SOHO ANNUAL MEETING 2024

VITALITY AND ENGRAFTMENT TIMES IN ALLOGENIC HEMATOPOETIC STEM CELL TRANSPLANTATIONS MADE WITH FROZEN AND FRESH PRODUCT

Kemal Fidan[1], Serpil Baysal[2],Neslihan Mandacı Şanlı[1], Gülşah Akyol[1], Muzaffer Keklik[1], Ali Ünal[1]
[1]Erciyes UniversityFaculty of Medicine, Department of InternalMedicine, Hematology, Kayseri, Türkiye
[2]Erciyes University, Faculty of Medicine, Therapeutic Apheresis Unit, Kayseri

INTRODUCTION

Allogeneic stem cell transplants can be collected on the day of transplantation or frozen and stored after collection due to medical or donor-related reasons.

AIM

In our study, we compared the product viability, neutrophil and platelet engraftment times between allogeneic peripheral stem cell transplants that were frozen and unfrozen in our center between 2020 and 2023.

METHOD

Allogenic transplantati on procedures performed between 2020 and 2023 were evaluated retrospectively. Mobilization of allogenic donors was performed with10µcq/kg GCS-F. Collection operations were carried out with the Optia Spectra device.On the 5th day of GCS-F. After collection, the products were frozen with cryoprectant prepared with 10% DMSO (dimethylsulfoxide) and 20% plasma and stored at -80 ˚C.On the day of transplantation, allogenic stem cells, which were thawed in a blood melting device at 37˚C, were transplanted to the patient.

RESULTS

At our Erciyes University Faculty of Medicine stem cell transplantation center, we performed 93 allogenic transplants. Out of these, 68 (73.1%) were performed with fresh products and 25 (36.9%) were performed with frozen products. The frozen cells were transplanted to patients an average of 15±44.8 (6-215) days after collection. The number of CD34+ cells in frozen products was $7x10^6$/kg, whereas in fresh products, it was $7.06x10^6$/kg. In allogenic transplants performed without freezing, then eutrophil engraftment period was 16 days. However, it was 17 days in transplantations performed with frozen products. The platelet engraftment period was 13 days in allogenic transplants performed without freezing and 14.5 days in frozen transplants. Unfortunately, one of the patients who underwent cryopreservation and two of the patients who underwent noncryopreservation died before neutrophil and platelet engraftment developed. During transportation, the viability rate in frozen products was 96.1%, while in fresh products, it was 99.7%. However, we observed that the viability rate in two frozen allogenic stem cell products was 88.8% and 83.44%.

CONCLUSIONS

After analyzing the viability rates and engraftment times, we conclude that freezing donor stem cells prior to transplantation does not have any adverse effects on the transplantation process in terms of patient and donor safety. Therefore, using this freezing method can be considered as a safe alternative approach.

CONTACT INFORMATION

Kemal Fidan

drkemalfidan@hotmail.com