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The Effect of Vitamin D Pathway Genes on Asthma Susceptibility, Asthma Control and Vitamin D Levels in Turkish Asthmatic Children

Sehra Birgül Batmaz[1*], Tugba Arikoglu[2], Nisa Uyar[3], Ibrahim Ömer Barlas[3] and Semanur Kuyucu[2]

[1]Department of Pediatric Allergy and Immunology, Tokat State Hospital, 60100, Tokat, Turkey
[2]Department of Pediatric Allergy and Immunology, Faculty of Medicine, Mersin University, 33110, Mersin, Turkey
[3]Department of Medical Biology and Genetics, Faculty of Medicine, Mersin University, 33110, Mersin, Turkey

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ABSTRACT The aim of this study was to investigate the associations between the vitamin D (vitD) pathway genes and asthma susceptibility, asthma control and serum vitD levels. Thirty asthmatic children and 30 non-asthmatic (controls) children were genotyped for 9 single nucleotide polymorphisms (SNPs) of vitD pathway genes. These genes were VitD receptor (VDR), 25-hydroxylase (CYP2R1 and CYP27A1), 1-alpha hydroxylase (CYP27B1), 24-hydroxylase (CYP24A1) and VDBP (GC). Genotype and allele frequencies were compared between the groups and their associations with asthma control test (ACT) score and VitD level were investigated. The F allele of VDR1 (FokI) SNP carriers were 2.97 times more likely to develop asthma than those carrying the f allele. Ff genotype of VDR FokI SNP was associated with low ACT score compared to the FF genotype after adjustment. No association between the genotypes and alleles and the level of vitD was found. In conclusion, VDR fokI polymorphism was found to be associated with asthma susceptibility and asthma control in Turkish children.