



# Correlation between the 677C>T polymorphism in the methylene tetrahydrofolate reductase gene and serum homocysteine levels in coronary heart disease

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**ABSTRACT.** The aim of the current study was to explore the correlation between serum homocysteine (HCY) levels and the methylene tetrahydrofolate reductase (MTHFR) gene 677C/T polymorphism and coronary heart disease (CHD). We consecutively enrolled 208 patients with CHD confirmed by CTA or coronary angiography from our hospital. An additional 200 healthy volunteers were enrolled as the control group. Serum HCY levels, *MTHFR* C677T genotype, and other related indicators were evaluated for the two groups. Compared to those in the control group, the serum HCY levels in the CHD patients were significantly higher ( $P < 0.05$ ). The proportion of individuals with the heterozygous *MTHFR* CT genotype and homozygous mutant TT genotype among CHD

patients was significantly higher than that in the control group ( $P < 0.05$ ). In the acute coronary syndrome (ACS) subgroup, the proportion of those with the CT and TT genotypes was significantly higher than that of the stable CHD subgroup ( $P < 0.05$ ). In summary, serum HCY levels were elevated in CHD patients, and the frequency of the CT and TT genotypes were also significantly increased, especially among the ACS subgroup. Taken together, this suggests that serum HCY levels and *MTHFR* C677T genotypes are correlated with CHD.

**Key words:** Coronary heart disease; Serum homocysteine levels; Methylene tetrahydrofolate reductase; Gene polymorphism