GENETIC POLYMORPHISM ON ADIPONECTIN GENE REGULATES ARTERIAL SUPEROXIDE GENERATION, BY AFFECTING ADIPONECTIN BIOSYNTHESIS IN ADIPOSE TISSUE FROM PATIENTS WITH ATHEROSCLEROSIS

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Monday, March 15, 2010, 3:30 p.m.-4:30 p.m.

Session Title: Inflammation and Endothelial Function
Abstract Category: Vascular--Pathophysiology--Basic/Angiogenesis/Gene Therapy
Presentation Number: 1218-331

Authors: Alexis S. Antonopoulos, Charalambos Antoniades, Dimitris Tousoulis, Constantinos Bakogiannis, Antigoni Miliou, Nikolaos Sfyras, Michael Dimosthenous, Costas Psarros, Kyriakoula Marinou, George Ekonomopoulos, Christodoulos Stefanadis, Hippokration Hospital, Athens, Greece

Background: Serum adiponectin is inversely associated with cardiovascular risk, but its vascular effects in humans are unclear. We examined the effect of G45T polymorphism on adiponectin gene on the synthesis of adiponectin in epicardial adipose tissue, on circulating adiponectin levels and on vascular superoxide (O2-) generation in human internal mammary arteries (IMA).

Methods: Sixty patients with coronary artery disease undergoing CABG were recruited. G45T polymorphism was detected by PCR, while serum adiponectin was measured by ELISA. Vascular O2- was measured in internal mammary artery segments (IMA) by using lucigenin chemiluminescence. Epicardial adipose tissue was cultured ex vivo for 4 hours and adiponectin’s release was quantified in culture supernatants.

Results: The genotype distribution was GG+GT:18 (30%) and TT: 42(70%). G45T polymorphism had no impact on serum adiponectin (Fig. a). However, the presence of the G allele was associated with higher adiponectin synthesis in epicardial adipose tissue (Fig. b) and lower vascular O2- in IMA (Fig. c).

Conclusions: The presence of 45G allele on adiponectin gene is associated with higher adiponectin synthesis in human epicardial adipose tissue and lower vascular O2- in IMA. These findings suggest that genetic polymorphism G45T on adiponectin gene may affect the expression of adiponectin in human adipose tissue, affecting key mechanisms regulating the progression of atherogenesis in patients with advanced atherosclerosis.