

Evaluation of ABCC3/MRP3 expression in childhood acute lymphoblastic leukemia

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Background and Aims: A major issue in treatment of different kind of cancers, including Acute Lymphoblastic Leukemia (ALL), is occurrence of Multidrug Resistance (MDR) phenomenon. Most common mechanism that leads to this phenomenon is efflux of chemotherapeutic drugs out of cells by ATP-Binding Cassette (ABC) transporters, glycoproteins that are localized in the cellular or nuclear membrane. One of these ABC transporters, that its high expression in many tumoric cells has demonstrated, is ABCC3/MRP3. In this study, we evaluate the level of ABCC3 mRNA expression in children with ALL.

Methods: In this study, that is with cooperation of Seyyedo-Shohada hospital in Isfahan, 30 peripheral or bone marrow blood samples of newcase ALL patients and 15 control cases were investigated by Real-Time PCR technique in order to evaluation of relative expression of ABCC3.

Results: The results that are seen until now, show that expression level of ABCC3/MRP3 in childhood ALL is significantly higher than control group. It should be noted that our experiment is in progress and final results will be reported soon.

Conclusions: Our results, until now, demonstrated that lymphoblasts in pediatric patients with ALL, over-expresses the ABCC3/MRP3. Based on previous findings, high expression of ABC transporters in newcase patients is a prognostic symptom for occurrence of resistance to chemotherapeutic agents. Next goal of our group is follow up these patients in order to investigation of the prognostic value of high level expression of ABCC3/MRP3 in Childhood ALL.

Keywords: Multidrug resistance; Acute lymphoblastic leukemia; ABCC3/MRP3 expression