Supplement to

Blood Cell Therapy
The official journal of APBMT

ABSTRACTS

from the 29th Annual Congress of APBMT

October 10 – 13, 2024

Singapore

Hybrid

CONTENTS

1. Impact of Covid-19 Pandemic on Blood Supply: A Comparative Cross-sectional Study of the Pre-pandemic and Pandemic Era

2. DEK-NUP214 Monitoring of Acute Myeloid Leukemia before and after Allogeneic Haematopoietic Stem Cell Transplantation: A Report from the Trophy Study Group

3. Comparative Outcomes of Related and Unrelated Donor Transplants for Beta-thalassemia Major: A Single Centre Experience

4. Development of Leaflets for Patient Education on Return to Work after Allogeneic Hematopoietic Cell Transplantation

5. Four Tandem Autologous Stem Cell Transplantation for Gestational Trophoblastic Neoplasm Refractory to Multiple Lines of Therapy – A Dernier Ressort

6. Letermovir Primary Prophylaxis in Preventing Cytomegalovirus (CMV) Reactivation in Ex-vivo TCRαβ-Depleted Haploidentical Allogeneic Haematopoietic Cell Transplantation with Memory T Cell Add-Back

7. Desensitisation Treatment For HLA-Donor Specific Antibodies In Ex-vivo T Cell Depleted Haploidentical Allogeneic Haematopoietic Stem Cell Transplantation – A Multi-centre Retrospective Study in Singapore

8. Cost-Effectiveness and Budget Impact Analyses of Axicabtagene Ciloleucel as Second-line Therapy in Patients with Large B-cell Lymphoma in Singapore

9. Use of Peripherally Inserted Central Venous Catheters (PICCs) in Children Receiving Autologous or Allogenic Stem-cell Transplantation and Chemotherapy

10. Vedolizumab in Steroid Refractory Acute Gastrointestinal Graft-versus-host Disease in Children

11. 8 Years of Unrelated Hematopoietic Cells Searching Program Between Blood Transfusion Hematology Hospital - Vietnam and Buddhist Tzu Chi Stem Cells Center – Taiwan

12. Development and Validation of a Liquid Chromatography Tandem Mass Spectrometry-

based Assay to Facilitate Busulfan Therapeutic Drug Monitoring in Adult Patients Undergoing Allogenic Hematopoietic Stem Cell Transplantation Treatment

13. Comparation of Fresh and Cryopreserved Allogenic Hematopoietic Stem Cell Transplantation Outcome from Unrelated Donors in Pediatric Patients: A Single Center Experience

14. The Outcome of Intravenous Mesenchymal Stem Cell Therapy against Chronic Graft-versus-host Disease of Pediatrics

15. Evaluation of The Prevalence and Risk Factors of Hemorrhagic Cystitis in Pediatric Immunodeficiency Patients Following Hematopoietic Stem Cell Transplantation

16. Factors Contributing to Challenges in Hematopoietic Stem Cell Transplantation Nursing and Considerations for Necessary Nursing Education

17. Impact of Post-transplant Cyclophosphamide (PTCy), Anti-thymocyte Globulin Combined with PTCy, PTCy Dose, and HLA Disparity on Development of Infectious Complications and Infection-related Mortality

18. Safety and Efficacy of Generic Propylene Glycol Free Melphalan as Conditioning Chemotherapy for Autologous Stem Cell Transplant in Multiple Myeloma – A Single Center Experience from a Tertiary Care Hospital in Southern India

19. Long-term Outcome of the Second Allogeneic Hematopoietic Stem Cell Transplantation in Hematological Malignancies with Reduced Toxicity Conditioning and Donor Change

20. Secondary Salvage Allogeneic Hematopoietic Stem Cell Transplantation（allo-HSCT） in Relapsed and Refractory AML

21. Assessment of Patient Reported Symptom Burden and Impact on Daily Activities in Graft-versus-host Disease Patients

22. Incidence and Predictive Factors for the Development of Adverse Reactions during Peripheral Blood Stem Cells Apheresis

23. Nurses Attitude towards Caring for Patients during End of Life at a Tertiary Cancer Care Centre: A Cross Sectional Survey

24. Transplanter's Agony: A Case Series of Melphalan-associated Encephalopathy Following Conditioning Chemotherapy for Plasma Cell Dyscrasia

25. Haploidentical Peripheral Blood Stem Cell Transplant with Fludarabine – Myeloablative Total Body Irradiation (TBI) as Conditioning Regimen with Post-Transplant Cyclophosphamide (PTCy) – A Single Centre Real World Experience

26. Brentuximab Vedotin Plus Cisplatin, Cytarabine, and Dexamethasone in Patients with Relapsed or Refractory Hodgkin's Lymphoma who are Eligible for Transplant

27. Nursing Experience of Acute Lymphoblastic Leukemia Receiving CAR-T Cell Therapy with Cytokine Release Syndrome

28. Efficacy and Toxicity For CD7 Chimeric Antigen Receptor T-cell Therapy In Patients with Relapsed/Refractory T-cell Lymphoma

29. Reducing Waiting Time for Therapeutic Plasma Exchange Procedure for Patients in Specialized Care Units: A Quality Improvement Project

30. Lymphocyte Recovery and the Risk of Viral Reactivation in Children Post Allogeneic Hematopoietic Stem Cell Transplantation: Single Centre Experience

31. Outcomes of 1-day Non-myeloablative Salvage Regimen for Paediatric Patients with Graft Failure Following T-Cell Depleted Haploidentical Haematopoietic Stem Cell Transplantation in Hong Kong

32. Lineage-Specific Chimerism Monitoring Using Flow Cytometry with Anti HLA-antibodies in Haploidentical Haematopoietic Stem Cell Transplantation

33. A Retrospective Multi-centre Analysis of the Efficacy and Tolerability of ASCT for the Treatment of PCNSL

34. Combination of Low Dose Anti-Thymocyte Globulin (ATG) and Reduced Dose Post

Transplant Cyclophosphamide (PTCy), for Haploidentical Stem Cell Transplant in Acute Leukemia : A Single Center Retrospective Study

35. Low-dose CD22 Monoclonal Antibody Bridging to Allogeneic Hematopoietic Stem Cell Transplantation for Acute B Lymphoblastic Leukemia in non-remission or Minimal Residual Disease Positive after CD19 or CD22 CART-cell Therapy

36. Poor Graft Function Following Autologous Stem Cell Transplant: A Retrospective Review

37. Implementation of Use of Peripherally Inserted Central Catheter (PICC) for the Administration of Peripheral Blood Stem Cells (PBSC) in all Patients Receiving Hematopoietic Stem Cell Transplantation (HSCT): A Quality and Safety Improvement Project by the N

38. Pilot Study of Efficacy of Romiplostim in Post-Transplant Settings to Hasten Platelet Recovery

39. Establishment of the First Government-funded Paediatric Allogeneic Stem Cell Transplant Unit in Sri Lanka

40. Safety and Efficacy of Allogeneic Hematopoietic Stem Cell Transplantation with Teniposide Containing Conditioning in Patients of Hematologic Malignancies with Extramedullary Diseases

41. Incidence, Risk Factors and Clinical Consequences of Oral Mucositis in Hematopoietic Stem Cell Transplant (HSCT) Recipients

42. Evaluation of WBC and Neutrophils Fluctuations in Adult Intensive Care Unit Patients without Steroid Or G-CSF Treatment: A Single Center Study in Korea

43. EASIX Score Predicts Overall Survival and Non-Relapse Mortality in Elderly Patients Undergoing Haploidentical Allogeneic Hematopoietic Stem Cell Transplantation

