IE7. **MOLECULAR PROGNOSTIC FACTORS IN ACUTE LEUKEMIA**

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In hematological malignancies, acute leukemia has a special place due to adverse prognosis and clinical course. Introduction of new molecular biology methods has identified a number of prognostic factors that allow stratification of patients into risk groups. Using these prognostic factors into clinical practice has made the treatment of acute leukemias currently be considered an example of personalized medicine.

Materials and methods: We have analyzed 290 cases of acute leukemia (adults and children) admitted to our institute in the period 2008-2012.

Samples were analyzed using multiplex RT-PCR that allows identification nine of the most common fusion genes in acute leukemias: MLL-AF4, BCR-ABL1, AML1-ETO, PML-RARA, CBFb-MYH11, SIL-TAL1, E2A -PBX1, TEL-AML1 and MLL-AF9. AML samples were analyzed for insertion in tandem FLT3 gene (FLT3-ITD mutation) and C-teminal region insertions in the NPM1 gene. For AML samples were also analyzed for the expression of WT-1 gene. Quantification of transcript and minimal residual disease were determined using Nested RT-qPCR and for Fusion genes identified.

Results: Using nine fusion genes as a prognostic marker allowed stratification into risk groups 36% of patients (105 of the 290 cases analyzed). For patients with AML, in 26% of cases tested were identified insertions in the C-terminal region of the gene NPM-1 and in 18.2% of cases were found FLT3-ITD mutation. Minimal residual disease follow-up was done using RT-qPCR in 36% of cases and this allowed early identification of cases with relapse or treatment resistant. In acute myeloid leukemia, the level of WT-1 expression is a prognostic marker and, also, a marker for monitoring minimal residual disease in 22% of cases.

Conclusions: The molecular biology methods used in this work have allowed the classification of patients in risk groups and the use of adapted risk therapeutic modalities - standard chemotherapy followed or not by allogeneic bone marrow transplant. On the other hand, monitoring of minimal residual disease allows the patient's risk reassessment after treatment (or after certain phases of treatment) and early identification of cases with relapse or treatment resistance.

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