Impact of acute hyperhomocysteinemia on coronary flow reserve in healthy adults.

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Background: Hyperhomocysteinemia has been related to preclinical structural and functional arterial abnormalities.

Aim of the present study was to evaluate the impact of hyperhomocysteinemia on coronary flow reserve.

Methods: Twenty healthy subjects (mean age 41 ± 7 years) were studied twice, before and after methionine load (100 mg/kg) or placebo, according to a crossover, double blind design. Homocysteine levels were measured by liquid chromatography and coronary flow reserve was evaluated by transthoracic echocardiography.

Results: After methionine load, homocysteine levels increased from 10.7 ± 2.8 micromol/L to 30.4 ± 5.1 micromol/L (p < 0.0001) and coronary flow reserve decreased from 2.0 ± 0.24 to 1.23 ± 0.3 (p < 0.001). Coronary flow reserve was inversely related to post-load homocysteine levels (r = -0.21). After placebo, there was no significant change in coronary flow reserve.

Conclusion: In healthy adults, acute hyperhomocysteinemia was associated to a significant reduction in coronary flow reserve.

Myocardial inotrope reserve is associated with coronary flow reserve in patients with dilated cardiomyopathy. A pilot study.

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Background: Coronary flow reserve (CFR) has been shown to be diminished in patients (pts) with idiopathic dilated cardiomyopathy (ICD) and have been proposed as a predictor of poor prognosis in those patients (pts). Myocardial inotrope reserve represents also a prognostic index and has been hypothesized that is related to CFR.

Methods: Eleven pts with IDC with LV ejection fraction (EF) < 40% and NYHA functional class II-III underwent CFR measurements, using a 0.0014 inches Doppler quide wire, in the left anterior descending (LAD), left circumflex (LCx) and in the right coronary artery (RCA).

Low-dose Dobutamine stress echocardiography (LDDSE) in five minutes stages with Dobutamine infusion 5 and 10 µgr/kg/min was performed to all pts within 48 hours from cardiac catheterization. LV was divided into 16 segments, 7 in the LAD, 5 in LCx and 4 to RCA territory. Regional wall motion score (WMSI) was calculated as Vm = M1/M0. However, it is doubtful whether a constant ratio can be computed as Vm = 0.5 x APV. It is commonly assumed to be 0.5, correcting the mean velocity based on average peak velocity may result in misleading results, which must therefore be read with caution.

Conclusions: We evaluated the relationship between CFR and cardiac inotrope reserve in pts with IDC.

Methods: Twelve healthy subjects (mean age 41 ± 7 years) were studied twice, before and after methionine load (100 mg/kg) or placebo, according to a crossover, double blind design. Homocysteine levels were measured by liquid chromatography and coronary flow reserve was evaluated by transthoracic echocardiography.

Results: After methionine load, homocysteine levels increased from 10.7 ± 2.8 micromol/L to 30.4 ± 5.1 micromol/L (p < 0.0001) and coronary flow reserve decreased from 2.0 ± 0.24 to 1.23 ± 0.3 (p < 0.001). Coronary flow reserve was inversely related to post-load homocysteine levels (r = -0.21). After placebo, there was no significant change in coronary flow reserve.

Conclusion: In healthy adults, acute hyperhomocysteinemia was associated to a significant reduction in coronary flow reserve.