Abstract

Type 2 diabetes (T2D) is a complex disease conditioned by genes and the environment, characterized by hyperglycemia. This research aimed to find the association of *IGFII* gene polymorphisms in diabetes among the Pakistani population with special reference to inheritance patterns in families. Blood samples were taken from seven families consisting of both diabetic and non-diabetic individuals. Single nucleotide polymorphisms (SNPs), specifically rs680 and rs1619 of the *IGFII* gene, are examined by PCR and Sanger sequencing techniques. Therefore, family history, high blood pressure, and body mass are the primary indicators for T2D while females have a higher possibility as compared to males. All results confirmed a positive association of rs680 SNP with diabetes, particularly in cases having AG or GG genotypes as compared to those individuals who have AA genotypes. There was no significant association for the risk found in rs1619 SNP. Further, the pedigree analysis of the current research also suggests that successive generations are under the impact of rs680 SNP on developing diabetes. Finally, diabetes needs to be considered as an even heavier burden on Pakistani people because of the role played by *IGFII* gene's rs680 but not by rs1619 polymorphism in disease pathogenesis. However, this includes such risk factors of developing T2D which are heredity and the lack of physical activity, high blood pressure, and a high body mass index and stress.