

# Abstract

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## **Folate pathway genetic polymorphisms are related to attention disorders in childhood leukemia survivors.**

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**OBJECTIVE:** To test the hypothesis that 5,10-methylenetetrahydroreductase (MTHFR) polymorphisms can partially explain the individual variation in developing attention-deficit/hyperactivity disorder (ADHD) after acute lymphoblastic leukemia (ALL) therapy.

**STUDY DESIGN:** Parents of 48 survivors of childhood ALL completed a clinical diagnostic process to identify subtypes of ADHD. Genotyping was performed with peripheral blood DNA for MTHFR (C677T and A1298C) polymorphisms.

**RESULTS:** Eleven of the 48 patients (22.9%) had scores consistent with the inattentive symptoms of ADHD. Patients with genotypes related to lower folate levels (11 out of 39; 39.2%) were more likely to have ADHD. The A1298C genotype appeared to be the predominant linkage to the inattentive symptoms, leading to a 7.4-fold increase in diagnosis, compared with a 1.3-fold increase for the C677T genotype. Age at diagnosis and sex were not associated with inattentiveness.

**CONCLUSIONS:** Preliminary data imply a strong relationship between MTHFR polymorphisms and the inattentive symptoms of ADHD in survivors of childhood ALL.

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