

The correlation between methylenetetrahydrofolate reductase gene polymorphism and high-risk pregnancy:a retrospective cohort study

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Abstract

Objective: To explore the correlation between methylenetetrahydrofolate reductase (MTHFR) 677C-T polymorphism and high-risk pregnancy(HRP), and to establish a useful HRP management model during the perinatal period. **Design:**Retrospective cohort study **Setting:**The Fifth Hospital of Sun Yat-sen University **Population:**All women gave birth in the obstetrics department between 2018 and 2020. **Methods:**Using polymerase chain reaction and restriction fragment length polymorphism analysis (PCR-RFLP) method to detect MTHFR677C-T genotype. Screening is based on whether the maternal has diagnosis HRP and have a regular antenatal care. The correlation between HRP and MTHFR677C-T polymorphism explained by chi-square test and the logistic regression. **Main Outcome Measure:** The alleles and genotypes of MTHFR 677C-T and the prevalence and classification of HRP. **Results:**A total of 2,372 were eventually enrolled, including 584 cases in the HRP group and 737 cases in the control group. The MTHFR 677C-T allele was in Hardy-Weinberg equilibrium($P>0.05$). The MTHFR 677C-T polymorphism and allele (T) were associated with HRP ($P<0.05$).To be specific, they associated with Hypertensive disorders of Pregnancy(HDP), Pregnancy with thyroid disease, gestational anemia and Preterm birth(PTB)($P<0.05$). After adjusting for confounders, the mutant genotype (C/T+T/T) remained a susceptibility factor for HDP and PTB($P<0.05$). The allele (T) was associated with HDP, Gestational diabetes mellitus and PTB($P<0.05$). **Conclusions:**The MTHFR 677C-T polymorphism was associated with HRP, especially HDP and PTB. It is necessary to establish a useful model to manage the women during the perinatal period. **Funding:** None **Keywords:**high-risk pregnancy, MTHFR677C-T, pregnancy comorbidities. **Tweetable abstract:**MTHFR 677C-T polymorphism is associated with high-risk pregnancy.

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