Persistence of TEL-AML1 fusion gene as minimal residual disease has no additive prognostic value in CD 10 positive B acute lymphoblastic leukemia: a FISH study

Eman Mosad, Hosny B Hamed, Rania M Bakry, Azza M Ezz-Eldin and Nesrine M Khalifa

Abstract:

Objectives: We have analyzed t(12;21)(p13;q22) in an attempt to evaluate the frequency and prognostic significance of TEL-AML1 fusion gene in patients with childhood CD 10 positive B-ALL by fluorescence in situ hybridization (FISH). Also, we have monitored the prognostic value of this gene as a minimal residual disease (MRD). Methods: All bone marrow samples of eighty patients diagnosed as CD 10 positive B-ALL in South Egypt Cancer Institute were evaluated by fluorescence in situ hybridization (FISH) for t(12;21) in newly diagnosed cases and after morphological complete remission as a minimal residual disease (MRD). We determined the prognostic significance of TEL-AML1 fusion represented by disease course and survival. Results: TEL-AML1 fusion gene was positive in (37.5%) in newly diagnosed patients. There was a significant correlation between TEL-AML1 fusion gene both at diagnosis (r = 0.5, P = 0.003) and as a MRD (r = 0.4, P = 0.01) with favorable course. Kaplan-Meier curve for the presence of TEL-AML1 fusion at the diagnosis was associated with a better probability of overall survival (OS); mean survival time was 47 ± 1 month, in contrast to 28 ± 5 month in its absence (P = 0.006). Also, the persistence at TEL-AML1 fusion as a MRD was not significantly associated with a better probability of OS; the mean survival time was 42 ± 2 months in the presence of MRD and it was 40 ± 1 months in its absence. So, persistence of TEL-AML1 fusion as a MRD had no additive prognostic value over its measurement at diagnosis in terms of predicting the probability of OS. Conclusion: For most patients, the presence of TEL-AML1 fusion gene at diagnosis suggests a favorable prognosis. The present study suggests that persistence of TEL-AML1 fusion as MRD has no additive prognostic value.

Published In:

Journal of Hematology & Oncology, Vol.1, Issue.17, PP.17-20