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Genetic susceptibility of Iraqis for obesity and type 2 diabetes: *LEPR* gene polymorphisms

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Abstract

Prevalence of obesity and diabetes over world encouraged researchers to expand their studies about genetic predisposition factors which increase individuals' risk for diseases. *LEPR* gene encodes for leptin receptor which regulates body weight, energy expenditure and insulin sensitivity by binding with adipose derived hormone (leptin). Therefore we sequenced *LEPR's* promoter, coding exons, exon-intron boundaries and 3′UTRin 45 Iraqi individuals (24 were diagnosed with type 2 diabetes and 21 were not). Seventeen polymorphisms have been detected in this study, 6 in promoter region, 5 in coding exons, 5 in introns (2 were novel) and I Ins/Del in 3′UTR. Type 2 diabetic carriers of rs1137101 in exon 6 were 75% in comparison to non-diabetics

(52.4%). Also 50% and 33.3% from diabetic patients and non-diabetics, respectively were carrying p.S343S in exon 9. GC allele in exon 14 increased the BMI of diabetics to 34.6±7.8 but it was 32.4±4.4 in patients with GG allele and both of them were higher in type 2 diabetics than other group (30.2±5.2 and 29.9±2.5, respectively). BMI of diabetic patients with AA allele (P1019P) in exon 20 was 35.7±4 but it was 32.7±5.9 in patients with GG allele, the same was in non-diabetics which was 33.3±4 and 30±3.7, respectively. Also CT'T'TA insertion allele increased the BMI of diabetics to 35.7±4 in comparison to CT'T'TA deletion allele as well as 33.3±4 and 29.6±3.5 in other group, respectively. We have concluded that *LEPR* polymorphisms may increase the risk of developing type 2 diabetes in individuals with BMI≥30 and in general *LEPR* is a candidate gene for susceptibility to obesity and its outcomes.

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Abbreviations

PCR, Polymerase Chain Reactio; BMI, Body Mass Index; LEPR, Leptin Receptor Gene; SNPs, Single Nucleotide Polymorphisms; UTR, Untranslated Region

Keywords

Iraq; Genetic; LEPR; Polymorphisms; BMI; Type 2diabetes

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