Genetic susceptibility to preeclampsia

SH Lee, BH Park, MH Park, HS Park, SH Chun, JJ Ahn, HM Ryu,
KS Lee, HY Park, YJ Kim
Ewha Womans University, Samsung Jeil Hospital, Center for Disease Control

Objective : The contribution of genetic factors to preeclampsia has been well documented. We performed a case-control study on Korean pregnant women to investigate the association between preeclampsia and gene polymorphism of endothelial NO synthase (eNOS), Peroxisome Proliferator- Activated Receptor (PPAR), Dimethylarginine dimethylaminohydrolase (DDAH), Vascular endothelial growth factor (VEGF), and Methylenetetrahydrofolate Reductase (MTHFR).

Methods : DNA was extracted from whole blood of 223 preeclampsia patients and 237 healthy pregnant women. The genotyping was analyzed by single base primer extension assay using SNaPShot assay kit. Results were analyzed with chi-square test, logistic regression analysis, haplotype analysis using SAS software and Haploview program.

Results : There were significant differences for systolic BP, diastolic BP, neonatal birth weight, delivery weeks, body mass index, and triglyceride level between preeclampsia patients and controls ($p<0.05$). There was no significant difference in the gene polymorphism for eNOS, PPAR, DDAH, and MTHFR between preeclampsia patients and controls ($p>0.05$). Although there was no significant difference in the allele frequency for 936C/T gene polymorphism of VEGF, we found marginally significant difference between preeclampsia patients and controls ($p=0.07$). We tried to do haplotype analysis for DDAH and MTHFR using Haploview 3.2 program. There were no significant differences in the haplotype of DDAH and MTHFR between preeclampsia patients and controls ($p=0.81$, $p=0.85$, respectively).

Conculsion : Polymorphism in the eNOS, PPAR, DDAH, and MTHFR gene do not seem to be risk factors for preeclampsia. However, the 936C/T gene polymorphsim of VEGF is likely to be risk factor for preeclampsia.