Evaluation of multiple drug resistance in acute leukemia by real time PCR

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Abstract:

Background: Despite the advances in the cure rate for acute leukemia, approximately 25% of affected patients suffer from relapses. Expression of genes for the multiple drug resistance (MDR-1) and breast cancer related protein (BCRP) may confer the phenotype of resistance to the treatment of acute leukemia. Objective: To analyze the expression of the MDR-1 and BCRP genes in new cases of acute leukemia via the real time polymerase chain reaction (RT-PCR) and to determine the correlation between their expression and overall survival. Patients and methods: Total number of patients diagnosed as AML (n = 15), ALL (n = 35) and 20 blood donors as a control group included in this study. The expression of messenger RNA for the MDR-1 and BCRP genes by RT-PCR were assessed. Myeloid surface markers as (CD34, CD33, CD13 and CD14) and lymphoid surface markers as (CD3, CD5, CD2, CD4, CD8 and CD19) were analyzed by flow cytometry (FACS can, Becton Dickinson, Mountain View, CA, USA). Results: The studied groups with MDR gene, BCRP gene show highly significant difference compared to the control (P

Keywords:

Acute lymphoblastic leukaemia, acute myeloid leukemia, breast cancer resistance protein, multidrug resistance, multidrug resistance gene, real time PCR

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