# Acute Leukemias II

## Prognostic Factors and Treatment Strategies

T. Büchner, G. Schellong, W. Hiddemann
J. Ritter (Eds.)

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# Preface

Acute leukemia a quite homogenous disease when untreated reveals a substantial heterogeneity in its response to therapy. While cure is achieved in a certain proportion of patients other cases prove to be highly resistant. The curability is superior in acute lymphoblastic (ALL) than in acute myeloid (AML) leukemia and – within both types – higher in children as compared to adults.

The two age groups and cell types can be further subdivided into prognostic groups by special diagnostic features. Thus, in AML a longer remission duration is associated with the presence of Auer rods, myelomonocytic morphology with increased abnormal eosinophils, inversion of chromosome 16, and translocations of chromosomes 15; 17 and 8; 21 whereas AML after preleukemia, monocytic morphology and abnormalities of chromosomes 5 or 7 predict for earlier relapse. In ALL the common ALL and T-cell phenotype indicate a favourable outcome while B-cell phenotype, a high leukocyte count and translocations of chromosomes 4; 11 and 9; 22 (Philadelphia chromosome) show an unfavourable prognosis. The prognostic significance of some of the factors, however, may differ between different clinical trials and may thus be treatment dependent. Furthermore, their relevance for individual patients remains far from being understood since one patient may experience an early relapse while another patient with identical prognostic factors becomes definitely cured by the same treatment. Thus, a risk-adapted treatment concept as derived from the analysis of patient groups may fail in the individual case due to inadequate treatment intensity or overtreatment ultimately leading to treatment related death.

Risk adapted treatment strategies are well established in childhood ALL where in standard risk patients the high cure rates seem to hold up even after reducing treatment intensity. In AML, in contrast, treatment was gradually intensified in all patients, but failed to break through the sound barriere of unsatisfactory cure rates even in special subgroups. While new protocols including more effective supportive care show some increase in the initial response rates and certain improvements in the long-term results, no beneficial effect on the relapse rate during the first 1½ years emerged from any of these regimens. Thus, high chances for cure are presently restricted to children with ALL and to lesser proportions children with AML and adults with ALL and AML.

Within these potentially curable subgroups chemotherapy – its intensity and duration – seems to have an important impact and further improvements appear possible by intensive multiple step treatment strategies including autologous bone marrow transplantation or high-dose consolidation chemotherapy. These options may be facilitated by the introduction of recombinant human hematopoietic growth factors which may diminish the limits of myelotoxicity and allow more effective antileukemic treatment.

Adoptive immunotherapy is a new antileukemic principle using immunemodulators and showing promising effects in preclinical studies. Similar mechanisms seem to be involved in the graft-versus-leukemia effect in allogeneic bone marrow transplantation.

Since Acute Leukemias I appeared three years ago new approaches have been coming up and relevant data of more established methods are now available. Several multicenter trials helped better understanding the role of major treatment alternatives and led to improved treatment strategies. Numerous valuable contributions from the leading groups in leukemia research provide a most up-to-date state of the art in this second volume of Acute Leukemias.

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