44. Outcomes of Allogeneic Stem Cell Transplantation in Relapsed/Refractory Classical Hodgkin Lymphoma Using Reduced Intensity Conditioning Regimens

45. The Outcome of CAR-T Therapy for Central Nervous System Lymphoma Following Failed Autologous Hematopoietic Stem Cell Transplantation

46. Pre-Emptive CMV-EBV Bi-Specific Cytotoxicity T Cell Therapy in Children Undergone Allogeneic Hematopoietic Stem Cell Transplantation – A Perspective Study

47. Therapeutic Drug Monitoring of Busulfan as a Determinant of Sinusoidal Obstruction Syndrome in Pediatric Hematopoietic Stem Cell Transplantation

48. Nursing Experience of a Severe AML Patient with Secondary HSCT Skin Infection Caused by Fusarium

49. Efficacy of Bispecific Antibodies and Autologous Hematopoietic Stem Cell Transplantation in Relapsed/Refractory Diffuse Large B-cell Lymphoma: A Systematic Review and Meta-analysis

50. Growth Differentiation Factor 15 (GDF-15) Levels in Patients with Transfusion-Dependent Thalassemia

51. Quality of Life (QoL) in Patients with Graft Versus Host Disease (GVHD) Post Allogeneic Hematopoietic Stem Cell Transplant (HSCT), Department of Hematology, CMC, Vellore

52. Perception of Patients in Relation to Her/His Experiences in Bone Marrow Transplant Unit (BMTU)

53. Current Trends and Outcomes of Autologous Hematopoietic Stem Cell Transplantation for Multiple Myeloma in Mongolia

54. Maintenance Therapy with Brentuximab after an Allogeneic Transplant for Relapsed Hodgkin's Lymphoma Post Autologous Transplant

55. Pyoderma Gangrenosum Complicated by Non-Pseudomonal Ecthyma Gangrenosum Caused by Escherichia Coli in a Patient with Myelodysplastic Syndrome Treated with Intravenous Antibiotics and Allogeneic Hematopoietic Stem Cell Transplantation

56. Real-World Data of Defibrotide for Treatment of Adult Patients who Developed Severe

Hepatic VOD/SOS after Allogeneic Hematopoietic Cell Transplantation

57. Haplo-identical Hematopoietic Cell Transplantation in Older Adults with Acute Myeloid Leukemia and Myelodysplastic Syndrome in Korea

58. A Successful Two Case Childhood Beta-Thalassemia Major in Indonesia's First Pediatric Hematopoietic Stem Cell Transplantation Unit: A Case Report

59. Hematopoietic Stem Cell Transplantation (HSCT) for Hemoglobinopathies

60. Optimization for Stem Cell Transplant through a Patient Centered Care (PCC) Multidisciplinary Team (MDT) Prehabilitation Approach: Case Report of a Multiple Myeloma Patient with Paraplegia from Spinal Cord Disease

61. A Formula Using Day 4 Parameters to Predict Next-day Peripheral Blood Stem Cell Yield in Healthy Haematopoietic Stem Cell Donors

62. Fluorescence in situ Hybridization (FISH) Analysis on Bone Core Specimens Detects Disease Relapse in Myeloid Malignancies with Fibrosis

63. Asciminib, Ponatinib, and Prednisone for the Treatment of Relapsed/Refractory Acute Lymphoblastic Leukemia

64. Non-Hodgkin Lymphoma Evolving into Lymphoblastic Lymphoma in a 40-year-old Woman: A Rare Case with Poor Prognosis

65. Barriers to Care of Pediatric Hematopoietic Stem Cell Transplantation in a Tertiary Government-run Hospital in the State of Karnataka, India

66. Generic Health-related Quality of Life Among Patients who Received Hematopoietic Stem Cell Transplantation during Childhood: A Meta-analysis of Observational Studies

67. Prospective, Single-arm Clinical Trial of Prevention of Severe Acute Graft-versus-host Disease after Adult Patients Receiving Allogeneic Hematopoietic Stem Cell Transplantation Using- a Machine Learning Model - The daGOAT Model

68. The Efficacy and Safety of Ixazomib for Multiple Myeloma: A Systematic Review

69. Examine the Prognostic Value of Geriatric Features in Allogeneic Hematopoietic Stem Cell Transplant Recipients Aged over 60 Years

70. Extramedullary Acute Myeloid Leukemia among Filipino Female Hematopoietic Stem Cell Transplant Patients: A Case Series

71. Hematopoietic Stem Cell Transplant as a Cure for Glucose 6 Phosphate Isomerase Deficiency in Siblings - Case Report from a Tertiary Care Centre in India

72. Durable Remission Achieved in Pediatric Patients with TCF3-HLF Positive R/R B-ALL by Dual CD19 and CD22-Targeted CAR-T Therapy

73. Five-year Study of Environmental Bacterial Sepsis in Children Undergoing Hematopoietic Stem Cell Transplantation

74. The Impact of Plasma Exchange for Donor Specific Antibodies in Children Undergoing Haploidentical Hematopoietic Stem Cell Transplantation for Thalassemia Major – What should Nurses Know

75. Infusion of ABO Incompatible Stem Cells – The Role of Nursing Team

76. Survival Analysis of Patients Given First Autologous Stem Cell Transplantation in Hematologic Malignancies: A Single Center 10 Years Experience

77. Chemical Stability and Sterility Of Plerifor® (Plerixafor) Solution for Injection after Opening Single-Use Vial

78. Efficacy of Modified Melphalan and Busulfan-based Conditioning Regimen for ASCT in Patients with Low- or Intermediate-risk AML

79. Safety and Efficacy of Sodium Nitroprusside Infusion for Hypertensive Emergencies in Children Undergoing Hematopoietic Stem Cell Transplantation – Old Wine in a New Bottle

80. Subcutaneous Daratumumab in the Treatment of Pure Red-cell Aplasia Post ABO-

mismatched Allogenic Haematopoietic Stem Cell Transplant: A Case Report

81. Comparative Efficacy and Safety of Lenograstim Versus Filgrastim for Hematopoietic Stem Cell Mobilization in Autologous Hematopoietic Stem Cell Transplantation: A Systematic Review

82. Donor-recipient Weight Ratio as a Predictor for Stem Cell Yield in Peripheral Blood Stem Cell Collection

83. In the Blink of an Eye - Bell's Palsy as an Initial Presentation of CNS Relapse of T-Cell ALL – A Case Report

84. Bifidobacterium Quadruple Viable Tablets Combined with Bacillus Coagulans Tablets for Graft-versus-host Disease Prophylaxis in Allogenic Hematopoietic Stem Cell Transplantation

85. Treosulfan, Thiotepa, Fludarabine Based Reduced Toxicity Conditioning Regimen in Children with High Risk Thalassemia Major - Report from a Tertiary Care Center in India

86. Low Dose Post Transplant Cyclophosphamide as GVHD Prophylaxis for Matched Unrelated Donor Allogeneic Hematopoietic Stem Cell Transplants in Children

87. Favourable Outcomes of Allogeneic Stem Cell Transplants in Chronic Myeloid Leukaemia: Data from a Tertiary Care Cancer Centre in India

88. Allogeneic Stem-cell Transplantation Following Chimeric Antigen Receptor T-cell For the Treatment of Relapsed/Refractory Hematologic Malignancy in Pediatrics and Young Adults: A Systematic Review and Meta-analysis of Clinical Studies

