

Prognostic Significance of Progenitor Cell Markers in Acute Myeloid Leukemia

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Abstract: Background: Until now the prognostic significance of flow cytometric immunophenotyping (FCI) in acute myeloid leukemia (AML) has been controversial. The decision whether patients with AML should receive a more intensified therapy has been made according to defined risk categories based mainly on genetic criteria. Unfortunately no specific chromosomal abnormalities are found in about half of the patients. So additional prognostic factors are needed. Aim of work: The aim of the current work was to investigate prognostic value of progenitor cell markers CD34, CD38 and CD90 expression on AML blast cells at initial diagnosis, and to correlate this expression with known prognostic parameters as well as with the clinical outcome. Patients & Methods: This work was conducted on 80 patients with de novo AML meeting World Health Organization criteria for AML, FAB subtype M0-M5 were included. The levels of progenitor markers were determined by FCI, corresponding cytogenetic results were obtained, appropriate follow-up information were analyzed. Results: Sixty one percent, 82.5% and 35% out of 80 patients were positive for CD34, CD38 and CD90 respectively. No differences in expression were found in different FAB subtypes and cytogenetic risk groups. Cut off values were calculated with values ≥ 38 for CD34, ≥ 55 for CD38 and ≥ 52 for CD90. A significant high resistance to induction therapy and poor outcome were observed in patients with increased progenitor cell expressions. Conclusion: Progenitor cell markers are sensitive indicators as regard response to therapy and clinical outcome in patients with de novo AML. Therefore, their determination should be taken into consideration when designing therapeutic regimens.

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