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Relationship between Interleukin-6 -174 G/C gene with IL-6 level and Insulin resistance in adult polycystic ovary syndrome women

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Abstract

Polycystic ovary syndrome (PCOS) is considered a multifaceted metabolic disorder. We aimed to assess the association of the IL6-174 G/C gene with IL-6 level and insulin resistance (IR) in adult PCOS women. A total of 298 women in the age group of 25±10 was selected, of which 126 had PCOS and 172 were without PCOS (control) women. Homeostatic Model Assessment (HOMA) index, serum IL-6 level, and lipid profile were analyzed. Genotype analysis of IL-6-174 G/C was determined by PCR-RFLP. Significant differences between PCOS and non-PCOS-group women for metabolic risk factors and genotype frequencies were present. An association of mutant 'C' allele of IL-6-174 G/C was found more in PCOS compared to without PCOS ($p<0.0001$). Both the mutant genotypes, homozygous CC and heterozygous GC, of the IL-6-174 G/C gene were more associated with PCOS women (61.2%) than without PCOS women (59.2%). Furthermore, a significant difference was observed in the distribution of mutant genotypes, homozygous CC and heterozygous GC, with higher WHR ($p = 0.019$), HOMA index ($p = 0.031$), and serum IL-6 level ($p = 0.009$) than genotype GG of the IL-6-174 G/C gene in North Indian adult PCOS women. These findings indicate that mutant genotypes of the IL-6-174 G/C gene, i.e., CC and GC, have higher serum IL-6, and the presence of IR may be one of the risk factors for the development of metabolic syndrome among PCOS women.