Summary

Modern treatment protocols lead to morphological complete remission in 95%-98% of children with acute lymphoblastic leukemia(ALL),long term remissions in nearly 75% of children affected by ALL, 25% ultimately relapse with disease that is highly refractory to current therapy, a low level of clonogenic malignant cells remains in a substantial proportional of the patients even after completion of chemotherapy.

Conversely, another 25% of children who receive dose intensification are likely over treated and probably could have been cured using less intensive regimens resulting in fewer toxicities and long term side effects.

The objective of this study is to detect the expression of Zeta associated protein **(ZAP-70**) in the cases of acute lymphoblastic leukemia **(ALL)** in children by using flowcytometry and to try to find correlation between its expression and prognosis in the form of remission and response of treatment.

In the present study, we evaluated the expression of ZAP-70 in children with acute lymphoblastic leukemia(ALL), both T-ALL and B-ALL were involved in this study.

In this study, we found that ZAP-70 was expressed in both T-ALL and B-ALL cases.Although ZAP-70 which is a tyrosine kinase previously known to be T-lymphocyte specific and involved in T-cell signaling , activation.They could document that ZAP-70 is expressed in a set of samples with B-lineage ALL.These results are in line with two other reports indicating that ZAP-70 expression is not limited to chronic lymphoblastic leukemia(CLL), but can also be found in other hematologic malignancies such as B-cell ALL, mantle-cell lymphoma, diffuse large B-cell lymphoma, and Burkitt lymphoma.

In the present study, there was no statistically significant difference in ZAP-70 expression between B-lineage ALL and T-lineage ALL either before or after treatment. ZAP-70 is more strongly expressed in T-ALL samples

compared with B-lineage ALL samples.This is may be explained by the fact that all our B-lineage ALL cases were $CD10^{+}$ (Common ALL) and this agreement with other reports that indicated that ZAP-70 expression increases along with differentiation and maturation process of the B-cell population.

In the present study, we found that there were significant negative correlations between the level of ZAP-70 expression and in both haemoglobin level and platelet count before treatment .While there were statistically significant positive correlations between ZAP-70 expression and total leucocytic count and bone marrow blasts before treatment.These suggest that ZAP-70 expression appeared to correlate with various adverse laboratory parameters.

In our study, 32% of the patients (8/25) showed complete remission with significant decrease in the level of ZAP-70 expression after treatment than before treatment, and this was associated with improvement in the clinical and laboratory findings in these patients while 36% of the patients (9/25) showed partial remission with significant lower level of ZAP-70 expression after treatment than before trearment. Finally, 16 % of the patients (4/25) showed relapse.

There were no statistically significant difference between the level of ZAP-70 expression before and after treatment among these patients and ZAP-70 expression was not associated with either clinical response or progression free survival and cannot predict the outcome of fludarabine based therapy in patient with CLL.

Conclusion

- The results of the present study found that ZAP-70 is expressed in both B-lineage ALL and T-lineage ALL .
- There was correlation between the level of ZAP-70 expression and laboratory findings and fate of the patients.