Summary

Insulinresistance (IR) isaphysiologicalconditionwherethe natural Insulin level becomes lesseffective at loweringbloodsugars and lead to increase blood glucose level.

This study was conducted on non-obese (50) diabetic patients (26females and 24 males) with age ranged between (22-76) years, seen in Al-sadderMedical cityat Najaf for the period from October 2014 toJanuary 2015. Other (25) healthy subjects (13 females and 12 males) were included as a control group.The concentration of resistin,insulin and TNFα in serum was estimated by ELISA technique. The detection of fasting blood glucose and HbA1c level were routinely used in the diagnosis of diabetes mellitus disease.Insulin resistance was evaluated byhomeostatic model assessment (HOMA).

For molecular study genomic DNA was extracted from peripheral blood leukocytes to detect any association between*RETN+299(G>A)* polymorphism and predisposition to insulin resistance development.PCR-RFLP technique was used for this destination and digestion ofthe amplified DNA products byrestriction endonuclease (Alul enzyme) resulting in fragments representing certain genotypes.

The levels ofTNFα and Resistin revealed a significant difference ($P \leq 0.001$) between diabetic patients and healthy subject group where it at medians of 26.4pg/mland 2.34ng/ml in the T2DM sera, respectively,and for control group were 8.28 pg/mland 1.26ng/ml respectively. The insulin level in the serum was also raised (but not significantly) among diabetic patients(median 18.79 U/ml)compared to healthy individuals (median 9.4 U/ml),the result also revealed thatFBS andHbA1cin peripheral blood were significantly higher among cases with diabetes compared to healthy controls ($P< 0.001$). The FBS median was 248.54 mg/dl and 91.66 mg/dl for diabetic and control group respectively

and HbA1c median was8.64% and 5.059 % for both group.This study found a strong and statistically significant linear correlation between Resistin and TNF-α with HOAM-IR (r=0.793, P <0.001) (P <0.001, r=0.758) respectively.

This study detected that the prevalence rate of single nucleotide polymorphism RETN+299(G>A) was significantly high among diabetic group (P<0.001), and found that homozygous mutant AA, heterozygous GA genotypes and mutant A allele carrier frequencies were significantly high in diabetic patients (P=0.022, P=0.248and P<0.001 respectively), in contrast homozygous normal GG genotype and G allele had no significant association with diabetic patients.

These results suggest that TNF-αand RETN+299 polymorphism are involved in insulin resistance of type 2 diabetes mellitus. This study conclude that high incidence of diabetes mellitus occurred among subjects with mutated A allele so the GG genotype and G allele might serve as protective factors for the disease and AA genotype and A allele might serve as risky factors for the disease development.There is a susceptibility association between TNFα and incidence of disease among Iraqi patients.