

ORIGINAL ARTICLE

Frailty Assessment and NK Cell Function in Multiple Myeloma: a Comprehensive Analysis

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SUMMARY

Background: Frailty is a clinical syndrome characterized by decreased muscle strength and endurance, as well as deterioration of multiple system functions and metabolic status. Frailty is particularly common in patients with multiple myeloma (MM), which seriously affects their quality of life.

Methods: From January through November 2023, Sichuan Provincial People's Hospital recruited 21 MM patients and 16 healthy individuals and used advanced ten-color flow cytometry to detect the expression levels of NK cell-related markers in both groups and explore their changes in the revised international staging system (R-ISS) stages and different frailty scores.

Results: The total number of NK cells in the patient group was significantly higher than that in the control group, but its function was impaired. As the MM disease progressed and the degree of frailty increased, the proportion of activated receptors on NK cells in the patient group decreased. In addition, there were differences in the distribution of NK cell-related markers in patients under different frailty assessment systems.

Conclusions: The total number and subpopulations of NK cells in MM patients have changed, and the expression of natural killer receptors, CD244, CD16, and HLA-DR significantly decreased with the progression of frailty. These changes can help to understand the overall health status and immune state of patients and help physicians develop personalized treatment strategies, improve outcomes, and enhance the quality of life for patients.

(Clin. Lab. 2025;71:1-2. DOI: 10.7754/Clin.Lab.2024.241121)

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Supplementary Data

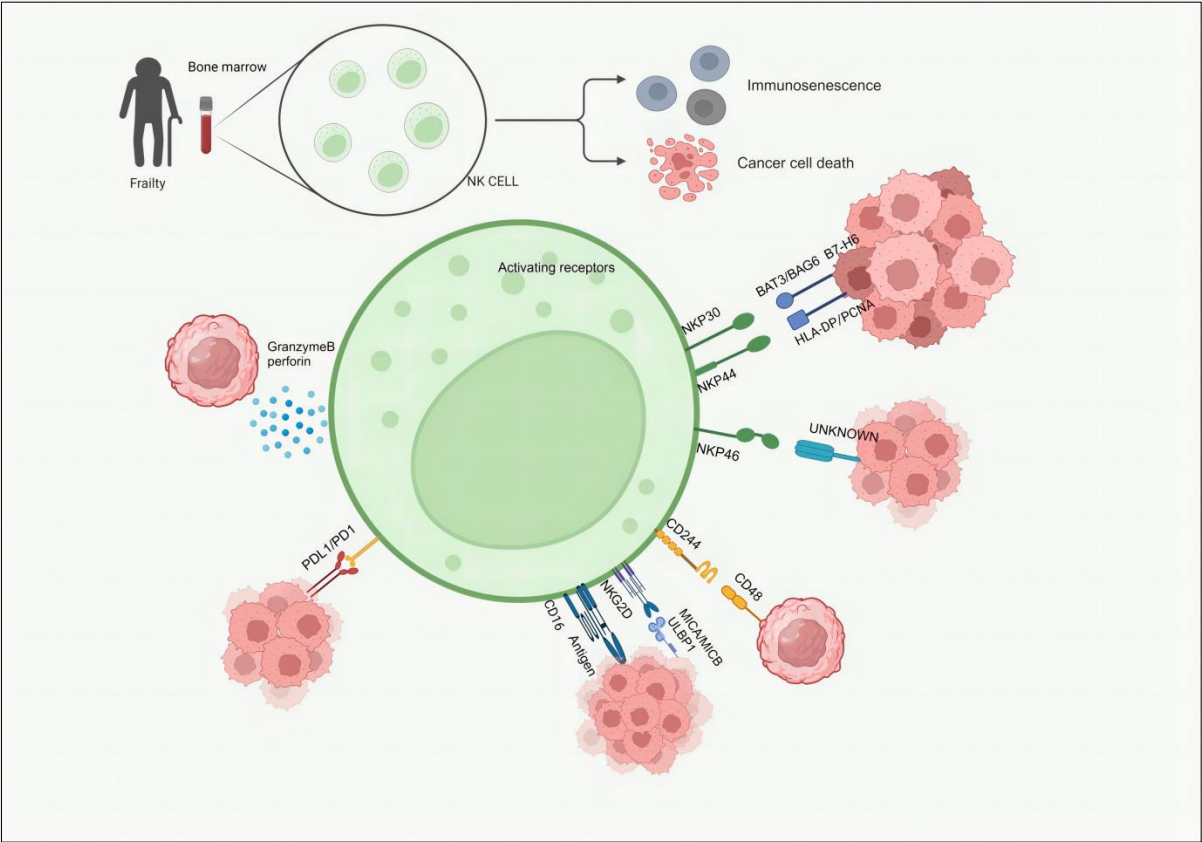


Figure S1. Correlation between phenotype and functional changes in NK cells and frailty states in patients with MM.