soho2023
ELEVENTH ANNUAL MEETING

EVALUATION OF THE EFFECTS OF CYTOMEGALOVIRUS AND BK POLYOMAVIRUS INFECTIONS ON OVERALL SURVIVAL FOLLOWING ALLOGENEIC STEM CELL TRANSPLANTATION: A SINGLE CENTER EXPERIENCE

B. GEZICI[1], N. A. SOYER[2], A. E. GUNES[2], G. SAYDAM[2], M. TOBU[2], F. SAHIN[2], F. VURAL[2]
[1] Bozyaka Training and Research Hospital, Izmir, Izmir, Turkey.
[2] Ege University, Izmir, Turkey

INTRODUCTION

Although Allo-SCT is the only modality that provides cure for most diseases, it carries the risk of procedure-related mortality. Infections are one of the most common complications due to severe immunosuppression and the most common infection after ASCT procedure is CMV infection. CMV disease still carries a relatively high risk of mortality despite advances in diagnostic and treatment methods. Similarly, hemorrhagic cystitis (HC) is a clinical entity that prolongs hospitalization and increases the financial burden of treatment. BK polyomavirus (BKV) is the main cause in late-onset HC.

AIM

The aim of this study was to investigate the effects of CMV infection, CMV disease and BKV-HC development on overall survival.

METHOD

Overall, 221 adult patients who underwent first allo-SCT between 2012 and 2020 at our institution, were included in this single center, retrospective, observational study. Data on patients' sociodemographic information, characteristics of the allo-SCT procedure and complications, donor characteristics, and parameters related to CMV infection, disease and BKV-HC were collected.

RESULTS

39.4% of the patients were female, with a mean age of 41.5±14.1 (18-70) years. The mean follow-up period was 1067.4±1125 (30-3742) days. Matched relatives in 166 (75.1%), matched unrelated donors in 47 (21.3%) and haploidentical donors in 8 (3.6%) transplants were used. Of the conditioning regimens, 167 (75.6%) were myeloablative, 36 (16.3%) were reduced-intensity, and 18 (8.1%) were non-myeloablative. The mean engraftment time was 17.9±5.5 days. Acute GVHD occurred in 86 patients (38.9%). Chronic GVHD developed in 44 (23%) patients. Patients with CMV infection and BKV-HC had a 1.46 (1.04-2.04) and 3.94 (1.83-8.45) times higher risk of mortality than patients without CMV infection and BKV-HC, respectively. These rates were statistically significant. Those with CMV disease had a 1.79 (0.91-3.51) times higher risk of mortality than those without. However, this increased risk of mortality for CMV disease was not statistically significant (Table-1 and Image-1).

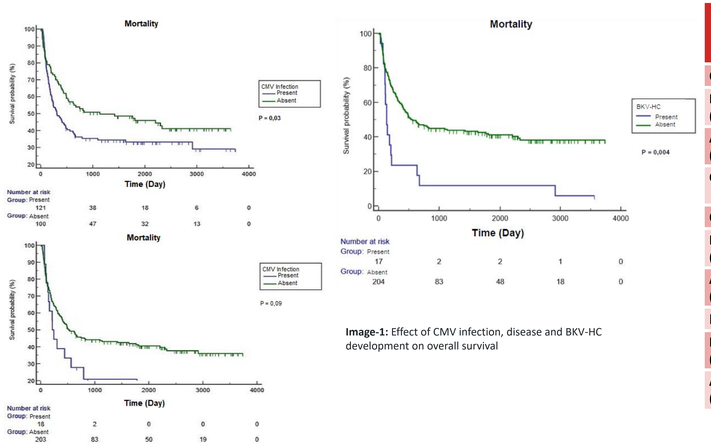


Image-1: Effect of CMV infection, disease and BKV-HC development on overall survival

	Deceased N (%)	Alive N (%)	Median Survival (%95 CI)	Hazard Ratio (%95 CI)	Log Rank p value
CMV Infection					
Present (n:121)	81 (66,94)	40 (33,06)	311 (214-483)	1,46 (1,04-2,04)	**0,03**
Absent (n:100)	56 (56)	44 (44)	1136 (491-2331)		
Overall	137 (61,99)	84 (38,1)	491 (355-794)		
CMV Disease					
Present (n:18)	14 (77,78)	4 (22,2)	216 (133-562)	1,79 (0,91-3,51)	0,09
Absent (n:203)	123 (60,59)	80 (39,41)	525 (394-1136)		
BKV-HC					
Present (n:17)	16 (94,12)	1 (5,8)	133 (104-214)	3,94 (1,83-8,45)	**0,004**
Absent (n:204)	121 (59,31)	83 (40,69)	538 (404-1420)		

CONCLUSIONS

The study findings demonstrate that the development of CMV infection and BKV-HC after allo-SCT is associated with decreased overall survival. Therefore, close monitoring for CMV infection and appropriate prophylaxis can help reduce the incidence of CMV infection and improve survival outcomes. Additionally, effective treatments for BKV-HC may contribute to improved survival in allo-SCT patients. These results emphasize the importance of implementing preventive strategies and targeted interventions to mitigate infectious complications and improve overall survival in allo-SCT recipients.

REFERENCES

1. Sahin U, Toprak SK, Atilla PA, Atilla E, Demirer T. An overview of infectious complications after allogeneic hematopoietic stem cell transplantation. Journal of Infection and Chemotherapy. 2016;22(8):505-14.

2. Camargo JF, Komanduri KV. Emerging concepts in cytomegalovirus infection following hematopoietic stem cell transplantation. Hematology/Oncology and Stem Cell Therapy. 2017;10(4):233-8.

3. Teira P, Battiwalla M, Ramanathan M, Barrett AJ, Ahn KW, Chen M, et al. Early cytomegalovirus reactivation remains associated with increased transplant-related mortality in the current era: a CIBMTR analysis. Blood. 2016;127(20):2427-38.

4. Atilla E, Ateş C, Uslu A, Ataca Atilla P, Dolapçı I, Tekeli A, et al. Prospective Analysis of Hemorrhagic Cystitis and BK Viremia in Allogeneic Hematopoietic Stem Cell Transplantation. Turk J Haematol. 2020;37(3):186-92.

CONTACT INFORMATION

Email: drbarisgezici@gmail.com