# Immunophenotypic Markers of Blast Cells in Patients with High-Risk Myelodysplastic Syndrome

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## Objective

Genetic disorders leading to the formation of a tumor clone contribute to the formation of an aberrant immunophenotype that differs from the antigenic profile of normal cells.

The aberrant myeloid stem cell immunophenotype in MDS may be associated with recurrent genetic abnormalities. Taking into account the spectrum of cytogenetic abnormalities in MDS, the identification of the antigenic profile of blast cells of myeloid origin associated with cytogenetic abnormalities will help to determine their prognostic significance, as well as to make a decision in the choice of therapy taking into account risk factors.

The aim of the study was to identify immunophenotic markers of blast cells in patients with high-risk myelodysplastic syndrome

## Methods

The study included 54 patients diagnosed with MDS. When assessing the immunophenotypic profile of the analyzed 54 patients with MDS, it was found that the expression of CD38 was detected in 24 patients, of which 15 people (62.5%) were diagnosed with RAEB-II.

High expression of CD25 on the surface of blast cells was detected in 6 patients, of which 4 were newly diagnosed RAEB-II.

High-risk cytogenetic markers in the study group of 52 patients were determined with the following frequency:

1 patient with TP53 gene mutation, 6 patients with structural changes in chromosome 7 (11.5%) and

9 patients with ≥3 complex aberrations (17.3%).

The analysis of the obtained data was performed using the program Statistica 8.

| Markers | Overall survival (days) | Time to transformation (days) |
|---|---|---|
| Expression CD25<br>No expression of CD25 | 250<br>530 | 75<br>340 |
| | p=0,04 | p=0,035 |
| Expression CD38<br>No expression of CD38 | 430<br>600 | 200<br>- |
| | p=0,38 | p=0,035 |
| Chromosome 7 anomaly | 285 | 208 |
| | p=0,38 | p=0,044 |
| Complex aberrations (≥3) | 353 | 199 |
| | p=0,19 | p=0,18 |

*Table 1. – Comparative characteristics of overall survival and time to transformation into acute leukemia in patients with MDS of various prognostic scales, taking into account immunophenotypic and cytogenetic markers.*

## Results

We assessed the overall survival and the time to transformation into acute leukemia in patients with MDS, taking into account the immunophenotypic (CD25, CD38) and cytogenetic (chromosome 7 anomaly and complex aberrations) markers identified in our study, determined at the time of diagnosis (Table 1).

According to our data, the median time to transformation (TTT) was 894 days (median overall survival (OS) is 1131 days).

Patients with MDS received a variety of therapies prior to transformation, including hypomethylating agents and low-dose chemotherapy.

The median TTT in the group of patients with MDS in the expression of CD25 is characterized by a 4.5-fold shorter time to transformation (75 days vs. 340).

The median OS in the group of patients with MDS with CD25 expression was 530 days versus 340 days in the group of patients without CD25 expression (p=0,04).

The TTT of patients with MDS was assessed similarly, taking into account the expression of CD38. The median TTT in the MDS group with CD38 patients was 200 days.

The median OS in the group of patients with MDS with CD38 expression characterized by a shorter period and accelerates the poor prognosis in comparison with the group of patients without CD38 expression (430 days vs. 600 days).

Thus, according to the presented calculations, the presence of expression of CD25 and CD38 on blast cells confirms the high risk of transformation into acute leukemia and shortening of the overall survival of patients.

Myelodyspiastic syndrome,immunophenotypic markers, cytogenetic markers.