89. An Observational Study on the Variability of Nutritional Status and its Impact on Transplant Outcomes in Patients Undergoing Hematopoietic Stem Cell Transplant

90. Donor Factors Affecting Outcomes of PTCy Based T Cell Replete Haploidentical Transplants: A Single Centre Experience from India

91. Efficacy and Safety of Blinatumomab as Maintenance Therapy in Patients with High-risk B-

lineage Acute Lymphoblastic Leukemia Post Allogeneic Hematopoietic Cell Transplantation

92. Molecular Profiling of an Acute Myeloid Leukaemia Transplantation Cohort in the Era of Next-generation Sequencing

93. Korean Real-World Experience of Blinatumomab for 8 Years Regarding Predictive Factors including Lymphocyte Kinetics for Response and Survival Outcome in Adult Patients with Relapsed or Refractory Acute Lymphoblastic Leukemia

94. Etiology of Diarrhea in Patients Undergoing Colonoscopic Biopsies Post Allogeneic Hematopoietic Stem Cell Transplant for Suspected Acute Gut Graft-versus-host Disease

95. Graft Rejection and Failure after Allogeneic Peripheral Blood Hematopoietic Stem Cell Transplant among Patients in a Tertiary Hospital in the Philippines: A Case Series

96. Allogeneic Peripheral Blood Stem Cell Transplantation Outcomes Among Adult Filipino Patients with Myelofibrosis: A Case Series and Review of Literature

97. 42 Patients with Hemorrhagic Cystitis after Allogeneic Hematopoietic Stem Cell Transplantation Undergoing Continuous Bladder Irrigation Nursing Care

98. Bone Marrow Transplant in Relapsed Diffuse Large B-cell Lymphoma (DLBCL) at an Uncommon Site in a 50-Year-Old Woman

99. A 5-year Retrospective Analysis of the Use of Extracorporeal Photopheresis (ECP) via UVA-PIT in Treating Graft-versus-host Disease (GVHD) in Singapore General Hospital (SGH) Apheresis Unit

100. TCRαβ-Depleted Haplo-HSCT Following CAR-T Therapy Improves GVHD-free/Relapse-free Survival in Pediatric R/R-ALL

101. GvHD Prophylaxis with PTCy after Matched Sibling Allogeneic Stem Cell Transplant, Case Series from Evercare Hospital Dhaka, Bangladesh

102. Allogeneic Peripheral Blood Stem Cell Transplantation for Myeloid Sarcoma: A Single-

center Experience

103. Modified GIAC Strategy for Haploidentical BMT: A Preliminary Experience from IRCH, AIIMS

104. Gut Microbiota Profiling in Allogenic Hematopoietic Stem Cell Transplantation and Prediction of Acute Gastrointestinal GVHD from a Tertiary Care Centre in North India

105. Feasibility and Safety of Prophylactic CD45RA-Depleted Donor Lymphocyte Infusion in Recipients of TCRαβ+ Depleted Haploidentical Grafts

106. Procalcitonin is Superior to CRP in Predicting Bacteraemia and Mortality in Neutropenic Fever in Patients with Haematological Malignancies

107. A Single Centre Experience on Clinical Outcomes of Hematopoietic Stem Cell Transplant in Acute Myeloid Leukemia Patients

108. Optimization of Pre-transplant Conditioning for Haploidentical Donor Transplantation in Adult Acute Lymphoblastic Leukemia: Interim Phase 2 Results of TBI-augmented Reduced Toxicity Regimen Incorporating ATG/PTCy

109. Outcome Analysis of High-risk Neuroblastoma Post Autologous Stem Cell Transplant in a Newly Set Pediatric Transplant Centre, Bengaluru, South India

110. Comparison between Thiotepa-Treosulfan and Thiotepa-Busulfan Based Conditioning Regimes Prior to Allogeneic Haematopoetic Stem Cell Transplant in Adults with Haematological Malignancies

111. Flumatinib Maintenance after Hematopoietic Stem Cell Transplantation for Patients with Philadelphia Chromosome-Positive Acute Lymphoblastic Leukemia

112. Unraveling Thrombocytopenia after Autologus Stem Cell Transplantation in Multiple Myeloma: A Case Report

113. Twenty-Year Outcome Study on Hematopoietic Stem Cell Transplantation in Childhood Acute Lymphoblastic Leukemia: A Single-centre Study from India

114. Twenty-Year Outcome Study on Hematopoietic Stem Cell Transplantation in Childhood Acute Myeloid Leukemia: A Single-Center Study from India

115. Treosulfan Associated Knock Knees in Children Post Hematopoietic Stem Cell Transplantation – Report from a 15 Year Follow Up Study

116. Second Primary Malignancies Post Autologous Stem-Cell Transplant in Multiple Myeloma from India – Knowing the Unknown

117. SingHealth Hematopoietic Stem Cell Transplant Course for Nurses

118. Study on Comprehensive Medical Evaluation of Unrelated Blood Stem Cell Donors Prior to Donation

119. Impact of Children Stress Level towards Quality of Life of Children with Acute Lymphoblastic Leukemia (ALL)

120. Partially Replacing the Post Transplant Cyclophsophamide with Bendamustin in Haploidentical Stem Cell Transplantation – in Children - Tertiary Care Experience

121. Outcomes after Allogeneic Hematopoietic Stem Cell Transplantation In FLT3-ITD Mutated Acute Myeloid Leukemia Patients Treated with Gilteritinib

The tables and figures attached at the time of submission have been deleted due to space limitations.

Abstract ID:
A-102

Impact of Covid-19 Pandemic on Blood Supply: A Comparative Cross-sectional Study of the Pre-pandemic and Pandemic Era

Dr Johnmerson Yap, Department of Pathology and Laboratories, Southern Philippines Medical Center, Philippines
Ma. Theresa Fedoc-Minguito, Department of Pathology and Laboratories, Southern Philippines Medical Center, Philippines

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Background: The emergence of the COVID-19 pandemic has posed unprecedented challenges to healthcare systems worldwide. Among its various impacts, concerns have been raised regarding the potential effects on blood supply and availability, which are critical for maintaining essential medical services. This study aims to investigate the impact of COVID-19 on the blood supply in Davao City, Philippines.

Aims: This study aimed to determine the impact made by the pandemic of COVID-19 on blood supply. This study sought to fill in any information gap and lead to the understanding of the importance of availability of blood products to clients of Davao Blood Center and Philippine Red Cross – Davao City Chapter.

Methods: Data from two institutions in the study area for the period 2019 to 2021 on blood donation and supply have been collected. To evaluate trends, the overall number of blood donors and the quantities of various types of blood components in whole blood, packed red blood cells (PRBCs), fresh frozen plasma (FFPs) and platelet concentrate have been compared between pre-pandemic, pandemic periods and as restrictions eased.

Results: When comparing 2021 to 2019, there was a substantial decrease of 51.6% in the number of blood donors. Prior to the pandemic, 2019 had the highest number of donors, followed by 2021, and 2020. The trend in whole blood supply showed a continuous decrease during these years. The supply of PRBCs decreased by 27.1% from 2019 to 2021. The number of

FFPs decreased by 113.6% from 2019 to 2021. In contrast, platelet concentrate supply declined by 34.9% from 2019 to 2020, but and a 10.7% increase from 2020 to 2021.

Summary / Conclusions: The results demonstrate that during the COVID19 pandemic, there was a major reduction in donation and supply of blood. The challenges faced by blood banks in ensuring a stable and sufficient blood supply are highlighted by the decrease in the number of donors and by the different trends in the supply of blood components. The targeted efforts to promote blood donation and enhance the resilience of the blood supply during and after the pandemic is important.

