Abstract

Prevalence of type 2 diabetes is increasing rapidly around globe and effecting not only health of individuals but also socially and economically. It is a multi-factorial, polygenic metabolic disorder involving complex interaction of both genetic and environmental factors and it is characterized by increased glucose level in blood due to deficiency in insulin action and insulin secretion. Recent advent of genome-wide association studies has improved the knowledge of genetic factors involved in disease progression, pathogenesis and paving way to better understand the complex pathways. *IRS1* gene, has been studied extensively as a candidate gene for type 2 diabetes, is expressed in pancreatic β cell and insulin-dependent tissues including; skeletal muscle, liver and adipose tissue and Irs1 protein acts as major cytoplasmic docking proteins between the insulin receptor and a complex network of intracellular signaling molecules as well as plays an important role in insulin signaling. The aim of this study was to identify the association between known *IRS1* gene polymorphisms (Gly972Arg and Ala512Pro) in a sample of diabetic patients compared with healthy controls selected from Sistan and Baluchestan –Iran province. We identified 100 diabetes cases that were age matched with the same number of controls using a PCR-RFLP strategy. Genotypic and allelic frequencies were evaluated, and Chi-square analysis by using SPSS was applied for evaluating the association between the SNPs and diabetes risk. Our results showed that no significant differences in genotype and allele frequencies of SNP 972 were found as compared to the control samples. The Ala512pro genotype was not found in studied population. Therefore, the risk allele of these SNPs had no associated with the risk of Type 2 diabetes in Sistan and Balochestan population of Iran.

Keywords: Type 2 diabetes, SNP , *IRS1* gene

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Title:

Study of relationship between polymorphisms Gly972Arg and Ala512Pro *IRS1* gene with type 2 diabetes in Sistan and Baluchestan province

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