Summary

Acute lymphoblastic leukemia (ALL) accounts for about 97% of all childhood acute leukemias, 75% of all childhood leukemias, and nearly one-third of all cancers of the pediatric age ***(Lanzkowsky, 2011)***.

The study was designed to define clinical or biological features associated with the risk for treatment failure for children with acute lymphoblastic leukemia, and the relationships between pretreatment characteristics, induction measurements and obtaining an initial and continuous complete remission.

The ultimate objectives are risk classification of the ALL patients into different risk groups so as to give proper treatment for each group and not to over treat or under treat patients.

This study included thirty patients, newly diagnosed with acute lymphoblastic leukemia below the age of 18 years, who presented to the Oncology unit in Benha specialized children's hospital starting from 1st of February 2009 till February 1st, 2010 and who were evaluated for response to treatment according to the possible risk factors in ALL. Their age ranged between 6 months to 12 years

with a mean age at presentation of 4.8 years and median of 4.5 years. The male to female ratio was (1.3: 1).

Regarding the clinical examination, out of 30 children in our study, hepatosplenomegally was evident in 21 cases (70%), while lymphadenopathy was present in 25 cases (83.3%). Only one of the males (5.9%) showed an overt testicular involvement at presentation. None of our cases had C.N.S malignancy at presentation.

TLC >50.000/mm^3 was detected in 2 cases (6.7%) while 28 cases (93.3%) were <50.000/mm^3.

According to the FAB classification, bone marrow lymphoblasts were presented in different categories. L2 subtype was the most common, presented in 25 cases (83.4%), 4 cases (13.3%) presented with L1 morphology, while only 1 case (3.3%) presented with L3 morphology. The most frequent immunophenotyping encountered was B-lineage ALL, 25 cases (83.3%) while T-lineage ALL was 5 cases (16.7%).

Bone marrow was assessed on day 14 after initiation of induction. It showed M_1 marrow status (residual BM lymphoblasts less than 5%) with restoration of normal hematopoiesis and normal performance status in (96.7%) of

cases, only one case (3.3%) failed remission at day 14 of induction, it showed M_2 marrow status (residual BM lymphoblasts was 14%), this case had intensified protocol and reached remission by day 28 of induction therapy (residual BM lymphoblasts was 0%).

Regarding cytogenetic study in this work, 29 cases (96.7%) had normal diploid DNA while 1 case (3.3%) was Hyperdiploid.

Our cases were followed for a period ranged from 22 to 10 months with a median of 16 months.

At the end of the follow up period, 5 children (16.7%) relapsed; the relapse free survival at the end of the follow up period was (83.3%), the overall survival of all our children was (86.6%) and four children, (13.3%) were expired.

Regarding prognostic factors in this work, hepatomegally, splenomegally, lymphadenopathy and immunophenotyping were significant adverse risk factors. However, other factors as age, sex, total leukocyte count, hemoglobin level, platelet count, bone marrow aspiration, FAB classification and cytogenetic study showed statistically insignificant impact on survival in this study.