Abstract

Type 2 diabetes mellitus (T2DM) is metabolic disorder with impaired insulin synthesis and reduced responsiveness of insulin-sensitive tissues. The association between Peroxisome Proliferator-activated Receptor gamma (*PPAR γ*) gene and diabetes was investigated. The primary objective of the study was to assess the impact of *PPAR γ* gene polymorphism on a susceptibility of T2DM within families. The study included 10 Pakistani families with 64 individuals with a positive diabetic family history. For genotyping PCR and DNA sequencing was performed. Phenotypic and genotypic pedigrees were developed to analyze the pattern of inheritance. We found that all the patients were overweight (BMI= 28.62). Overall results interpreted that males (29.69%) had a higher prevalence and risk of diabetes than women (10.94%). The findings showed an important connection between the two SNPs rs1801282 and rs3856806, and the occurrence of diabetes. In diabetic families, genotypic sequencing showed heterozygous CG and homozygous GG mutations in the SNP rs1801282 and heterozygous AT and homozygous TT mutations in the SNP rs3856806 among diabetic families. Thus, variations in the *PPAR γ* gene are linked to T2DM in association with families. So the associated genetic markers can be used as prognostic factor in future after studied with large sample size.