Abstract ID:
A-105

DEK-NUP214 Monitoring of Acute Myeloid Leukemia before and after Allogeneic Haematopoietic Stem Cell Transplantation: A Report from the Trophy Study Group

Dr Shuang Fan, Department of Hematology, Peking University People's Hospital, Peking University Institute of Hematology, National Clinical Research Center for Hematologic Disease, China
Yang Yang, Department of Hematology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, China
Shengye Lu, Department of Hematology, Peking University People's Hospital, Peking University Institute of Hematology, National Clinical Research Center for Hematologic Disease, China
Jiayu Huang, Department of Hematology, Shanghai Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, China
Xiaosu Zhao, Department of Hematology, Peking University People's Hospital, Peking University Institute of Hematology, National Clinical Research Center for Hematologic Disease, China
Yang Cao, Department of Hematology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, China
Xiaodong Mo, Department of Hematology, Peking University People's Hospital, Peking University Institute of Hematology, National Clinical Research Center for Hematologic Disease, China
Xiaoxia Hu, Department of Hematology, Shanghai Ruijin Hospital, Shanghai Jiao Tong University School of Medicine, China

Category: Acute Leukemia

Abstract Content:

Aims

Acute myeloid leukaemia (AML) with the translocation of chromosome (6;9)(p23;q34) forming the DEK-NUP214 fusion mRNA is a rare subtype (~1%). Owing to the paucity of this AML subtype, comprehensive studies analysing allogeneic haematopoietic stem cell transplantation (allo-HSCT) outcomes are lacking. Thus, in thisretrospective, multicentre study, we aimed to evaluate the dynamic evolution of *DEK-NUP214* transcripts before and after allo-HSCT as well as the impact of pretransplant *DEK-NUP214* status on posttransplantoutcomes in AML patients.

Methods

This is a multicenter, retrospective study. Consecutive patients with AML and *DEK-NUP214* fusion receiving allo-HSCT at Institute of Haematology

(i,e, TROPHY group) between March 2016 and April 2021 were enrolled. Intermediate- or high-risk AML patients without *DEK-NUP214*fusion receiving allo-HSCT during the same time period were enrolled as controls andpropensity-matched (1:3) to those with *DEK-NUP214* fusion using the nearest-neighbour method and a 2% calliper. Age, sex, donor type, and disease status were matched by propensity scores. We aimed to evaluate the dynamic evolution of *DEK-NUP214* transcriptsbefore and after allo-HSCT as well as the impact of pretransplant *DEK-NUP214* status on posttransplantoutcomes in AML patients.

Results

Fourteen patients were enrolled in the study. The distribution of other molecular abnormalities is shown in Figure 1A-B. Intermediate- or high-risk AML patients without *DEK-NUP214* transcriptsreceiving allo-HSCT during the same time period were enrolled as controls. Ten (71.4%) patients showed *DEK-NUP214* positivity before allo-HSCT. Except for one patient who died early after allo-HSCT, 7 out of the other 9 patients (77.8%) achieved *DEK-NUP214* negativity after allo-HSCT. The 2-year probabilitiesof relapse, non-relapsemortality (NRM), leukaemia-free survival (LFS), and overall survival (OS) were 14.3% (95% CI, 0%–33.6%) (Figure 2A), 35.7% (95% CI, 9.3%–62.1%) (Figure 2B), 50.0% (95% CI, 29.6%–84.4%) (Figure 2C), and 50.0% (95% CI, 29.6%–84.4%) (Figure 2D), respectively.The incidence of relapse was comparable between AML patients with and without *DEK-NUP214*transcript (Figure 3A), but the incidence of NRM, LFS, and OS of patients with *DEK-NUP214* was poorer compared with those without *DEK-NUP214*transcript (Figure 3B-D).

Conclusions

Thus, our study demonstrated that allo-HSCT can overcome the poor prognosis associated with persistent *DEK-NUP214* positivity after chemotherapy in patients with AML. However, the posttransplant outcomes of AML patients with *DEK-NUP214*transcripts were poorer than those of patients without *DEK-NUP214* transcript. Future studies should identify better therapeutic strategies to improve the clinical outcomes of *DEK-NUP214*subtype in AML.

Abstract ID:
A-107

Comparative Outcomes of Related and Unrelated Donor Transplants for Beta-thalassemia Major: A Single Centre Experience

Dr Manasi Gupta, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Pavitra DS, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Vijay Chaudhary, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Wesley Joyal, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Kashika Vats, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Sohan Singh, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Aleena Austin, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
M Joseph John, Department of Clinical Haematology, Christian Medical College, Ludhiana, India

Category: Hemoglobinopathies, Primary Immune Deficiency, and Metabolic Disorders

Abstract Content:

Aims

India has one of the highest number of thalassemia major (TM) patients in the world. Hematopoietic stem cell transplantation (HSCT) remains the only curative treatment in these patients. A matched sibling or a related donor is usually found in only 25%-30% of the patients. Therefore, the present study aims to compare the outcomes of matched unrelated donor (MUD) transplants to matched related donor (MRD) transplants.

Methods

We reviewed transplant outcomes in 99 patients with TM. Seventy-one patients underwent MRD-HSCT and 28 underwent MUD-HSCT. Conditioning regimen used was Fludarabine, Treosulfan and Thiotepa with or without Anti-thymocyte globulin in majority of the patients (97%). Peripheral blood stem cells (PBSC) were the preferred (85%) source of stem cells.

Results

The age at the time of transplant ranged between 1-18 years with a median age of 8 years. Majority of the transplant recipients were males (64.6%) and Lucarelli Class III (66.7%). (Table 1)
MUD transplants were associated with a higher incidence of acute GVHD (60.7% vs 19.7%). However, the incidence of chronic GVHD was similar in the 2 groups (28.6% in MUD vs 22.5% in MRD). OS for the study group was 86.9%. Graft rejection was seen in 4 cases with 3 in MUD transplants. Mortality was seen in 7 MRD transplants (9.9%) and 6 MUD transplants (21.4%). The most common cause of mortality was sepsis (61.5%). Median duration of follow up for the study group was 6 years. EFS at 10 years was 89.6% in MRD group and 64.9% in MUD group (p value: 0.008). OS was 88.7% in MRD group and 75% in MUD group (p value:0.077). (Figure 1)

Conclusion

In the absence of a suitable related donor, MUD HSCT offers a favourable long-term outcome in thalassemia patients with similar incidence of chronic GVHD and comparable OS.

