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Polymorphisms in the methylene tetrahydrofolate reductase and methionine synthase reductase genes and their correlation with unexplained recurrent spontaneous abortion susceptibility

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ABSTRACT. We aimed to explore the correlation between unexplained recurrent spontaneous abortion and polymorphisms in the methylene tetrahydrofolate reductase (*MTHFR*) and methionine synthase reductase (*MTRR*) genes. A case control study was conducted in 118 patients with unexplained recurrent spontaneous abortion (abortion group) and 174 healthy women (control group). The genetic material was extracted from the oral mucosal epithelial cells obtained from all subjects. The samples were subjected to fluorescence quantitative PCR to detect the single nucleotide polymorphisms (SNPs) in the *MTHFR* (C677T and A1298C) and MTRR (A66G) gene loci. The distribution frequency (18/118, 15.3%) of the *MTHFR* 677TT genotype was significantly higher in the abortion group ($\chi^2 = 11.006$, $P = 0.004$) than in the control group (2/174, 1.1%); on the other hand, the distribution frequency of the *MTHFR* A1298C genotype did not significantly differ between the abortion and control groups ($\chi^2 = 0.441$, $P = 0.507$). The distribution frequency of the *MTRR* A66G genotype was also significantly higher in the abortion group (14/118, 11.9%; $\chi^2 = 10.503$, $P = 0.005$) than in the control group

(8/174, 4.6%). The *MTHFR* C677T and *MTRR* A66G polymorphisms are significantly correlated with the occurrence of spontaneous abortion.

Key words: Recurrent miscarriages; Methylene tetrahydrofolate reductase; Methionine synthase reductase; Single nucleotide polymorphism

