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Conference Abstract A16

Infectious Mortality After Allogeneic Hematopoietic Stem Cell Transplantation in the Early Post-Transplantation Period: A Single-Center Retrospective Study

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Relevance

Expression of lymphoid markers (CD2, CD3, CD5, CD7) in acute myeloid leukemia (AML) is an important prognostic factor determining clinical outcomes. CD56, a marker of NK cells, is expressed in various lymphohematopoietic malignancies, including AML. According to the literature, the presence of CD56 on blast cells may influence the duration of complete remission and is associated with poorer overall survival and therapy resistance. In our study, we analyzed a cohort of pediatric and adult patients diagnosed with AML, treated between 2020 and 2024, to evaluate the association of CD56 expression with treatment outcomes.

Objective

To determine the frequency of CD56 expression in AML patients using flow cytometry and to assess the prognostic value of this marker.

Materials and Methods

The study included two patient groups: pediatric (31 patients aged 0–16 years) and adult (181 patients aged 17–70 years), who received treatment from January 2020 to December 2024. CD56 expression was assessed using a three-laser flow cytometer BD FACS CANTO II.

Results

The total follow-up period was 36 months. The pediatric group was divided into 3 age categories:

- 0–5 years – 5 patients (16%)
- 5–10 years – 12 patients (38.7%)
- 10–16 years – 14 patients (45%)

Among them, 17 (54.8%) were male and 14 (45%) female.

In the total cohort, 19 patients (62%) achieved complete clinical and hematological remission, 10 patients (34%) experienced bone marrow relapse, and 4% were resistant to therapy.

Positive CD56 expression was observed in 7 patients (23%), including:

- 3 patients (9.6%) with AML with maturation features
- 1 case (3%) of promyelocytic leukemia
- 3 cases (9.6%) of myelomonoblastic leukemia

Among CD56-positive AML patients, mutations such as t(8;21)(q22;q22), ct(15;17), t(11q23), and inv(16) were identified.

Survival analysis was performed using the Kaplan-Meier method. The rate of complete remission after induction chemotherapy was nearly the same between CD56-positive and CD56-negative groups (85% and 81%, respectively). However, relapse-free survival differed significantly: 67% in CD56-positive vs. 48% in CD56-negative patients.

Figure 1. Overall Survival Curve (time = days)

In pediatric patients with CD56-positive AML, higher relapse and mortality rates were observed compared to the CD56-negative group ($p < 0.05$). Overall survival time was significantly shorter in CD56+ patients ($p = 0.26$), with a median survival of 385 days (range: 3 to 1000 days), compared to 442 days (range: 1 to 1244 days) in CD56-negative patients.

In the adult group, CD56 expression was positive in 16.8% of patients. A high frequency of this marker was associated with AML with t(8;21), promyelocytic, and myelomonocytic variants. In the CD56-positive group, lower rates of complete remission and poorer relapse-free survival were observed compared to the CD56-negative group.

Conclusion

We consider CD56 expression in AML to be a potentially independent prognostic factor. The presence of this marker is often associated with certain cytogenetic abnormalities and a higher risk of relapse and adverse outcomes in both adults and children. Considering CD56 expression in clinical practice allows for better identification of high-risk patients and may contribute to therapy optimization.