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MDR1 gene expression in acute lymphoblastic leukemia; Implications in pharmacokinetics and relapse

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Background and Aims: Multidrug resistance (MDR) is considered to be responsible for poor response of patients towards chemotherapy in acute lymphoblastic leukemia (ALL) patients and may lead to relapse. The best-characterized mechanism of resistance is the one mediated by P-glycoprotein (P-gp) encoded by MDR1 gene. The correlation between MDR1 and drug resistance is still uncertain in ALL. In this study the possible relation between gene expression level of MDR1 and response to chemotherapy, among ALL patients is investigated.
Methods: Expression of MDR1 was examined in the peripheral blood and bone marrow of 30 newly diagnosed ALL cases and 15 controls free of leukemic blasts, using quantitative real time PCR.
Results: Results are currently being completed and evaluated. After performing the statistical analysis of data, the prognostic value of MDR1 expression will be assessed and the association between this gene expression profile and the clinical outcome of ALL will be reported.
Conclusions: Determining the prognostic value of MDR1 expression in patients with ALL help us to identify the patient with high risk of relapse due to the enhanced efflux of anticancer drugs from cell to extracellular matrix and provide new options to improving the protocols applied for ALL treatment.

Keywords: Multidrug resistance; Chemotherapy; Acute lymphoblastic leukemia; MDR1 gene expression