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 aim of this study was to assess the effect of risk factors on systemic endothelial function in patients with chest pain but without hemodynamically significant coronary lesions.

Methods: 90 patients (54 males, mean age 57±10 years) with a normal coronary angiogram and the flow-mediated dilation (FMD) was assessed by measuring the change in brachial artery diameter in response to hyperemic flow by vascular ultrasound. Hypercholesterolemia, hypertension and diabetes mellitus were considered as risk factors. Students's t test and the logistic regression model was used to establish the effect of the risk factors on FMD.

Results: Mean clMT was significantly lower in patients with hypertension (6.1±2.0 vs 9.0±4.0, p<0.001), diabetes mellitus (5.1±1.3 vs 9.0±4.0, p<0.001), and hypercholesterolemia (7.0±2.8 vs 9.0±4.0, p<0.001). Using the logistic regression model, diabetes mellitus emerged as the most important risk factor damaging the endothelial response to the hyperemia, followed by hypertension. Patients with higher values had significantly higher FMD than patients with all risk factors (10.3±8.5 vs 5.1±2.6, p<0.001).

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

Effect of weight loss with orlistat on aortic stiffness

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Background: 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 transthoracic echocardiography at baseline and six months later after weight loss with orlistat. Aortic stiffness index (ASI) was calculated for each subject.

Results: There were significant differences between the two period in body mass index, visceral fat and waist circumference. There were no significant differences between the two period in body mass index, waist circumference and waist to hip ratio. In the period after weight loss with orlistat, Aortic stiffness index (ASI) was significantly lower compared to the initial period.

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

Interrelationship between non-invasive predictors of atherosclerosis: coronary flow reserve, flow mediated dilation, 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 proximal stages. In this study we searched for correlation between transthoracic coronary flow reserve (CFR) and well established surrogate of coronary atherosclerosis.

Methods: The study was conducted on totally healthy 136 subjects (53 male and 83 female, mean ages 33±4.7 years) free from coronary risk factors. Using transthoracic 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 transthoracic 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=0.302 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....