Abstract ID:
A-109

Development of Leaflets for Patient Education on Return to Work after Allogeneic Hematopoietic Cell Transplantation

Dr Saiko Kurosawa, Department of Oncology, Ina Central Hospital, Japan
Takuhiro Yamaguchi, Department of Division of Biostatistics, Tohoku University Graduate School of Medicine, Japan
Ayako Mori, Department of Nursing Division, National Cancer Center Hospital, Japan
Tomoko Matsuura, Department of Nursing Division, Fukuoka National Hospital, Japan
Yukio Kondo, Department of Hematology, Toyama Prefectural Central Hospital, Japan
Keiji Ozaki , Department of Hematology, Tokushima Red Cross Hospital, Japan
Yukihiro Miyazaki, Department of Hematology, Clinical Immunology and Infectious Diseases, Ehime University Graduate School of Medicine, Japan
Hitoji Uchiyama, Department of Hematology, Japanese Red Cross Kyoto Daiichi Hospital, Japan
Osamu Imataki, Department of Division of Hematology, Kagawa University Hospital, Japan
Tatsuyuki Kai , Department of Hematology, Kita-Fukushima Medical Center, Japan
Hiroyuki Sugahara, Department of Hematology, Sumitomo Hospital, Japan
Fumihiko Kimura, Department of Division of Hematology, National Defense Medical College, Japan
Norimitsu Saitoh, Department of Hematology, Otemae Hospital, Japan
Toshiyuki Kitano, Department of Hematology, Medical Research Institute Kitano Hospital, Japan
Katsuji Kaida, Department of Hematology, Hyogo Medical University Hospital, Japan
Naonori Harada, Department of Hematology, Fuchu Hospital, Japan
Takashi Akasaka, Department of Hematology, Tenri Hospital, Japan
Mai Watanabe, Department of Hematology, Tsukuba Memorial Hospital, Japan
Takahiro Karasuno, Department of Hematology, Rinku General Medical Center, Japan
Takahiro Fukuda, Department of Hematopoietic Stem Cell Transplantation, National Cancer Center Hospital, Japan

Category: Quality of Life / Survivorship

Abstract Content:

Introduction

Allogeneic hematopoietic cell transplantation (allo-HCT) survivors are young, and they have high probabilities of cure, which translates into a high potential for social reintegration. However, allo-HCT survivors have several factors that affect their ability to work, including immuno-compromised status, and chronic graft-versus-host disease (GVHD). To deliver

information on return to work (RTW) after allo-HCT, we created easy-to-use leaflets based on the results of a nationwide study.

Methods

We conducted a nationwide cross-sectional questionnaire survey in 1,048 allo-HCT survivors aged 20–64 at survey who survived ≥ 2 years without relapse. We determined rates of resignation, RTW, recurrent leave after RTW, and their associated factors, as well as the impacts of chronic symptoms on jobs (J Cancer Surviv. 2022, J Cancer Surviv. 2023, J JSTCT 2022). Based on these results, we created educational leaflets as a nationwide, standardized, long-term follow-up (LTFU) tool after allo-HCT. The leaflets were initially drafted by the primary investigator (S.K.), then reviewed by industry physicians, medical social workers, and cancer survivors, as well as HCT physicians and nurses.

Results

To deliver necessary information at each proper timing, we created separate leaflets for three different time points: “At Diagnosis,” “Before HCT,” and “After HCT.” The first leaflet (“At Diagnosis”) stated that work-related issues should be discussed with medical staff, and introduced support available from consultation services at medical institutions and workplaces. The second leaflet (“Before HCT”) specified the probabilities of RTW and characteristic chronic symptoms after HCT, and described multi-sectoral job-related support after HCT. The third leaflet (“After HCT”) introduced public support systems for RTW and job seeking, and informed patients that continuous support from workplaces, LTFU clinics, and job-assistance departments may facilitate RTW.

Conclusions

We developed educational leaflets on RTW after allo-HCT and made them available for free download from the Japanese Society for Transplantation and Cellular Therapy website (https://www.jstct.or.jp/modules/facility/index.php?content_id=37#04). Promotion of these leaflets and further education of healthcare professionals who engage in job assistance are warranted to facilitate pre- and post-HCT job-related support.

Abstract ID:
A-110

Four Tandem Autologous Stem Cell Transplantation for Gestational Trophoblastic Neoplasm Refractory to Multiple Lines of Therapy – A Dernier Ressort

Dr Jayachandran Perumal Kalaiyarasi, Department of Medical Oncology, Cancer Institute (WIA), India
Navya Manasa Vruthi, Department of Medical Oncology, Cancer Institute (WIA), India
Krithivasan Venkitraman, Department of Medical Oncology, Cancer Institute (WIA), India
Gangothri Selvarajan, Department of Medical Oncology, Cancer Institute (WIA), India
Deepa Devi, Department of Blood Transfusion and Apheresis, Cancer Institute (WIA), India
Parathan Karunakaran, Department of Medical Oncology, Cancer Institute (WIA), India
Krishnarathinam Kannan, Department of Medical Oncology, Cancer Institute (WIA), India

Category: Conditioning Regimens

Abstract Content:

INTRODUCTION: Patients with multiline-refractory gestational trophoblastic neoplasms (GTN) have a dismal prognosis. Autologous stem cell transplantation (ASCT) has been recommended as an off-label option. The optimal number of ASCT is unclear. Here we present a case report of an ultra-high-risk GTN patient (Failure after three lines including Pembrolizumab) who achieved a durable remission after four tandem ASCTs.

CASE REPORT: Twenty-four-year-old female was diagnosed with ultra high-risk GTN (WHO-score: 12). Serum HCG (HCG) was 716733mIU/ml at diagnosis. She received 1st line EMA-CO* followed by 2nd line TIP** as per standard protocol and was still refractory with plateaued Sr.HCG. With this background, she presented to our centre. She received 2 cycles of off-label Pembrolizumab and had a progression (HCG: 4578mIU/ml to 19039mIU/ml). After extensive MDT discussion, she was considered for ASCT. The GCSF-based mobilization (G-Mob) was done before 1st and 3rd ASCT. Extrapolating from the testicular cancer-choriocarcinoma data, High-dose Etoposide–Carboplatin was used as the conditioning chemotherapy. Based on the response to the 1stASCT (HCG – 105757mIU/ml to 3580mIU/ml), we planned for tandem ASCT. Based on the logarithmic responses of HCG (Figure 1) after each transplant, the

patient underwent four tandem ASCTs (Dec 2022-March 2023). The patient did not have any grade III-IV non-haematologic toxicities.
As of Apr 2024, the patient continues to be in remission with a Sr.HCG value of 0.6 mIu/ml. The patient has resumed her menstrual cycles. The cumulative Etoposide dose was 9.8g/m2. The patient is currently under surveillance for long-term toxicities including therapy-related myeloid neoplasms.

CONCLUSION: Long-term disease-free survival is possible with ASCT in refractory choriocarcinoma patients who progressed after standard lines of therapies. Our case is the 1st case reported from South Asia. High Sr.HCG level before ASCT has been identified as a poor prognostic factor pre-ASCT. Despite very high HCG levels, our patient is in remission. This case also signifies that high-dose chemotherapy can overcome the resistance of cancer cells in the context of a non-haematolymphoid malignancy.

*EMA-CO – Etoposide, Methotrexate, Actinomycin-D. Cyclophosphamide, Vincristine (4 cycles)
**TIP – Paclitaxel, Ifosamide, Cisplatin (2 cycles)

Abstract ID:
A-111

Letermovir Primary Prophylaxis in Preventing Cytomegalovirus (CMV) Reactivation in Ex-vivo TCRαβ-Depleted Haploidentical Allogeneic Haematopoietic Cell Transplantation with Memory T Cell Add-Back

Ms Boo Ao Ran, Department of Pharmacy, National University Hospital, Singapore
Koh Liang Piu, Department of Hematology Oncology, National University Cancer Institute, National University Health System,, Singapore

Category: Infectious and Non-infectious complications

Abstract Content:

BACKGROUND
Cytomegalovirus (CMV) is a common cause of morbidity and mortality after allogeneic hematopoietic cell transplantation (HCT), especially with T-cell depleted (TCD) haploidentical HCT (haplo-HCT). Recent phase III study showed that LET (LET) prophylaxis given for first 100 days of HCT reduced clinically significant CMV infections (CS-CMVi) and all-cause mortality as compared to placebo. However, the impact of LET prophylaxis on TCD HCT remains unclear.

