Abstract

Acute lymphoblastic leukemia (ALL) is the most common childhood malignancy. The inter-individual variation in activities alongxenobiotic metabolism pathways showed that they played a role in the processing of drugs used in the treatment of this malignancy influencing the treatment outcome.As well as DNA repair components, may alter the response to therapy.

We studied the role of some variants of xenobiotic metabolizing enzymes as CYP1A1, GSTP1 and DNA repair gene XRCC1 in the outcome and prognosis of childhood ALL.

Our study included 97 newly diagnosed pediatric ALL patients who were evaluated for their prognosis and outcome, also the frequencies of genotypes of the 3 studied genes among the patients were determined by PCR RFLP.

Results showed that the presence of CYP1A1, GSTP1 and XRCC1variant genotypesdid not show any significant associationwith other prognostic factors or patients' outcome. However, we found significant association between XRCC1 polymorphism and drug toxicity in the form of myelosuppression in those children. Also combined analysis of the variant genotypes in our patients did not show any significant association with the patient outcome.

Conclusions: We found significant association between XRCC1 arg194 Trp polymorphism and chemotherapeutic toxicity in our patients in the form of myelosuppression.

Key words: Acute lymphoblastic leukemia, xenobiotics, DNA repair genes, polymorphism.