

Plasma Homocysteine and Methylenetetrahydrofolate Reductase Gene Polymorphism in Human Health and Disease: An Update

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ABSTRACT The strongly rising prevalence of chronic diseases in most of the developing & developed countries causes major problems in the health systems. High blood cholesterol caused by high fat consumption, hypertension, low physical activity and smoking are the most discussed factors responsible for the high rate of myocardial infarction, stroke, peripheral arterial disease in these countries. This review is to evaluate epidemic relationship between plasma homocysteine and MTHFR gene polymorphism in cardiovascular disease and is based on published data from different parts of world and from Indian sub-continent. Circulating total homocysteine is independent risk factor for various cardiovascular conditions irrespective of ethnicity. Many studies well documented by large scale case-controls. The difference between cases and controls is about 2-5 $\mu\text{mol/L}$ and to quantify small differences, HPLC with fluorescence detection is the best method to assess small differences between cases and controls. MTHFR 677 C-T mutation is not associated with CAD, CVD, CHD and MI patients except in few studies reported from Japanese and Netherlander populations. The data from Indian sub-continent is inadequate to assess these associations.