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# Altered TP53 Mutations in de Novo Acute Myeloid Leukemia Patients in Iran

**Authors :** Naser Shagerdi Esmaeli, Mohsen Hamidpour, Parisa Hasankhani Tehrani

**Abstract :** Background: The TP53 mutation is frequently detected in acute myeloid leukemia (AML) patients with complex karyotype (CK), but the stability of this mutation during the clinical course remains unclear. Material and Methods: In this study, TP53 mutations were identified in 7% of 500 patients with de novo AML and 58.8% of patients with CK in Tabriz, Iran. TP53 mutations were closely associated with older age, lower white blood cell (WBC) and platelet counts, FAB M6 subtype, unfavorable-risk cytogenetics, and CK, but negatively associated with NPM1 mutation, FLT3/ITD and DNMT3A mutation. Result: Multivariate analysis demonstrated that TP53 mutation was an independent poor prognostic factor for overall survival and disease-free survival among the total cohort and the subgroup of patients with CK. A scoring system incorporating TP53 mutation and nine other prognostic factors, including age, WBC counts, cytogenetics, and gene mutations, into survival analysis proved to be very useful to stratify AML patients. Sequential study of 420 samples showed that TP53 mutations were stable during AML evolution, whereas the mutation was acquired only in 1 of the 126 TP53 wild-type patients when therapy-related AML originated from different clone emerged. Conclusion: In conclusion, TP53 mutations are associated with distinct clinic-biological features and poor prognosis in de novo AML patients and are rather stable during disease progression.

**Keywords :** acute myloblastic leukemia, TP53, FLT3/ITD, Iran
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