

## ABSTRACT

Type 2 Diabetes Mellitus (T2DM) is a common metabolic disorder characterized by hyperglycemia, insulin resistance and dysfunctional insulin secretion. The current study was designed to identify polymorphism on promoter region of *IL-17A* (rs2275913) and two polymorphisms on exon 3 of *IL-17F* (rs763780 and rs2397084) in diabetic families of Punjab, Pakistan. For this purpose, blood samples were collected from ten families which belong to the area of Lahore, Gujranwala and Sialkot, Punjab, Pakistan. Total 69 individuals participated in the study comprised of 58% males (40 males) and 42% females (29 females). Among them, 24 individuals (12 males and 12 females) were clinically diagnosed with T2DM by the physician according to World Health Organization (WHO) criteria. The study included the patients with mean age 54 years. The mean BMI of the diabetic patients was 28. Out of 24 diabetic patients, 11 (45.8%) had normal BMI, 8 (33.3%) were overweight and 5 (20.8%) were obese. Two patients had cardiovascular disease whereas out of 24 diabetic patients, 20 (83.3%) had hypertension, 1 (4.16%) had hypotension and only 3 (12.5%) individuals had normal blood pressure. Out of ten, nine families were with positive family history of T2DM. DNA was isolated manually from each blood sample. The primers were optimized by Gradient PCR (for *IL-17F*) and Touch down PCR (for *IL-17A*) and isolated DNA was amplified. The genotype was confirmed by DNA sequencing and polymorphism was identified by RFLP technique. The results of DNA sequencing showed the polymorphism of A into G on rs763780 polymorphic site on *IL-17F* gene. A significant association was detected between *IL-17F* rs763780 and insulin resistance in diabetic families. The results of RFLP showed no polymorphism on *IL-17A* (rs2275913) and *IL-17F* (rs2397084) in diabetic families.

In conclusion, only *IL-17F* rs763780 showed association with insulin resistance and T2DM in Pakistani population. Hypertension, older age, high BMI and positive family history were major risk factors of T2DM. The designed genetic markers should be tested on larger scale for early diagnosis of T2DM in susceptible individuals.