METHODS
We retrospectively analysed 75 CMV seropositive patients who received TCRαβ-depleted haplo-HCT with memory T cell add-back between 2017-2023, to compare the outcome of 47 patients who received LET prophylaxis versus 28 patients who were on the standard pre-emptive therapy (PET) approach (no LET prophylaxis).

RESULTS
In the entire cohort, 23 out of 75 patients developed CS-CMVi, at a median onset of 30 days (range, 6-148 days), with a cumulative incidence of 31% (95% CI 21-42) at day 180 post HCT. The primary endpoint of CS-CMVi at day 180 was 15% with LET and 57% without LET ($p < 0.001$). As compared to PET patients, patients given LET prophylaxis had a significantly lower risk of CS-CMVi [15% vs 57%; HR 0.17, 95% CI 0.07-0.41; $p<0.001$], and significantly more delayed onset of CS-CMVi, at the median of 114 days (range, 21-148) for LET vs 29 days (range, 6-45) for PET ($p<0.001$). In the multivariate analysis, GVHD Grade ≥2 incidence (HR 2.47, 95% CI 1.02-6;

p=0.045) and LET use (HR 0.25, 95% CI 0.11-0.63; p=0.0027) were the only significant predictors of CS-CMVi that retained significance. Additionally, patients in the LET group received a shorter duration of CMV treatment for CS-CMVi, with a median of 31 days (range, 7-46), compared to 38 days (range, 10-94) for those without prophylaxis. The secondary endpoints are as follows: LET prophylaxis was associated with significantly lower risk of non-relapse mortality (NRM) (HR 0.28, 95% CI 0.11-0.73; p=0.0091), which was translated into more favourable overall survival (OS) (HR 0.44, 95% CI 0.2-0.95; p=0.038) and event-free survival (EFS) (HR 0.49, 95% CI 0.24-1.01; p=0.054). There was no difference in relapse risk (p=0.63) between the 2 cohorts. Notably, the impact of LET prophylaxis remained significant on OS (p=0.025), EFS (p=0.035) and NRM (p=0.003) in the multivariate analyses.

CONCLUSION

As compared to PET strategy, LET prophylaxis effectively reduced the risk of CMV infection in our high-risk patients undergoing T-cell-depleted haplo-HCT, and was associated with reduced non-relapse mortality and improved overall survival.

Abstract ID:
A-112

Desensitisation Treatment For HLA-Donor Specific Antibodies In Ex-vivo T Cell Depleted Haploidentical Allogeneic Haematopoietic Stem Cell Transplantation – A Multi-centre Retrospective Study in Singapore

Dr Christopher SW Tham, Department of Haematology, Singapore General Hospital, Singapore
Yeh Ching Linn, Department of Haematology, Singapore General Hospital, Singapore
Liang Piu Koh, Department of Haematology, National University Cancer Institute, National University Health System, Singapore
Jeffrey KS Quek, Department of Haematology, Singapore General Hospital, Singapore
Aloysius YL Ho, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lim, Department of Haematology, Singapore General Hospital, Singapore
William YK Hwang, Department of Haematology, Singapore General Hospital, Singapore
Yunxin Chen, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Ng, Department of Haematology, Singapore General Hospital, Singapore
Melinda Tan, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tuy, Department of Haematology, Singapore General Hospital, Singapore
Chieh Hwee Ang, Department of Haematology, Singapore General Hospital, Singapore
Yeow Tee Goh, Department of Haematology, Singapore General Hospital, Singapore
Jing Jing Lee, Department of Haematology, Singapore General Hospital, Singapore
Hein Than, Department of Haematology, Singapore General Hospital, Singapore

Category: Conditioning Regimens

Abstract Content:

Aims

Haploidentical haematopoietic stem cell transplantation (haplo-HCT) involves human leukocyte antigen (HLA) mismatch between donor and recipient. Recipients may have HLA-antibodies, of which some may be donor specific antibodies (DSA) which can negatively impact engraftment. DSA desensitisation methods are routinely used prior to HCT, however data on its efficacy is limited. This study evaluates desensitisation treatment for HLA antibodies in ex-vivo T cell depleted haplo-HCT and assesses the impact of DSA on engraftment.

Methods

This was a multi-centre retrospective analysis assessing consecutive adult patients undergoing ex-vivo T-cell (TCRαβ and CD45RA+) depleted haploidentical HCT (haplo-TCD) from 2017 to 2023 in Singapore. Prior to

transplant, recipient peripheral blood samples were screened for HLA antibodies by flow cytometric assay. Those with a positive screen subsequently underwent solid phase single antigen testing (Luminex) to further characterise HLA antibodies and quantify antibody mean fluorescence intensity (MFI). Only patients with DSA were selected for analysis. Antibody MFI was assessed at baseline and after desensitisation. Clinical data was collected from medical records. Statistical analysis was performed using GraphPad Prism version 10.1.1.

Results

65 patients underwent haplo-TCD during the study period. 11 patients with at least 1 DSA were identified (table 1) – all received desensitisation consisting of 3 sessions of plasma exchange (PE; 1.5-times total plasma volume), 1 dose of intravenous immunoglobulin (IVIg) (1g/kg) and 1 dose of intravenous rituximab (375mg/m2). 2 patients had additional treatment (table 1).

Patients had a median number of 24 (interquartile range; IQR13-37.5) HLA class I and 8 (2-18) class II allele-specific antibodies.
Median MFI at baseline was 6483 (IQR2930-13880) compared to 2308 (IQR0-6991) post-desensitisation ($p<0.0001$). MFI analysis was stratified by >5000 versus <5000, as MFI >5000 is more likely to be clinically significant. Desensitisation led to a significant reduction in both groups (figures 1A and B). A significantly greater proportion of reduction was observed in those with a baseline MFI of <5000 (figure 1C). With a baseline HLA-antibody MFI <5000, median change was 100% (IQR59.3-100), i.e. to an undetectable MFI, compared to a median of 53.1% (IQR35.7-66.1) (MFI baseline>5000).

Donor-specific HLA-antibody MFI at baseline was 5387 (IQR2348-14656) compared to 1559 (IQR0-9478) post-desensitisation ($p<0.0001$). MFI remained above 5000 post-desensitisation in 5 out of 11 patients. 1 of these patients went on to receive a further desensitisation (table 1). Figure 1D illustrates the effect of desensitisation on individual DSA MFI.

Time to engraftment was compared to patients without DSA who underwent haplo-TCD over the same period (n=49). Median time to both neutrophil and platelet engraftment was similar in both groups. For neutrophils, this was 11 (IQR10-18) days (DSA group) and 13 (IQR11-16) days (non-DSA group), ($p = 0.284$). For platelets, this was 12 (IQR11-13)

days (DSA group) and 11 days (IQR10-13) days (non-DSA group), (p = 0.363).

Conclusions

Desensitisation with PE, IVIg and rituximab significantly reduced HLA-antibody MFI. After desensitisation, the presence of DSA did not affect time to engraftment. This data suggests that desensitisation treatment in patients undergoing haplo-TCD is an effective method of overcoming the obstacle of DSA.

