwent PCI to CTO were studied. Length, diameter and characteristics of lesion were confirmed by IVUS in all patients after pre-stenting dilation (balloon size was 1.25-1.5mm).

Results: 1. CTO lesions were 18.5±4.7mm, diameter was 3.2±1.4mm, 2.4±1.4 stenoses were needed for covering lesion. No perforation was observed during stent implantation. Complications during percutaneous coronary intervention with IVUS were less than IVUS age (2% vs 10%). Target vessel revascularization was not occurred at six months follow up. (Major adverse cardiac event was not occurred at six months follow up.)

Conclusion: IVUS is effective device for PCI even in DES age.

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Coronary artery wall thickness of the left anterior descending artery using high resolution transthoracic echocardiographic an intram and inter operator variability

The ability of imaging 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 determination of subclinical coronary atherosclerosis would be reliable, objective, inexpensive and would focus on the arterial wall rather than the lumen. A recent study has shown that high resolution transthoracic echocardiography (HRTTE) can be used to visualize 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 HRTTE to visualize and measure the LAD anterior and posterior wall thicknesses and vessel luminal and arterial diameters to determine the intraprocedural variability of these measurements. Thirty volunteers without a history of cardiac disease underwent a HRTTE 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 = 0.86 (P < 0.001) and r = 0.85 (P < 0.001) for anterior and posterior wall thickness and luminal area and external diameters, respectively. The correlations for inter-operator variability were r = 0.88 (P < 0.001), r = 0.76 (P < 0.001) and r = 0.70 (P < 0.001) for anterior and posterior wall thickness and luminal and external diameters respectively.

Conclusion: HRTTE 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 atherosclerosis.

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Coronary flow reserve (CFR) for diagnosis of a significant left anterior descending artery stenosis: influence of coronary risk factors
L. Ascione, M. Acciaia, G. Granata, M. De Michele, C. Sacra, A. D'Andrea, P. Capogrosso, B. Tuccillo. 1, 2, (Italy) "S. Maria di Loreto Hospital, Division of Cardiology, Naples, Italy; 3 S. Maria d'Arezzo Hospital, Division of Cardiology, Naples, Italy; 4 Moscati Hospital, Division of Cardiology, Naples, Italy; 5 Ramo Hospital, Division of Cardiology, Benevento, Italy; 6 S. Giovanni Hospital, Division of Cardiology, Naples, Italy

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 (SLS).

Methods: 383 patients (mean age 59±10 years, 72% men, 26% diabetes, 56% hypertensive, 24% dyslipidemic, 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 intubation of high dose dipyridamole (0.84 mg/kg i.v.) in 6 minutes using high frequency transducer. CFR was calculated as the ratio of hyperemic to basal peak diastolic velocity. All patients underwent angiography in a week after CFR evaluation. SLS was defined as a decrease in the presence of LAD stenosis > 50%.

Results: CFR value was significantly different between HSF and LSF (2.17±0.70 vs 2.26±0.66, p < 0.001) while patients with SLS had a significantly reduced CFR value compared to patients without SLS (1.84±0.68 vs 2.44±0.5, p < 0.001). In 241 patients without SLS, 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<0.005) and number of risk factors (beta=-0.27, p<0.001) were independent factors influencing CFR. In 142 patients with SLS, 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 SLS. In fact even if cardiovascular risk factors can reduce CFR in patients without SLS, a CFR value < 2 is a reliable cut off point for the detection of SLS.

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A new acute coronary syndrome: “Left ventricular apical ballooning syndrome”. Clinical and echocardiographic findings, response to provocative stress echo and evolution
M. Freivald 1, S. Panagia 2, E. Baldini 2, L. Scuderi 2, A. Repetti 2, L. Tavazzi 1, 3
1 Pavia, Italy; 2 IRCSS Pol. San Matteo-Page University, Cardiology, Pavia, Italy

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 akinesia and dilatation of apex in absence of significant coronary disease, whose pathogenetic mechanisms are as yet unclear. In this study we describe the clinical and echocardiographic find-