

THE IMPACT OF GENETIC POLYMORPHISM T45G ON ADIPONECTIN GENE ON THE EXPRESSION OF ADIPOKINES IN ARTERIAL HYPERTENSION

ACC Poster Contributions

Georgia World Congress Center, Hall B5

Tuesday, March 16, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Hypertension and Effects on Circulating Factors

Abstract Category: Hypertension

Presentation Number: 1238-94

Authors: *Alexis S. Antonopoulos, Dimitris Tousoulis, Charalambos Antoniades, Antigoni Miliou, Nikolaos Koumallos, George Hatzis, Michael Dimosthenous, Constantinos Bakogiannis, Costas Tsioufis, Kostas Toutouzias, Christodoulos Stefanadis, 1st Cardiology Department Hippokraton Hospital, Athens, Greece*

Background: Evidence suggests that adiponectin is involved in the pathogenesis of atherosclerosis. In the present study we examined the impact of T45G polymorphism on adiponectin gene, on the risk for coronary artery disease (CAD) and the expression of adipokines in healthy individuals and patients with CAD.

Methods: We studied 214 pts with CAD and 147 healthy controls. Genetic polymorphism T45G was determined by PCR, while circulating adiponectin, resistin and leptin levels were determined by ELISA.

Results: The genotype distribution was different between CAD patients (GG: 5(2.3%) GT: 65(30.4%), TT:144(67.3%)) and controls (GG:2(1.4%), GT: 31(21.1%), TT:114(77.6%), $p<0.05$). The risk for CAD was OR[95%CI]:0.595[0.368-0.964], $p=0.03$ for 45TT vs 45GT+GG. Importantly, The 45TT homozygotes had lower risk of arterial hypertension (OR[95%CI]:0.439[0.270-0.713], $p=0.001$). The 45TT genotype was associated with higher adiponectin levels (13.1 ± 1.14 mcg/ml) compared to 45GT+GG (8.30 ± 2.17 mcg/ml, $p<0.05$) among healthy individuals, but not in CAD patients (13.67 ± 0.97 vs 15.20 ± 1.6 mcg/ml respectively, $p=NS$). Circulating resistin and leptin were not different between genotypes in the control group (6.88 ± 0.40 and 13.6 ± 0.85 in TT vs 6.16 ± 0.65 pg/ml and 14.04 ± 2.23 pg/ml in GT+GG, $p=NS$ for both). In the CAD group, leptin levels were also similar between 45TT (15.2 ± 1.8 pg/ml) and 45GT+GG (14.1 ± 3.2 pg/ml, $p=NS$). Similarly, the 45TT genotype had similar resistin (5.9 ± 0.3 pg/ml) compared to 45GT+GG (7.69 ± 0.81 pg/ml, $p=NS$), in the CAD group.

Conclusions: The findings of the present study indicate that the 45TT genotype of adiponectin gene is associated with lower risk of arterial hypertension and decreased cardiovascular risk. This genotype has a striking effect on adiponectin expression in healthy individuals, but not in CAD patients. Therefore, homozygosity for the 45T allele decreases the risk for CAD by increasing circulating levels of adiponectin in healthy individuals, while its functional effect is masked after the establishment of coronary atherosclerosis.