Abstract ID:
A-113

Cost-Effectiveness and Budget Impact Analyses of Axicabtagene Ciloleucel as Second-line Therapy in Patients with Large B-cell Lymphoma in Singapore

Dr Francesca Lorraine Lim, Department of Haematology, Singapore General Hospital, Singapore
Diong Tza-Kai, Department of Value & Access, Gilead Sciences Singapore, Singapore
Graeme Ball, Department of Value & Access, Gilead Sciences Canada Inc., Canada
Esther Chan Hian Li, Department of Haematology-Oncology, National University Cancer Institute, Singapore
Mahendra Rai, Department of Health Economics and Outcomes Research, Eversana, Singapore
Jatin Pruthi, Department of Health Economics and Outcomes Research, Eversana, India
Neha Deshpande, Department of Health Economics and Outcomes Research, Eversana, India
William Hwang Ying Khee, Department of Haematology, National Cancer Centre Singapore, Singapore

Category: Cell and Gene Therapy

Abstract Content:

Background

Patients with relapsed or refractory large B-cell lymphoma (R/R LBCL) have limited treatment options and a poor prognosis in Singapore. In the ZUMA-7 randomised controlled trial, axicabtagene ciloleucel (axi-cel) has demonstrated statistically significant clinical improvements over standard-of-care (SOC), defined as second-line platinum-based chemotherapy ideally followed by autologous stem-cell transplantation. However, axi-cel's clinical and economic value to Singapore's multi-payer healthcare system is currently unknown.

Aim

The objective of this analysis is to evaluate the cost-effectiveness and budget impact of treatment with axi-cel compared to the current SOC in patients with LBCL refractory to or relapse within 12 months of first-line (1L) chemoimmunotherapy.

Methods

A mixture-cure partition survival model was developed to evaluate the cost-effectiveness of axi-cel vs SOC and to extrapolate survival outcomes

over a lifetime horizon. Clinical outcomes data were sourced from ZUMA-7 trial. Model outcomes included quality-adjusted life-years (QALYs), costs, and incremental cost-effectiveness ratios (ICERs). Healthcare resource use and direct costs were included for conditioning chemotherapy, hospitalisation, drugs, and management of adverse events. Utility values were sourced from published literature, and a discount rate of 3% was applied to all costs and health outcomes. Parameter uncertainty was accounted for through deterministic and probabilistic sensitivity analyses, and structural uncertainty was tested through scenario analyses.
To evaluate budget impact of introducing axi-cel into Singapore's public healthcare system, a budget impact model (BIM) over a 5-year time horizon was developed.

Results
In the base case analysis over a lifetime horizon, axi-cel generated 8.24 QALYs compared to 6.52 QALYs with SOC at an incremental cost of S$130,433 which resulted in an ICER of S$75,910 per QALY gained. Results were robust to variations in input parameters and probabilistic sensitivity analyses.
Introducing axi-cel to Singapore's public healthcare system for 2L LBCL is expected to increase annual budget impact by ~17% from S$21.7 million (without axi-cel) to S$25.4 million (with axi-cel) in Year 5, during which axi-cel peak usage is expected. The annual budget impact was mitigated by a **reduction of** subsequent treatment-related costs to the healthcare system by S$9.3 million/year from S$17.1 million/year to S$7.8 million/year in Year 5.

Conclusion
Using willingness-to-pay thresholds recommended by World Health Organisation, results of this analysis suggest that axi-cel can be considered a highly cost-effective allocation of resources in Singapore with manageable budget impact compared to SOC in patients with LBCL refractory to or relapsing within 12 months of 1L chemoimmunotherapy.

Abstract ID:
A-114

Use of Peripherally Inserted Central Venous Catheters (PICCs) in Children Receiving Autologous or Allogenic Stem-cell Transplantation and Chemotherapy

Ms Sabrina Alberti, Department of Oncohematology and BMT Unit, Children's Hospital, Asst Spedali Civili Di Brescia, Italy
Giorgia Egle Pagani, Department of Oncohematology and BMT Unit, Children's Hospital, Asst Spedali Civili Di Brescia, Italy
Lucia Laratta, Department of Nursing Management, Children's Hospital, Asst Spedali Civili Di Brescia, Italy
Fulvio Porta, Department of Oncohematology and BMT Unit, Children's Hospital, Asst Spedali Civili Di Brescia, Italy
Rosanna Ceresoli, Department of Oncohematology and BMT Unit, Children's Hospital, Asst Spedali Civili Di Brescia, Italy

Category: Pediatric Transplantation

Abstract Content:

Aim

The aim of our study was to present our experience with the use of peripherally inserted central catheters (PICCs) in pediatric patients receiving autologous or allogeneic blood stem-cell transplantation and chemotherapy. The insertion of the device in older children does not require general anesthesia and does not require a surgical procedure.

Methods

From January 2014 to January 2017, 13 PICCs were inserted as a central venous device in 11 pediatric patients submitted to 14 autologous or allogeneic stem-cell transplants, at the Bone Marrow Transplant Unit of the Children's Hospital of Brescia. The mean age of patients at the time of the procedure was 11.3 years (range 3-18 years). PICCs remained in place for an overall period of 4104 days. All PICCs were positioned by the same specifically trained physician and utilized by nurses of our stem-cell transplant unit.
From February 2017 to May 2024, 119 PICCs were inserted in 102 pediatric patients. 100 patients (113 PICCs) received chemotherapy, of which 27 patients were submitted also to allogeneic stem-cell transplants and 3 patients were submitted to autologous stem-cell transplants. 2 patients didn't receive any treatment between 2017 and 2024. 6 PICCs were

inserted in patients that already received chemotherapy or transplantation and still needed a venous access to prevent several venipunctures. The mean age of patients was 12.2 years (range 3-25 years). PICCs remained in place for an overall period of 25153 days. All PICCs were utilized by nurses of our stem-cell transplant and onco-hematology unit.

Results

From 2014 no insertion-related complications were observed. Late complications were catheter ruptures and line occlusions (1.2 per 1000 PICC days). No rupture or occlusion required removal of the device. No catheter-related venous thrombosis, catheter-related bloodstream infection (CRBSI), accidental removal or permanent lumen occlusion were observed. Indications for catheter removal were end of therapy treatment (8 patients) and death (2 patients).

From 2017 no insertion-related complications were observed. Late complications were catheter-related venous thrombosis (0,5 per 1000 PICC days), rupture (0,079 per 1000 PICC days) and catheter-related bloodstream infection (0,5 per 1000 PICC days). Indications for catheter removal were end of therapy treatment (87 patients) and death (4 patients). 4 PICCs are currently used for blood sampling in follow-up patients after transplantation and 8 patients are still receiving chemotherapy.

Conclusions

Our data suggest that PICCs are a safe and effective alternative to conventional central venous catheters even in pediatric patients with high risk of infectious and hemorrhagic complications such as patients receiving stem-cell transplantation and chemotherapy.

Abstract ID:
A-115

Vedolizumab in Steroid Refractory Acute Gastrointestinal Graft-versus-host Disease in Children

Dr Anitha Veera, Department of Pediatric Hematooncology and Bone Marrow Transplantation, Meenakshi Mission Hospital and Research Centre, India
Kasiviswanathan T, Department of Hematology and Done Marrow Transplant, Meenakshi Mission Hospital and Research Centre, India

Category: Graft-versus-host Disease

Abstract Content:

Background: Steroid-refractory (SR) acute graft-versus-host disease (aGvHD) remains a challenging complication post-allogeneic hematopoietic cell transplantation (allo HSCT) in pediatric patients. Vedolizumab, an anti-$\alpha 4\beta 7$ integrin monoclonal antibody, impairs homing of T-cell to the gastrointestinal (GI) endothelium and acts as a gut-selective ant inflammatory agent . Recent reports of the efficacy of vedolizumab in treating lower GI acute graftversus host disease (aGVHD) are promising, but experience in children is scarce .
Objective: This retrospective analysis aimed to evaluate the outcomes of vedolizumab treatment in pediatric patients with grade IV SR GI aGvHD.
Methods: Four pediatric patients with grade IV SR GI aGvHD were retrospectively analyzed. Vedolizumab was administered as salvage therapy following unsuccessful treatment with steroids, etanercept, and/or ruxolitinib. Dosage was weight-based: 100mg for <10 kg, 150mg for 10-25kg, and 300mg for >25kg, given at weeks 0, 2, 6, and every 8 weeks thereafter if necessary.
Results: All four patients, with underlying conditions including primary immunodeficiency, acute lymphoblastic leukemia, and acute myeloid leukemia, underwent allo HSCT with myeloablative conditioning. Donor types included matched related (n=2) and haploidentical (n=2), with peripheral blood stem cells utilized in all cases. The median time from GI aGvHD onset to vedolizumab treatment initiation was 36 days(range 32–163 days), with a median of three doses(range 1- 5 doses) per patient. Complete resolution of GI GVHD was achieved in all patients at a median duration of 33 days(range 22- 63 days) after the first vedolizumab dose. After a median follow-up of 13 months, two patients were alive, while two patients died due to relapsed AML and enterococcal sepsis, respectively. No infusion-related adverse events were noted.

