920 The cumulative effect of risk factors on endothelial dysfunction in patients with chest pain and normal coronary angiogram


Background: patients with chest pain but normal coronary angiography often have both reduced coronary circulation and impaired systemic endothelial function. The purpose of the study was to assess the effect of the risk factors on systemic and endothelial function in patients with chest pain but without hemodynamically significant coronary lesions.

Patients and Methods: In 90 patients (54 males, mean age 57.4±10 years) with a normal coronary angiogram the flow mediated dilatation (FMD) was assessed by measuring the change in brachial artery diameter in response to hyperemic flow by vascular ultrasound. Hemostolimid, hypertension and diabetes mellitus were considered as risk factors. Student’s t test and the logistic regression model was used to establish the effect of the risk factors on FMD.

Results: FMD was significantly lower in patients with hypertension (6.1±2.0 vs 9.0±4.0, p<0.01), diabetes mellitus (5.1±1.3 vs 9.0±4.0, p<0.01), and hypercholesterolemia (7.0±2.8 vs 9.0±4.0, p<0.05).

Using the logistic regression model, diabetes mellitus emerged as the most important risk factor damaging the endothelial response to the FMD, followed by hypertension. Patients with the highest risk factors had significantly higher FMD then patients with all 3 risk factors (10.3±4.8 vs 5.1±2.6, p<0.01).

Conclusion: usual cardiac risk factors have a cumulative effect on endothelial function which can be detected by FMD in patients with negative coronary angiogram.

921 Mitral annular calcium and aortic valve calcium: relationship with carotid intima media thickness and carotid dissensibility

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Background: Mitral (MAC) and aortic annular calcification (AVC) are observed more frequently in the elderly and represent a progressive degenerative process. Alterations in vascular structure and function, including increased arterial wall thickness, and reduced distensibility, play an important role in the development of arterial stiffness.

Methods: In 143 consecutive patients with MAC or AVC we examined whether the presence of MAC or AVC was associated with increased intima-media thickness (IMT) and decreased flow-mediated dilatation (FMD).

Results: The presence of MAC in quartile 4 (n=35) was significantly associated with increased IMT (0.87±0.19 vs 0.71±0.14 mm, p<0.01) and decreased FMD (5.9±2.0% vs 7.8±2.0%, p<0.01).

Conclusion: Mitral annular calcification is independently associated with increased IMT and decreased FMD.

922 FMD and IMT in patients with CAD and in patients with a high risk for CAD

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Background: Early stages of atherosclerosis result to endothelial dysfunction and decreased arterial stiffness. The brachial artery flow mediated dilatation (FMD) constitutes the integrated marker of endothelial function. The carotid intima-media thickness (IMT) reflects an early structural atherosclerotic changes. The aim of the study was to assess carotid IMT and FMD in following groups: patients with CAD, patients with syndrome X, patients with simple obesity and healthy subjects.

Methods: One hundred ninety-nine patients were enrolled into the study: 96 patients with stable CAD, (angina pectoris class CCSIII, mean age: 58±10.2 years), 57 patients with syndrome X (mean age: 54±7.11 years), 15 patients with simple obesity (mean age: 31±5.7 years), 21 healthy subjects in middle age (mean age: 51±7.8 years) - control A, and 10 healthy, young individuals (mean age: 26±5.4 years) - control B. Clinical findings, serum lipids, echocardiography at baseline and six months later after weight loss with orlistat. The IMT was measured as the percent change of brachial artery diameter after 3 minutes occlusion of the brachial artery by ultrasound. The FMD was assessed by measuring the change in brachial artery diameter in response to hyperemic flow by vascular ultrasound.

Results: The IMT and FMD values were significantly lower in CAD group (5.2±1.7% in the left coronary and syndrome X group (5.5±5.5%) in comparison both to control A (14.5±6.2%, p<0.05) and control B (15.3±2.4%, p<0.01). The obese subjects showed a significantly increased mean %FMD (18.3±14.8%) as compared to the remaining groups. The %NTG-MD values were lower in CAD group (14.6±2.8%) and syndrome X group (14.8±6.8%) in comparison to the obese subjects (37±6.18%, p<0.05) and control B (28.3±6.0%, p<0.05). The IMT was significantly increased in CAD group (0.76±0.1 mm, p<0.05), while in syndrome X group (0.70±0.1 mm) comparable to control A (0.69±0.1 mm). In obese group the IMT complex (0.58±1.12 mm, p<0.05) was significantly smaller than in control A, and significantly larger in comparison to control B (0.40±0.65 mm).

Conclusions: The CAD and syndrome X patients were characterized by impaired endogenous and exogenous arterial dilatation. The IMT complex increases with age. In young patients obesity accelerates atherosclerotic changes in intima-media, however, it does not seem to suppress arterial vasoilation.

923 Effect of weight loss with orlistat on aortic stiffness

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Aim: Obesity has reached epidemic levels and carries a risk for cardiovascular disease. Obesity may also be associated with early vascular changes. The aim of this study was to assess the effect of weight loss with orlistat on aortic stiffness in obese patients.

Methods: Study groups were composed of 18 (3 men and 15 women, mean age 50±6 years) obese participants. Aortic stiffness was assessed by thoracic echocardiography at baseline and six months later after weight loss with orlistat. Aortic stiffness and compliance in full body were calculated from aortic diameters measured by thoracic echocardiography and blood pressure was obtained by sphygmomanometry.

Results: There were significant differences between the two period in body mass index, aortic strain, aortic compliance and beta index. A significant decrease was noted in body mass index (37±6 vs 33±5 kg/m2, p<0.0001) and in beta index (22±11 vs 25±5, p<0.0001). A significant increase was noted in aortic compliance (0.0025±0.01 vs 0.0446±0.05, p<0.001) and in aortic strain (4.5±3.0% vs 7.1±3.2%, p<0.01).

Conclusion: These data show strong associations between weight loss and aortic stiffness regression. Six months treatment with orlistat and weight loss improves aortic stiffness. These data greatly underscore the vascular benefits of weight loss.

924 Interrelationship between non-invasive predictors of atherosclerosis: coronary flow reserve, flow mediated dilatation, carotid intima-media thickness, aortic elasticity

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Background: Several noninvasive methods have been introduced into research area to assess atherosclerosis in its proclinal stages. In this study we searched for correlation between thoracic coronary flow reserve (CFR) and well established surrogates of coronary atherosclerosis.

The study was conducted on totally healthy 196 subjects (53 male and 143 female, mean ages 33.0±7.9) times of coronary risk factors. Using thoracic echocardiography, aortic stiffness index (AoSI), aortic distensibility (AoD) and aortic elastic modulus (AoEM), using high-resolution ultrasound, brachial artery endothelium-dependent dilation (EDD) and endothelium-independent dilation (EID), and carotid intima-media thickness (IMT), and thoracic aortic echocardiographic coronary flow reserve (CFR) in left anterior descending coronary artery (LAD) were recorded from each subject.

Results: All of the parameters significantly correlated with each other except (EID). CFR significantly correlated with brachial EDD (r=0.392 P<0.001), carotid IMT (r=0.412 P<0.001), brachial artery resting diameter (BAD) (r=0.355 P<0.001), AoSI (r=0.298 P<0.001), AoD (r=0.310 P<0.001), and AoEM (r=0.312 P<0.001).

Carotid IMT significantly correlated with brachial EDD (r=0.388 P<0.001), BAD...