Outcome of Acute Lymphoblastic Leukemia (ALL) in Egyptian Children without High Dose Methotrexate: The Pre-Minimal Residual Disease Stratification Era

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Abstract

A retrospective analysis was done for 194 patients with acute lymphoblastic leukemia registered in Ain Shams University, Pediatric Hospital, hematology-Oncology unit and treated with the CCG protocol in the period from 2005-2014. An amendment has been done in 2008 with shift of all patients to 2 double delayed intensification. The 10-year OS was 85.3% while the 10-year EFS 80.4%. 51.5% of patients were treated according to SR arm with OS of 93.7% ; 24.7 were treated with HR-SA with OS 80.4 % and 23.7% were treated with HR-AA with OS of 72.1%.

Background

Survival rates for childhood leukemias have improved dramatically since the early 1960s with most dramatic improvement reported for ALL. Most current treatment regimens include high dose methotrexate and have response assessment using minimal residual disease either by flowcytometry or by molecular techniques.

Objective

to evaluate the outcome of childhood ALL using the CCG1991 for standard risk patients and CCG1961 for high risk ALL.

Survival outcome among the different 3 risk groups in patients with Single versus double delayed intensification.

	Single DI (no = 99)			Double DI (no = 93)		
	No (%)	OS	EFS	No (%)	OS	EFS
CCG 1991-SR	51(53 %)	90.2 %	78.8 %	44(49 %)	97.7 %	93.6 %
CCG 1961-HR-SA	27(28 %)	88.9 %	92.9 %	19(21 %)	68.4 %	65.0 %
CCG 1961-HR-AA	17(18 %)	88.2 %	78.9 %	26(29 %)	61.5 %	57.7 %
Overall survival	95(100 %)	89.5 %	82.8 %	89(100 %)	80.9 %	77.4 %

Materials & Methods

Patients were treated according to the modified CCG protocol and stratified into three risk groups; standard risk (SR), high-risk standard arm (HR-SA), and high-risk augmented arm (HR-AA). Response was considered by morphological remission by bone marrow done on Day 14 and Day 28 of induction phase. The HR-AA regimen included escalating Capizzi methotrexate without leucovorin rescue in interim maintenance phase.

Summary

T-cell ALL patients had an inferior outcome with the capizzi methotrexate and may necessitate shift to a more intensified protocol. The outcome of using single versus double delayed intensification was comparable.

Kaplan-Meier graph of the overall survival (OS) for ALL patients based on risk stratification.

Overall and Event free survival rates among Pre-B and T-cell

References

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