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Evaluation of 677C>T and 1298A>C polymorphisms of methylenetetrahydrofolate reductase (MTHFR) as protective factors for co-infection with *Cytomegalovirus* or hepatitis B virus in patients with HIV/AIDS

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MTHFR enzyme catalyzes the synthesis of 5-methyltetrahydrofolate, the major carbon donor for methionine synthesis from homocysteine. The enzyme is highly polymorphic and two common variants (677T and 1298C) have been associated with decreased activity. Experimental models suggest that this reduction increases the resistance to infections such as *Cytomegalovirus* (CMV) or hepatitis B virus (HBV). The aim of this study was to evaluate the frequency of the 677C>T and 1298A>C polymorphisms in patients with HIV/AIDS with CMV or HBV co-infection and patients with HIV/AIDS without co-infection with either virus. 201 samples for Colombian HIV patients were taken, 114 without viral co-infections (HIV), 36 with CMV (CMV+HIV) and 51 with HBV (HBV+VIH) co-infection. After DNA extraction, samples were genotyped by qPCR. The frequencies of mutant alleles for MTHFR polymorphisms 677C>T and 1298A>C were 0.541 and 0.161 respectively, being both in Hardy-Weinberg Equilibrium (HWE). When comparing HIV patients with the group CMV+HIV patients no statistically significant difference was found between the two groups; both populations being in HWE. The comparison between HIV patients and the group HBV+HIV showed differences between genotypic frequencies ($p<0.01$) and disequilibrium for HBV+HIV group ($p<0.05$) due to heterozygotes deficit, indicating that the 6677T and 1298C polymorphisms are not exerting a protective effect against these viral infections.

Biography

Elizabeth Vargas has completed her Master's degree in Biological Sciences at the Pontificia Universidad Javeriana. She is currently working at the Faculty of Natural Sciences and Mathematics at the Universidad del Rosario and has been involved as a Researcher in several projects in cell and molecular biology.

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