POLIMORFISMS IN METHYLENETETRAHYDROFOLATE REDUCTASE (MTHFR) AND THYMIDYLATE SYNTHASE (TS) AND THE RISK OF CHILDREN ACUTE LEUKEMIA

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Leukemia is the more common hematology neoplasia in childhood, corresponding 30% of pediatric cancer. Epidemiological studies associate some kinds of cancer with folate. Methylenetetrahydrofolate reductase (MTHFR) and thymidylate synthase (TS) are key enzymes in folate metabolism, which is essential for normal DNA methylation and synthesis. Common polymorphisms in *MTHFR* gene (C677T and A1298C) and a 28-bp tandem repeat polymorphism (2R or 3R) in the *TS* promoter enhancer region have been reported to be functional and are supposed to disturb the normal DNA methylation and synthesis leading to leukemogenesis. This study was a case-control, that indicated the influence of the *MHTFR* polymorphisms and tandem repeats polymorphisms in *TS* gene in the risk of acute leukemia. It was evaluated 32 cases and 35 controls without cancer historic. The genotyping distribution was in accord Hardy-Weinberg equilibrium, in both groups to the analyzed genes, showing no statically differences between them. The results not suggest an association for *MTHFR* genotypes 677CT [OR = 0,90; p = 0,51; CI 95% 0,05-15,49] 1298AC [OR = 1,13; p = 0,50; CI 95% 0,06-19,74] and *TS* tandem repeat polymorphism [OR = 0,55; p = 0,52; CI 95% 0,15-1,91].

Key words: acute leukemia, folate, MTHFR, TS, Polymorphism