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Polymorphisms in the endothelial nitric oxide synthase gene associated with recurrent miscarriage

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ABSTRACT. Endothelial nitric oxide synthase (eNOS) is an enzyme that influences placental human chorionic gonadotropin production during gestation. Previous studies have indicated an association between eNOS activity, implantation, and maintenance of pregnancy, but proposed associations between polymorphisms of the eNOS gene and recurrent miscarriage (RM) are controversial. To identify markers contributing to the genetic susceptibility to RM, we examined the potential association between RM and 8 single nucleotide polymorphisms (SNPs; rs1799983, rs2070744, rs11771443, rs3918188, rs2853796, rs7830, rs1541861, and rs2853792) of the eNOS gene using the MassARRAY system (Sequenom, USA). The enrolled participants included 192 RM patients and 201 women with normal fertility as controls. The results showed that rs1799983 at exon 7 of the eNOS gene was significantly associated with RM (genotype: chi-square = 15.071, P = 0.001; allele: chi-square = 6.250, P = 0.016). Another significant association was observed for rs11771443 in the

promoter (genotype: chi-square = 6.259, P = 0.044; allele: chi-square = 7.076, P = 0.008). Furthermore, strong linkage disequilibrium was observed in 3 blocks (D' > 0.9), and significantly fewer T-T-G haplotypes (chi-square = 5.981, P = 0.015) residing in block 1 were found in RM patients. These findings point to a role for eNOS gene polymorphisms in RM in the Chinese Han population and may be informative for future genetic or neurobiological studies of RM.

Key words: Endothelial nitric oxide synthase; Recurrent miscarriage; Single-nucleotide polymorphisms

