The Immediate Impact of Physical Function and Quality of Life after Hematopoietic Stem Cell Transplantation

Kwan Sik Seo, Dong-Hoon Kim

Department of Rehabilitation Medicine, Seoul National University Hospital, Seoul, Korea
Department of Pharmacology, Korea University, Seoul, Korea

INTRODUCTION and BACKGROUND

- Hematopoietic stem cell transplantation (HSCT) is widely accepted as a standard treatment option for many hematologic diseases and select solid tumors, enabling high-dose chemotherapy and rebooting patients' immune systems.
- Although there are clear benefits in mortality, HSCT does not only changes the recipient's whole-body system but also psychological and psychosocial status through high-dose chemotherapy.
- The importance of physical function after HSCT suggests that patient-reported physical function early post-HSCT has prognostic value in survival probability. Although many studies have focused on changes in functioning and quality of life after HSCT, most of them are long-term follow-up studies and outpatient programs
- **The aim of this study was to investigate the impact of HSCT on physical function using the de Morton Mobility Index (DEMMI) and quality of life in acute phase of post-HSCT during hospitalization. We also aimed to identify which domains of quality of life are related to physical function after HSCT.**.

METHODS

This study was a retrospective control study between August 2016 and December 2020.

Inclusion criteria were as follows (1) at least 18 years of age; (2) planning to receive HSCT whether autologous or allogeneic; (3) able to read and answer self-reporting questionnaires at the time of admission and discharge.
Exclusion criteria were as follows (1) severe underlying medical conditions such as shock, severe infection, cardiovascular diseases, and severe musculoskeletal problems; (2) incomplete the physical therapist's command for DEMMI score evaluation

182 Patients who met the inclusion criteria

Excluded
- Developed severe medical conditions such as shock
- N=26

Excluded
- Did not fulfill the questionnaires either at admission or discharge
- N=29

Excluded
- Missed two or more times of the DEMMI score measurement during study period
- N=20

107 Patients participated in the study

Monitoring Physical Function and Outcome Variables

Admission | HSCT | Discharge

QOL: EORTC QLQ C-30 (Admission) | QOL: EORTC QLQ C-30 (Discharge)

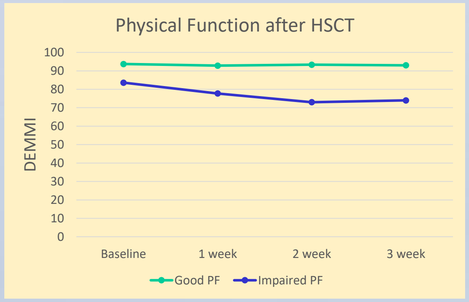
Physical Function: DEMMI every week

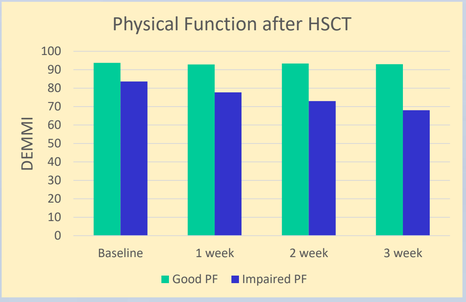
Group categorization

Good PF
Impaired PF: 1) raw ordinal DEMMI scores < 17 or
2) two points decline of the raw ordinal DEMMI scores

RESULTS

	Good PF (N=66)	Impaired PF (N=41)	P-value
Age	52.44±13.16	48.50±14.51	0.151
Gender			0.207
Female	21	18	
Male	45	23	
Type of HSCT			0.517
Autograft	25	13	
Allograft	41	28	





EORTC QLQ-C30	Good PF (N=66)	Impaired PF (N=41)	P-value
Physical Functioning			
Admission	72.53±18.62	62.44±22.15	0.013
Discharge	69.77±16.27	59.19±19.62	0.003
Social Functioning			
Admission	57.83±29.99	47.15±31.60	0.082
Discharge	62.88±29.78	45.53±27.14	0.003
SDS			
Admission	40.09±9.31	42.20±10.90	0.308
Discharge	40.11±8.99	45.63±8.54	0.002

CONCLUSIONS

- **More than one-third** of patients showed physical impairment after HSCT during the acute post-transplant period.
- Physical decline was associated with **more severe depression and lower quality of life**.
- **Evaluating the recipient's pre-transplant physical function and early detection** of any decline in physical function are important after HSCT because a decreased function **cannot be restored**.