AB015. Modeling survival in childhood acute lymphoblast leukemia

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Abstract: Acute lymphoblastic leukemia (ALL) is the most common malignancy diagnosed in children, representing nearly one third of all pediatric cancers. Annually, around 13,000 children in the world are diagnosed with acute lymphoblastic leukemia. White children are more frequently affected than black children, and there is a slight male preponderance. With improvements in diagnosis and treatment, overall cure rates for children with acute lymphoblastic leukemia have reached 90%. About 30% of the children with ALL have a gene marker. The most frequent abnormality is t (12;21) resulting in TEL-AML1 gene rearrangement. This molecular marker can be detected in 20–30% of the cases with ALL. In this study, the survival analysis is used to determine the prognostic significance of TEL-AML1 and to models the time it takes for relapse or death. The data are from 170 patients, observed in Specialized Children's Oncohematology Hospital-Sofia, Bulgaria for a time of 10 years. Gene marker TEL-AML1 is detected in 43 of the patients. For estimating event (relapse or death) free survival rate the Kaplan-Meier method is used. Time to event is calculated as the time from study entry to first event or data of last contact. The log-rank test is used for comparison of survival curves between two groups. Multivariate analysis is conducted by using Cox proportional hazards regression to characterize disease progression on existing cases by revealing the importance of covariates. For the analysis of the data the software package STATISTICA 10.0 is used.

Keywords: Gene marker TEL-AML1; survival analysis; kaplan-meier estimator; cox proportional hazards regression

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