Association of beta-adrenergic receptors polymorphisms with Body Mass Index in a Southeastern European Caucasian population

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Introduction: Catecholamines are major stimulating lipolysis hormones and their function is regulated through the activation of beta-adrenergic receptors. Genetic polymorphisms of these receptors, rs1801252, rs1801253 (*ADRB1*), rs1042713, rs1042714 *(ADRB2*) and rs4994 *(ADRB3*), have been associated with Body Mass Index (BMI) and obesity.
The aim of this study is to investigate the association of the aforementioned polymorphisms with BMI and obesity in a Southeastern European Caucasian population.
Materials and Methods: A total of 332 volunteers were divided in groups according to their BMI. After signing a written informed consent DNA was extracted from buccal swabs and genotyping was performed using real-time PCR. Data were analyzed with IBM Statistics SPSS 22.0.
Results: Rs1801252 showed significant association of body weight gain between normal and overweight subjects, and rs1801253 among obese subgroups (*p*-value<0.05). Rs1042713 and rs1042714 were associated with elevated BMI among overweight and obese subgroups (p-value<0.05). The rest comparisons showed no statistically significant results.
Discussion: Beta-adrenergic receptor polymorphisms seem to influence BMI values in Southeastern European individuals. Thus, genotyping for these polymorphisms might provide a better understanding on the development of obesity and contribute to its prevention. Further investigation in larger samples and different populations is required to determine their correlation with obesity.