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Association of polymorphisms in adiponectin (+276 G/T), tumor necrosis factor-α (308 G/A) and interleukin-6 (-174 C/G) genes with type 2 diabetes mellitus in Egyptians

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Type-2 diabetes mellitus (T2DM) is a metabolic pro-inflammatory disorder that causes significant morbidity and mortality. Adiponectin, tumor necrosis factor-α (TNF-α), interleukin-6 (Il-6), are important cytokines mediators in the pathogenesis of T2DM. Single nucleotide polymorphisms (SNPs) present in the regulatory regions of cytokine genes often have an impact on their expression levels. Here, we explore potential associations between SNP+276 G/T of adiponectin, SNP -308 G/A of TNF-α and SNP -174 C/G of IL-6 genes with T2DM and assess its influence on their serum levels. From the Egyptian population, we enrolled 95 T2DM patients and 85 non-diabetic controls. Subjects with the GT/TT genotype of SNP 276 were at increased risk for T2DM and associated with hypoadiponectinemia compared with the GG genotype. Furthermore, the allelic frequency of the A allele of SNP 308 was significantly different between T2DM patients compared to controls. Moreover, individuals with T2DM carrying the GA/AA genotypes had significantly higher serum TNF-α levels than those carrying GG genotype. In addition, carriers of G allele of IL-6 were significantly more likely associated with T2DM. In conclusion, genetics variations in adiponectin +276 G/T, TNF-α 308 G/A and IL-6 -174 C/G may contribute to the disposition for T2DM in Egyptian patients.

Biography

Amr Mohamed Abdel Hamid has completed his MSc from Faculty of Pharmacy, Cairo University and currently pursuing his PhD at Suez Canal University, Ismailia, Egypt. He is an Assistant Lecturer of Biochemistry, Faculty of Pharmacy, October University for Modern Sciences and Arts (MSA), Cairo, Egypt.

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