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Contribution of gene variants and diet to obesity risk

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Abstract

Obesity is a multifactorial disorder affected by genetic and dietary risk factors. Among gene variants found to be involved in body weight regulation and development of obesity, particular attention has been paid to polymorphisms in genes associated with obesity-related metabolic disorders. ESR-I, LPL, APO E, IL-6, ACE, AT1R and PPARG genetic polymorphic variants could represent predictive genetic risk markers for obesity-related metabolic disorders in young healthy subjects. Mediterranean type of diet is also an important protective factor against abdominal obesity. Adiponectin is linked to central obesity and *ADIPOQ* variants are promising markers for understanding the genetic base of obesity-related disorders. Analysis of adiponectin concentration and *ADIPOQ* - 11391G>A and -11377C>G gene variants may be clinically meaningful for estimation of MetS risk in a young population. 5-Hydroxytryptamine (5-HT, serotonin) plays an important role in the central nervous control of energy balance. It is involved in several biological processes including mood, appetite, sleep, libido, memory, and body weight regulation. Brain-derived neurotrophic factor (BDNF) is also currently recognized as an important participant in the regulation of food intake. A study was carried out to evaluate whether the 5-HTTLPR S/L and BDNF Val66Met gene variants are associated with obesity in a sample of adults. Significant gene-gene interactions were also observed. The role of polymorphisms and variant combinations could provide additional information that could be clinically meaningful for estimation of obesity and MetS risk, which points to the need for personalized behavioral recommendations to prevent chronic disorders.

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