Adult Acute Lymphoblastic Leukemia

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Adult acute lymphoblastic leukemia (ALL) is a significantly different disease when compared to childhood acute lymphoblastic leukemia. In adults it is basically a disease of early adulthood with a higher incidence in males. Etiology as with most other cancers is unknown. However, certain factors are important that include hereditary disorders, high socioeconomic status and radiation exposure.1 Like childhood ALL, adult ALL also comprises of B and T phenotype2, however with the introduction of more intensive therapeutic protocols, there is no difference in these two subtypes as far as the long term prognosis is concerned which was previously poor for T ALL. The main biological difference is presence of Philadelphia chromosome seen only in 3-5% of childhood ALL when compared to adult ALL present in up to 25% of patients. It is probably the most important poor prognostic factor with dismal outcome.3-6 In countries like Pakistan, most of these patients are late presenters carrying bulky disease and often with very high white cell count and that is again an established predictor of poor outcome.

Age is also an important prognostic factor. Many studies reveal continuous decline in complete remission rates from more than 90% in children to 60% or less in patients older than 50 - 60 years and associated with shorter survival. Higher remission rates have been observed for women and survival was always inferior in men. Treatment options include cytotoxic therapy and bone marrow transplantation. Traditionally the treatment of adult ALL follows the same pattern as that of childhood ALL i.e., induction, intensification consolidation, CNS directed therapy and maintenance.7-9 Although initial remission rates were comparable to childhood ALL but long term survival is poor.10 This lead to incorporation of more cytotoxic drugs in the treatment protocols and one such protocol (adult UKALLXII) which is more commonly used in Pakistan is a mixture of around 14-15 drugs.11,12 This translates into high morbidity and mortality due to poor nutritional status, bulky disease and relatively high chances of infections.13 Allogenic bone marrow transplantation is an effective therapy alternative for the treatment of ALL. However, the effectiveness of allogenic transplantation is balanced by a significant mortality because of regimen related toxic effects, graft versus host disease, long term toxicities of preparatory regimens and compromised quality of life. Some of the definite indications of allogenic bone marrow transplantation include patients with Philadelphia chromosome positive disease, refractory disease, relapsed ALL or patients with mature B cell disease. Autologous transplantation in adult ALL is another option but major limitation is the possible contamination of malignant cells in the cryopreserved marrow, even when procured during remission that can contribute to relapse after bone marrow transplant. At present the role of autologous bone marrow transplant is not well established and large studies are required to establish the efficacy of this mode of treatment modality.

In summary, the achievements of treating childhood ALL with 70-80% cure rate do not translate into adult ALL probably due to different biology of the disease along with more induction deaths and high relapse rate. We need more information regarding the intensity of cytotoxic drugs according to risk stratification with role of autologous and allogenic bone marrow transplantation.

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