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Association of methylenetetrahydrofolate reductase polymorphisms with susceptibility to Alzheimer's disease

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Abstract

Background: Genetic risk factors play an important role in the pathogenesis of Alzheimer's disease (AD). In this case-control study, we examined the C677T and A1298C polymorphisms in the methylenetetrahydrofolate reductase (MTHFR) gene and their correlation with this pathology.

Objective: To verify the association between MTHFR C677T and A1298C polymorphisms and Alzheimer's disease.

Method: This work was conducted as a case-control study. Cases consisted of thirty-eight patients and 100 individuals without dementia constituted the control group. Genotyping of MTHFR polymorphisms was performed on patients and controls.

Result: Genetic analyses did not indicate a significant association between the MTHFR C677T mutation and AD (C/T: 63.15% versus 39%, p=0.087). However, the genotype prevalence of the missense variant MTHFR A1298C was significantly different between patients and controls (A/C: 55% versus 7%, p<10(-3)). Our data suggest an association between the MTHFR A1298C mutation and AD; however, the MTHFR C677T mutation did not contribute to susceptibility for AD.

Conclusion: The MTHFR A1298C polymorphism is a possible risk factor for Alzheimer's disease.

Keywords: Alzheimer's disease; Human; MTHFR protein; Risk factor.

Related information

Gene
Gene (GeneRIF)
HomoloGene
MedGen
Nucleotide (RefSeq)
Protein (RefSeq)
PubChem Compound (MeSH Keyword)

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