Objective: This study was undertaken to identify the paraoxonase 1 gene and glutathione S-transferase μ 1 gene interaction for the risk of preterm delivery and to determine the serum paraoxonase activity according to paraoxonase 1 genotypes.

Study Design: This case-control study was performed on 162 gravida women with preterm delivery and 306 controls. Serum paraoxonase activity was measured by a ultraviolet spectrophotometer. Logistic regression, 2-way analysis of variance, and multifactor dimensionality reduction analysis were used.

Results: Gravida women with the QQ and QR genotype of paraoxonase 1 with high body mass index had 6.19- and 4.41-fold increased risks of preterm delivery. The glutathione S-transferase μ 1 null genotype and the interaction between the paraoxonase 1 genotype and glutathione S-transferase μ 1 null type conferred a risk for preterm delivery. Serum paraoxonase activity was significantly different according to paraoxonase 1 genotypes (P<.0001).

Conclusion: The glutathione S-transferase μ 1 null genotype confers a risk for preterm delivery in Korean gravida women independent of and interactive with the paraoxonase 1 genotype.

Key words: gene-gene interaction; glutathione S-transferase μ 1; paraoxonase; preterm delivery