

PROGNOSTIC FACTORS FOR OVERALL SURVIVAL IN PEDIATRIC PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Introduction: Acute lymphoblastic leukemia (ALL) is the most common childhood malignancy. The aim of the study was to analyze the impact of different clinical prognostic factors that might influence the overall survival (OS) of children with ALL.

Material and methods: In this retrospective cohort study were included all newly diagnosed patients with ALL from age 1 to 14 years enrolled in the Department of Hematology and Oncology, University Clinic for Children`s Diseases Skopje between 2010 and 2017. The treatment was based on the intermediate and high risk arm of the ALL IC BFM 2002 protocol. Univariate and multivariate analysis of prognostic factors for OS were performed. OS was estimated by Kaplan-Meier analysis.

Results: Data from 45 (60.8%) males and 29 (39.2%) females were analyzed. In univariate analysis, the older age (≥ 10 years) ($P < 0.001$), high WBC count at diagnosis ($\geq 50 \times 10^9/L$) ($P = 0.001$), NCI high risk ($P = 0.003$), prednisone poor response ($P = 0.015$), poor cytomorphological bone marrow response on day 15 during induction ($P = 0.01$) and positive flow cytometry - based minimal residual disease ($\geq 0.01\%$) at the end of induction ($P = 0.034$) significantly adversely affected OS. Gender, CNS infiltration and immunophenotype had no statistically significant impact on survival. The older age ($P = 0.003$) and high initial WBC count ($P = 0.004$) were significant independent prognostic factors in the multivariate analysis. The patients in the 1-9 age group and those with WBC count at presentation $< 50 \times 10^9/L$ had superior survival (5-year OS $83.6\% \pm 5.1\%$ and $88.4\% \pm 4.5\%$, respectively).

Conclusion: In this cohort of Macedonian pediatric patients with ALL, an older age and high WBC count at presentation were independent prognostic factors for overall survival.