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Fresh and Cryopreserved Stem Cell Transplantation in Myeloma Patients: Does It Make a Difference on Transplant Outcomes?

Mehmet Ali Erkurt[1], Seda Yilmaz[2], Sinem Namdaroglu[3], Sinan Demircioglu[4], Ahmet Sarici[1], Salih Cirik[2], Mustafa Koroglu[5], Mustafa Merter[4], Semih Basci[3], Ilhami Berber[1], Abdulkadir Basturk[2], Mehmet Sinan Dal[6], Turgay Ulaş[6], Serdal Korkmaz[7], Fevzi Altuntas[2,8]

[1]Inonu University, Faculty of Medicine, Department of Hematology and Bone Marrow Transplantation Unit, Malatya, Türkiye.
[2]University of Health Sciences, Konya Medical Faculty, Department of Hematology and Bone Marrow Transplantation Unit, Konya, Türkiye.
[3]Dokuz Eylul University, Faculty of Medicine, Department of Hematology and Bone Marrow Transplantation Unit, Izmir, Türkiye.
[4]Necmettin Erbakan University, Faculty of Medicine, Department of Hematology, Konya, Türkiye.
[5]Istinye University, School of Medicine, Internal Medicine Department, Hematology & Bone Marrow Transplantation Unit, Istanbul, Türkiye.
[6]University of Health Sciences, Ankara Oncology Training and Research Hospital, Department of Hematology & Apheresis Unit, Ankara, Türkiye.
[7]Acibadem Mehmet Ali Aydinlar University Atakent Hospital, Department of Hematology and Bone Marrow Transplantation Unit, Istanbul, Türkiye.
[8]Ankara Yildirim Beyazit University, School of Medicine, Department of Internal Medicine, Division of Hematology, Ankara, Türkiye.

Background: The standard approach for multiple myeloma patients eligible for transplantation includes 4 to 6 cycles of induction therapy, followed by autologous stem cell transplantation (aHSCT). The aHSCT process starts with stem cell mobilization and collection, followed by high-dose chemotherapy and reinfusion of the harvested stem cells. These cells can be infused fresh within 24 to 48 hours post-collection or cryopreserved for future use.

Aim: Here, we will analyze the outcomes of aHSCT patients receiving infusions of fresh versus cryopreserved hematopoietic stem cells.

Materials and Methods: This multicenter retrospective study analyzed 88 adult patients diagnosed with multiple myeloma who underwent aHSCT (n=43 for cryopreserved; n=45 for fresh infused group).

Results: A total of 88 patients were included in the study. 39.7% of patients were female and 60.3% of patients were male. No correlation was observed between pre-mobilization disease status, mobilization regimen, and disease risk status as defined by the R-ISS system (p=0.1, p=0.8). The median neutrophil engraftment time was 10 days in the fresh group and 12 days in the cryopreserved group ($p < 0.01$). In contrast, the median platelet engraftment time was 12 days in the fresh group and 11 days in the cryopreserved group ($p < 0.01$). Engraftment was achieved in all patients included in the study.

Conclusion: The shorter neutrophil engraftment time in the fresh group and the shorter platelet engraftment time in the cryopreserved group, along with successful engraftment in all patients, suggest that both options are reasonable within the MM aHSCT protocol.

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Contact: Prof. Dr. Turgay Ulas, MD
University of Health Sciences, Ankara Oncology Training and Research Hospital
Hematology and Stem Cell Transplantation Unit, Ankara, Türkiye
E mail: turgayulas@yahoo.com