

Pretransplant Vitamin D Deficiency, Immune Reconstitution, and Early Outcomes After Autologous Stem-Cell Transplantation in Multiple Myeloma

Sri Pranita Cherukuri, MBBS, MPH
Columbia University, New York, NY
Presenter: Prithvi Uppalapati

INTRODUCTION

Autologous stem-cell transplantation is central to multiple myeloma treatment, but hematopoietic and immune recovery vary. Vitamin D influences lymphocyte function, inflammation, and marrow recovery and may represent a modifiable pretransplant marker.

OBJECTIVE

To evaluate associations between pretransplant vitamin D deficiency, hematopoietic recovery, lymphocyte reconstitution, and early post-transplant response.

DESIGN & METHODS

- Focused evidence synthesis of adults with multiple myeloma undergoing high-dose melphalan and autologous stem-cell transplantation.
- Vitamin D deficiency was defined as 25-hydroxyvitamin D <30 ng/mL.
- Outcomes included neutrophil and platelet recovery, day-30 absolute lymphocyte count, and very good partial response or better by day 100.

RESULTS

- One cohort included 79 patients; 61 (77.2%) were vitamin D-deficient.
- Deficient patients showed numerically slower hematopoietic recovery and lower day-30 lymphocyte counts.
- Very good partial response or better by day 100 was numerically lower in deficient patients.
- Most comparisons were not statistically significant.

	Vitamin D-deficient (n=61), <30 ng/mL	Vitamin D-sufficient (n=18), ≥30 ng/mL
Neutrophil recovery (days)	12.43	11.83
Platelet recovery (days)	28.45	19.12
Day-30 absolute lymphocyte count (cells/μL)	1,193	1,525
Very good partial response or better by day 100, %	40.9%	55.6%

LIMITATIONS: Single-center retrospective cohort, small vitamin D-sufficient comparator group, and predominantly nonsignificant findings limit causal inference.

CONCLUSION: Pretransplant vitamin D deficiency was common and associated with numerical trends toward delayed hematopoietic and immune recovery. Prospective validation is needed.

REFERENCES

1. Keruakous AR, Ghani N, Desai S, et al. Front Immunol. 2025;16:1588919. doi:10.3389/fimmu.2025.1588919.
2. Hong S, Ferraro CS, Hamilton BK, Majhail NS. Bone Marrow Transplant. 2020;55:2060–2070. doi:10.1038/s41409-020-0904-7.
3. Ros-Soto J, Anthias C, Madrigal A, Snowden JA. Bone Marrow Transplant. 2019;54:810–820. doi:10.1038/s41409-018-0377-0.

Scan code to
connect on LinkedIn

