EUROPEAN HEMATOLOGY ASSOCIATION

Acute myeloid leukemia - Section 3

Who should be transplanted in the molecular era?

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Standard strategies for intensive postremission therapy in patients with acute myeloid leukemia (AML) comprise chemotherapy alone, allogeneic and, less frequently, autologous hematopoietic cell transplantation (HCT). The choice of postremission strategy is guided by the individual genetic profile of the disease and specific host factors, *e.g.,* age, comorbidities and graft availability. For more than 30 years, knowledge about the cytogenetic heterogeneity of AML has been accumulated. A new dimension of genetic complexity has been added in recent years by deciphering the enormous molecular diversity of the disease. The cytogenetic risk classification recognizes three AML risk groups (low, intermediate, high). The European LeukemiaNet recommendations have implemented the molecular markers FLT3 internal tandem duplication (FLT3-ITD), mutant NPM1 and mutant CEBPA, resulting in a refinement of the cytogenetically based risk classification; in consequence, the low-risk group has been enlarged, and the intermediate-risk group has been dissected into two separate groups. Allogeneic HCT is recommended for younger high-risk patients. However, the role of allogeneic and autologous HCT in intermediate- and low-risk patients is still a matter of debate. This is attributed to mixed effects on outcome seen in the genetic subgroups combined in one risk group, and to important molecular characteristics with prognostic impact within genetic subgroups (*e.g.*, FLT3-ITD allelic ratio). Beyond genetic profile and risk-group assignment at initial diagnosis, minimal residual disease (MRD) after induction and during consolidation therapy emerges as one of the most important prognostic factors. Whether MRD is also a predictive factor favoring allogeneic HCT as preferred consolidation strategy in MRD-positive patients is the subject of current investigations.

References

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