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Association between the polymorphism of the TCF7L2 gene and type 2 diabetes in 154 patients in Mashhad

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Objective: TCF7L2 gene encodes a transcription factor that plays a role in the Wnt signaling pathway, a key cell developmental and growth regulatory mechanism. As a component of the bipartite transcription factor β-catenin/TCF, TCF7L2 is important in conveying Wnt signaling. We examined the association between the rs12255372 (IVS4G>T) polymorphism in the TCF7L2 gene and type 2 diabetes in 154 type 2diabetic patients in Mashhad.

Methods: A total of 217 subjects:154 type 2 diabetic subjects (88 female and 66 male, mean age 59.51 years and BMI 29.36 kg/m^2) and 63 normal individuals (31 female and 32 male, mean age 54.65 years and BMI 28.88 kg/m2), were selected from DaneshAmooz hygiene center in the city of Mashhad (KhorasanRazavi, Northeast of Iran). Biochemical analyses carried out and Fasting Blood Sugar, cholesterol, LDL, HDL and Triglyceride of both case and control participants were measured. Genomic DNA was then isolated from whole blood and the rs12255372 polymorphism was genotyped using the PCR based RFLP method. PCR products were digested with Tsp509I enzyme and digestion products were analyzed on 2% agarose gel.

Results: 12 samples of diabetic subjects and 3 control samples had restriction site at the position of rs12255372 which could be digested with Tsp509I enzyme.

Conclusion: In this study the frequency of the "T" allele in diabetic subjects was 7.8% and 4.7% in controls. These observations suggest that rs12255372 may be associated with type 2 diabetes risk in this population.

Keywords: TCF7L2, polymorphism, Type 2 diabetes, Mashhad