Prognostic Factors of Adult Acute Lymphoblastic Leukaemia and its Impact on the Treatment Outcome

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Background

A substantial progress has been made in the management of acute lymphoblastic leukemia over the last two decades. The aim of this study was to asses the prognostic factors of our adult ALL patients and their correlation to treatment outcome, leukemia free survival and overall survival.

Patients and Methods

Hundred and fifteen patients were included in this study conducted at the Medical Oncology Department – NCI .Cairo in the period between 1999 to 2004.The diagnosis was ALL in all patients. The patients were stratified according to their prognostic factors into standard, high, and very high risk groups. Mature B phenotype were excluded and treated with a separate protocol. The treatment plan included: **Prephase** for patients with high TLC and/or organomegaly. **Induction phase I**: Four drugs: Vincristine, Doxorubicin, L-Asparaginase and prednisone with intrathecal MTX. Patients that attained CR were subjected to cranial irradiation with 24 Gy and intrathecal MTX for four injections. **Phase II induction** with Cyclophosphamide and Cytarabine. **Consolidation phase I**: Vincristine, Doxorubicine and prednisone with Triple intrathecal. **Phase II consolidation**: Cyclophosphamide, Cytarabine and Etoposide with triple intrathecal. **Maintenance therapy**: two years with 6 mercaptopurine and methotrxate. For patients with high and very high risks, one cycle of high dose cytarabine and mitoxantrone (HAM regimen) was added between induction and consolidation. Very high risk patients with available donor were referred to transplantation in CR1.Informed consents were signed by all cases.

Results

The median age was 25 years (range 16to60). The study included 73 males and 42 females. CNS involvement at presentation was reported in 14 cases (12.2%). Immunophenotyping were pro B (7%), C. ALL &Pre B (56.5%) and T phenotype (20.9%).The BCR-ABL fusion gene transcript was positive in 15 cases and ALL1-AF4 fusion genes transcripts was reported in 3%. Forty five patients (39.1%) reported to have standard risk, while 55 (47.8%) and 15 (13%) were high and very high risk respectively. Complete remission was achieved in 76.5% (n = 88) while 23.5 % (n=27) showed no CR. The CR rate of the standard risk group was 88.9% versus 70.9% and 60% for the high and very high risk respectively (p=0.029).The median survival for all patients was 14 months (95% CI, 9.2 to18.8). Survival at 60 months was 28.24 %, it was 34%, 21% and 20.1% for the standard, high and very high risk respectively (P=0.017). There was significant difference in survival between patients with pro-B, pre-B&CALL, and T phenotype (p=0.0019). The median time to progression was 16 months (95% CI, 13.5to 18.5). At 60 months 35.2% were still in remission. Time to progression was 44, 12 and 14months for the standard, high and very high risk groups respectively (p=0.047). Time to progression between patients with Pro-B, pre-B&C-ALL, and T phenotype were 3, 17 and 16 months respectively (p=0.0007).

Conclusion

The CR rate, LFS and survival of the standard risk are satisfactory while those of the high and very high risk are still in need to be improved , whether we can achieve this by higher post remission chemotherapy, targeted therapy or stem cell transplantation remains to be investigated in our ongoing protocol.