9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Poster Presentations

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Association of soluble leptin receptor level and its polymorphism (rs1137101) with infertility and abortion in Iranian women with polycystic ovary syndrome

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Background: Leptin is an adipocyte-derived adipokine that plays a crucial role in metabolic and reproductive functions via interacting with its specific leptin receptor (LEPR). A form of LEPR binds to leptin in the circulation and modulates its level in plasma. It has been indicated that the level LEPR and also rs1137101 polymorphisms of the *LEPR* gene are associated with metabolic disorders.

Objective: This study was to investigate the levels of the soluble LEPR, and also the frequency of rs1137101 polymorphism in subjects with polycystic ovary syndrome (PCOS) and those without PCOS.

Materials and Methods: A total of 324 PCOS patients (including 199 infertile patients and 125 patients with a history of recurrent pregnancy loss) and 150 non-PCOS were included in this study. Biochemical parameters and plasma level of soluble LEPR were measured and the genotype of rs1137101 polymorphism was determined using PCR-restriction fragment length polymorphism techniques.

Results: There was a significantly lower level of LEPR in PCOS (58.13 ± 24.3 ng/ml), PCOS-infertile (58.74 ± 24.04 ng/ml), and PCOS-abortion (57.62 ± 24.67 ng/ml) compared to the non-PCOS group (72.95 ± 22.95 ng/ml). Our data also shown that there was significant differences in allelic (G) and genotypic (GG) frequencies for the LEPR rs1137101 polymorphism in PCOS women when compared with the non-PCOS subjects (p = 0.033, OR = 0.67, 95% CI = 0.46-0.96 and p = 0.02, OR = 0.39, 95% CI = 0.18-0.86, respectively). The analysis of LEPR rs1137101 polymorphism gene revealed significant differences in GG genotype and G allele in PCOS-infertile women as compared to non-PCOS subjects.

Conclusion: According to the results, the levels of soluble LEPR were associated with PCOS, and rs1137101 polymorphism was correlated to PCOS-related infertility. Thus, this polymorphism may be considered as a prognostic biomarker of infertility in PCOS women.

Key words: *Polycystic ovary syndrome, Leptin receptor, Polymorphism, Infertility.*