Oncology, Nuclear Medicine and Transplantology
(eISSN 3105-8760)

Conference Abstract A9

Influence of Immunophenotypic Characteristics of Plasma Cells in Multiple Myeloma Patients on Disease Prognosis and Course

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Proceedings of III International Scientific and Practical Conference "Current Issues of Bone Marrow Transplantation and Hematology", October 11-12, 2025, Astana, Kazakhstan

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Background

Multiple myeloma (MM) is one of the most complex forms of hematologic malignancy, presenting significant challenges in diagnosis and management. MM remains an incurable disease; current treatments allow prolonged remissions in some cases but not all. Thus, advancing prognostic systems through molecular-genetic and immunological studies that account for MM heterogeneity is a key goal in oncohematology. Additional insights can be gained by assessing the expression of surface markers on tumor cells using flow cytometry. It is established that immunophenotypic features (IFT) of myeloma cells are associated with clinical presentation and response to therapy.

Aim

To evaluate the impact of CD56 expression on plasma cells in newly diagnosed MM patients on the efficacy of induction therapy, disease aggressiveness, and overall survival.

Materials and Methods

A retrospective single-center study was performed on data from 26 newly diagnosed MM patients treated between 2023 and 2025. The efficacy of induction, disease aggressiveness, and overall survival (OS) were assessed according to CD56+ cell count by IFT.

Results

Among 26 patients analyzed, 4 (15%) exhibited no CD56 expression, 10 (38%) showed CD56 expression up to 30%, and 12 (47%) demonstrated expression above 30%. All patients received VCD chemotherapy as induction treatment. In the CD56-negative group, only 2 patients (50%) achieved a partial response (PR), while the remainder were refractory. Among patients with CD56 expression ≤30%, 1 patient (10%) achieved a complete response (CR), 8 patients (80%) achieved a PR, and 1 patient (10%) was refractory. In the subgroup with CD56 expression >30%, 2 patients (17%) achieved a very good partial response (VGPR), 4 patients (34%) achieved a PR, and 6 patients (49%) were refractory.

In terms of overall survival (OS), there was a tendency toward worse outcomes in patients with absent CD56 expression (24-month OS – 73%) and in those with CD56 expression >30% (24-month OS – 76%), although the differences did not reach statistical significance due to the small sample size ($p = 0.31$) (Figure 1).

These findings suggest that both absence of CD56 and high CD56 expression (>30%) are associated with inferior treatment responses and a trend toward reduced OS. In contrast, the most favorable outcomes were observed in patients with intermediate CD56 expression (≤30%), where the highest overall response rate (90% combining CR and PR) was achieved.

Conclusions

Using flow cytometry data for prognosis in MM patients may help personalize treatment, improve efficacy, and enhance long-term outcomes. Further study of immunophenotypic characteristics remains necessary, with a broader cohort and evaluation of factors lowering response probability to bortezomib-based therapy and progression-free survival post high-dose treatment and autologous stem cell transplantation.

Picture 1.