High prognostic impact of flow cytometric minimal residual disease detection in acute myeloid leukemia: data from the HOVON/SAKK AML 42A study


PURPOSE
Half the patients with acute myeloid leukemia (AML) who achieve complete remission (CR), ultimately relapse. Residual treatment-surviving leukemia is considered responsible for the outgrowth of AML. In many retrospective studies, detection of minimal residual disease (MRD) has been shown to enable identification of these poor-outcome patients by showing its independent prognostic impact. Most studies focus on molecular markers or analyze data in retrospect. This study establishes the value of immunophenotypically assessed MRD in the context of a multicenter clinical trial in adult AML with sample collection and analysis performed in a few specialized centers.

PATIENTS AND METHODS
In adults (younger than age 60 years) with AML enrolled onto the Dutch-Belgian Hemato-Oncology Cooperative Group/Swiss Group for Clinical Cancer Research Acute Myeloid Leukemia 42A study, MRD was evaluated in bone marrow samples in CR (164 after induction cycle 1, 183 after cycle 2, 124 after consolidation therapy).

RESULTS
After all courses of therapy, low MRD values distinguished patients with relatively favorable outcome from those with high relapse rate and adverse relapse-free and overall survival. In the whole patient group and in the subgroup with intermediate-risk cytogenetics, MRD was an independent prognostic factor. Multivariate analysis after cycle 2, when decisions about consolidation treatment have to be made, confirmed that high MRD values (> 0.1% of WBC) were associated with a higher risk of relapse after adjustment
for consolidation treatment time-dependent covariate risk score and early or later CR.

CONCLUSION
In future treatment studies, risk stratification should be based not only on risk estimation assessed at diagnosis but also on MRD as a therapy-dependent prognostic factor.

**type**
journal paper/review (English)

**date of publishing**
23-09-2013

**journal title**
J Clin Oncol (31/31)

**ISSN electronic**
1527-7755

**pages**
3889-97