The homozygous C677T mutation in the methylenetetrahydrofolate reductase gene is a genetic risk factor for migraine. - PubMed

Author information

Abstract

Increased homocysteine levels are associated with various pathological conditions in humans, including stroke and cardiovascular disorders. Homocysteine acts as an excitatory amino acid in vivo and may influence the threshold of migraine headache. Frosst et al. [1995] reported an association between the homozygous C677T mutation in the 5,10-methylenetetrahydrofolate reductase (MTHFR) gene and serum homocysteine levels. This study was designed to determine the prevalence of the MTHFR mutation in Japanese patients with migraine and tension-type headache (TH). Seventy-four patients with migraine headaches (22 with aura and 52 without aura), 47 with THs, and 261 normal controls were recruited. Genotyping of MTHFR C677T polymorphism was performed by polymerase chain reaction-restriction fragment length polymorphism. We detected that the incidence of the homozygous transition (T/T) in migraine sufferers (20.3%) was significantly higher than that in controls (9.6%). Moreover, the frequency of the T/T genotype in individuals with migraine headaches with aura was remarkably high (40.9%). The MTHFR T allele was more frequent in the migraine group than in the control group. Our results support the conclusion that the MTHFR gene, causing mild hyperhomocysteinemia may be a genetic risk factor for migraine. Am. J. Med. Genet. (Neuropsychiatr. Genet.) 96:762-764, 2000.