A Study on Single Nucleotide Polymorphism of Leptin Receptor and Insulin Resistance in Gestational Diabetes Mellitus.

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Abstract

Objective: To find the association of leptin-receptor gene(LEPR) polymorphism with gestational diabetes mellitus (GDM) and its role in altered leptin levels, insulin resistance, and dyslipidemia in GDM. Design & Setting: This prospective cross-sectional study was conducted in Justice KS Hegde Hospital, Mangalore, India. 100 GDM patients and 100 gestational age and BMI matched normal glucose tolerant pregnant women were recruited as cases and controls. Method: Genotyping of leptin-receptor (LEPR)Gln223Arg was performed by PCR-RFLP. Fasting blood sugar, leptin, insulin, C-peptide, and lipid profile were performed. Various insulin-resistance models were constructed using suitable formulae. Results: No significant association was found between leptin-receptor gene polymorphism and leptin levels, insulin-resistance in GDM. However, Odd's ratio showed that individuals with A allele were at 1.25 times higher risk of developing GDM. HOMA-B cells significantly varied among Lep-R genotypes, values being double in AA genotype, compared to AG, ten times higher in AA compared to GG. The value was four times higher in AG compared to GG. Conclusion: It could be concluded from the study that, there are no significant association between leptin receptor, LEPR Gln223Arg alleles and gestational diabetes, leptin levels, and insulin resistance. However, subjects with the 'G' allele for LEPR at higher risk of hyperleptinemia. C–peptide based insulin resistance models were elevated in GDM patients. The study can establish a cycle of gene polymorphism altering leptin levels, which in turn can alter insulin secretion and insulin resistance, contributing to dyslipidemia of pregnancy and gestational diabetes.

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