

Adiponectin and cardiometabolic risk factors: effect of myocardial blood flow in patients with dilated cardiomyopathy

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Purpose: Adiponectin (ADN) is an insulin-sensitizing, anti-atherogenic and anti-inflammatory adipocytokine, with endothelial protective effects. In patients with dilated cardiomyopathy (DCM), absolute myocardial blood flow (MBF) is frequently impaired because of coronary microvascular/endothelial dysfunction. We aimed at evaluating whether the potential effects of ADN on MBF in DCM are modulated by cardiometabolic risk factors.

Methods: Sixty-one consecutive patients (46 males, age 59 ± 10 yrs) with LV dysfunction (LV ejection fraction $38 \pm 9\%$, range 19-54%) and angiographically normal coronary arteries were studied. Absolute MBF was measured by positron emission tomography, using ¹³N-Ammonia as flow tracer, both at rest and during dipyridamole infusion (0.56 mg/kg I.V. over 4 min). Abnormal MBF was defined for resting MBF < 0.65 ml/min/g and dipyridamole MBF < 1.36 ml/min/g. Plasma adiponectin was measured by a specific ELISA (Linco Research). Cardiometabolic risk factors including age, sex, insulin resistance, lipid profile and obesity were entered into a multivariate linear regression analysis to assess independent determinants of adiponectin and, in turn, their effect on myocardial and microvascular damage.

Results: Abnormal MBF was present in 34/61 patients, in 13/31 (42%) with ADN higher than median value and in 21/30 (70%) with ADN levels lower than median value ($p < 0.05$). Among cardiometabolic risk factors, only HDL-cholesterol and obesity were independent determinants of ADN [0.34 (0.13), -0.34 (0.14), β -coefficient (SE), respectively, $p < 0.05$] at multivariate analysis. After correction for HDL-cholesterol and obesity the positive association between ADN and MBF remained significant ($p < 0.05$).

Conclusion: ADN is a determinant of MBF in DCM patients and is related with low HDL-cholesterol and obesity.