MRP1 polymorphisms (T2684C, C2007T, C2012T, and C2665T) are not associated with multidrug resistance in leukemic patients

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ABSTRACT. One of the main problems in treating cancer patients is that cancer cells can develop drug resistance. Resistance to multiple anticancer drugs, so called multidrug resistance (MDR), most likely involves a nonspecific mode of resistance, through drug-efflux transporters. One of the most extensively studied genes involved in MDR is multidrug resistance protein 1 (MRP1). We investigated a possible association between the expression level of MRP1 and the occurrence of MDR in leukemic patients, and we tested the hypothesis that MRP1 polymorphisms are predictive of MDR in patients with acute leukemia. The mRNA level of MRP1 was determined in 111 patients with acute leukemia (including 52 patients with acute myeloid leukemia and 59 patients with acute lymphoblastic leukemia), by quantitative real-time PCR, to determine how it af-
fected the response to chemotherapy. We typed T2684C, C2007T, C2012T, and C2665T MRP1 polymorphisms in 111 patients classified as either drug-resistant or drug-responsive. We found that high expression of MRP1 was associated with the MDR phenotype in both acute myeloid leukemia and acute lymphoblastic leukemia patients. There was no effect of a particular genotype on the expression level of the MRP1 gene. We found no significant differences in chemosensitivity among any of these genotypes.

**Key words:** Multidrug resistance protein; Multidrug resistance; Single nucleotide polymorphism