P-12 Relationship between Susceptibility Genes for Insulin Resistance and PCOS in a Korean Population

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Background & Objectives: Polycystic ovary syndrome (PCOS) is one of the most common heterogeneous hormonal disorders, affecting 5% to 10% of premenopausal women. There are some reports that PCOS is related with single nucleotide polymorphism (SNP) of a few genes. Insulin resistance is one of the general symptoms of PCOS. Several reports have shown that receptors for insulin (INSR) is related to insulin resistance and associated with PCOS. Moreover, peroxisome proliferator-activated receptor-γ (PPAR-γ) is mainly expressed in adipose tissues and the relationship between PPAR-γ and insulin resistance in several studies has been reported. In this study, we have analyzed the frequencies of specific genotypes of INSR and PPAR-γ genes to determine whether they are associated with PCOS in a Korean population.

Method: The single nucleotide polymorphisms were analyzed with restriction fragment length polymorphism (RFLP) method. For the analysis of single nucleotide polymorphism of INSR gene, we enrolled 65 PCOS patients and 35 control women. For the analysis of SNP of PPAR-γ gene, we analyzed 70 female patients with PCOS and 35 healthy women.

Results: Frequency of CT/TT genotypes of INSR gene in control group was slightly higher than in patient group (Patient group = 58.46%, Control group = 65.71%). The rate of CT/TT genotypes was significantly higher in lean patients with PCOS (64%) than in obese patients (40%). In the case of PPAR-γ, the CC genotype of C/G polymorphism in exon2 (Patient group = 87%, Control group = 86%) and CC genotype of C/T polymorphism in exon6 (Patient group = 60%, Control group = 66%) were most frequently shown in a Korean population.

Conclusions: For the three genotypes of INSR gene, the rate of CT genotype was the highest in the control group while the PCOS patient group has similar frequency for CC genotype and CT genotype. Interestingly, this result is different from the previous report performed in the United States. The frequency of genotypes in exon2 and exon6 of PPAR-γ gene were similar to a previous report performed in Europe.