Conclusion: Vedolizumab demonstrated safety and efficacy in pediatric patients with SR GI aGvHD, leading to complete resolution of symptoms in all cases. These findings underscore the potential of vedolizumab as salvage therapy in this challenging clinical scenario. However, larger prospective studies are warranted to further validate these results and establish vedolizumab's role in the management of pediatric SR GI aGvHD.

Abstract ID:
A-116

8 Years of Unrelated Hematopoietic Cells Searching Program Between Blood Transfusion Hematology Hospital - Vietnam and Buddhist Tzu Chi Stem Cells Center – Taiwan

Mr Huynh Van Minh, Department of International Relations Department, Blood Transfusion Hematology Hospital, Vietnam
Tran Thi Thien Kim, Department of General Planning Department, Blood Transfusion Hematology Hospital, Vietnam

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims
Summary and statistical analysis of 8-year unrelated hematopoietic stem cell donor search program at the Blood Transfusion Hematology Hospital (BTH) in Ho Chi Minh City, Vietnam (2017 - May 2024)
Methods
Retrospective analysis of 169 unrelated hematopoietic stem cell donor search cases at BTH (2017-May 2024)
Results
In 2016, Blood Transfusion Hematology was the first hospital in Vietnam where initiated the searching unrelated hematopoietic stem cell donor program. By 2017, we had our first cases of searching and transplanting stem cells from unrelated donors in Tzu Chi – Taiwan. Up to date, we had 169 search cases: The rate of childrent was 57.98%, the percentage of male patients was 67.45%. In the results of running program: we had 15.31% found full matched donor, 7.68% found 9/10 matched donor in total. However, the activation of collecting stem cells was only 4.73%, 3.35% cases was transplanted. The storing stem cells in our bank rated 1.18%. Choosing Tzu Chi hospital for the transplantation takes 4.14%. Stop the process because of died, relapse, covid-19 pandemic, refuse treatment, choosing haloidentical transplantation instead of 9/10 matched unrelated donor transplantation.
Almost patients seeking unrelated donors were diagnosed with milignant blood disease: AML (33.14%), ALL (17.75%). Beside that Aplastic Anemia was 20.71%, MDS: 7.1%, Thalassemia: 2.95%. Some rare diagnosis was at 0.59%: CNL, WAS, APL

Comparation at 5 main loci: A, B, C, DRB1, DQB1, our hospital prioritizes 10/10 matching due to the highest success rate and lower cost for the unrelated transplantation. Data on different locus mismatches in 9/10 cases in this study are not statistically significant due to the small sample size, which cannot represent the entire population. The cost of searching for donors is also a noteworthy issue that we need to analyze.

Conclusions

This study provides a comprehensive overview of the unrelated hematopoietic stem cell donor search process at the BTH and in Vietnam as a whole. Despite a limited sample size and preliminary statistical analysis subject to donor, stem cells center, and transplantation center decisions, the findings offer essential insights for counseling, treatment planning, and cost estimation for various disease groups.

The success rate of finding a suitable unrelated hematopoietic stem cell donor for transplantation is over 20%. While this is lower compared to global statistics, the matching rate is relatively high considering the search was limited to a single stem cell registry. This could be attributed to the significant Asian and Vietnamese communities residing and intermarrying in Taiwan.

The actual stem cell collection rate for transplantation is only one-third of the donor identification rate (HLA matched 10/10) due to various factors: the COVID-19 pandemic, stem cell regulations in Vietnam, and patient relapse or mortality before stem cell collection.

Vietnam needs to improve its stem cell donation and stem cell laws to establish its own donor registry, facilitate exchange with other international registries, and increase the success rate of finding suitable stem cell donors. This would offer greater hope for the treatment of blood diseases.

Abstract ID:
A-120

Development and Validation of a Liquid Chromatography Tandem Mass Spectrometry-based Assay to Facilitate Busulfan Therapeutic Drug Monitoring in Adult Patients Undergoing Allogenic Hematopoietic Stem Cell Transplantation Treatment

Dr Goh Kau Kiat Kelvin, Department of Pharmacy, Singapore General Hospital, Singapore
Sin Li Jiao, Department of Pharmacy, Singapore General Hospital, Singapore
Ng Vin Cci, Department of Pharmacy, Singapore General Hospital, Singapore
Aloysius Yew Leng Ho, Department of Haematology, Singapore General Hospital, Singapore
Ng Hong Yen, Department of Pharmacy, Singapore General Hospital, Singapore
Lim Tze Peng, Department of Pharmacy, Singapore General Hospital, Singapore

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims:
Selected patients with blood cancers are offered allogenic haematopoietic stem cell transplantation (HSCT), a procedure provided by SGH, one of Asia's leading transplant centers. The critical component of HSCT preparative regimens is Busulfan (BU), a chemotherapy agent. However, current weight-based dosing strategies showed wide inter-individual variations in BU exposure among individuals. Adjusting BU doses to achieve therapeutic concentrations is crucial in preventing graft failure, disease relapse and reduce toxicities like veno-occlusive disease. However, real-time BU therapeutic drug monitoring (TDM) is unavailable in Singapore. We aim to develop a fast and accurate assay using liquid-chromatography-tandem-mass-spectrometry (LCMS/MS) to optimise BU dosing for patients undergoing BU-based HSCT regimens in SGH.

Methods:
BU in concentrations of 0.02–5mg/L were spiked in commercial plasma to prepare the calibration curve. Twelve blood samples from 1 subject treated with Busulfan (320mg/day) were collected. Samples (25uL) underwent protein precipitation with 50% zinc sulphate followed by hexane extraction. Reverse-phase chromatography was performed on the extracted samples using gradient elution on a C18 column (2.1x100mm) using 10mM

ammonium acetate in water (A) and acetonitrile (B) as mobile phases at 0.4mL/min. Data was acquired on an LCMS 8060 mass spectrometer. Total run time, including re-equilibration, is 5mins. Pmetrics software was used to calculate the BU area-under-the concentration-time-curve at steady state (AUCss,24hr), to determine the efficacy target attainment of 20mg.h/L.

Results:
Quantification of BU was achieved with excellent linearity at R2=0.999 in the concentration range of 0.02–5mg/L. Internal validation was completed successfully with mean accuracies and precision for the calibration curve achieved within ±15%. BU measurement corresponded with 25% dose increment (320mg/day to 400 mg/day on Day 3) to bring AUCss,24hr from 16.39mg.h/L to 20.48mg.h/L. External validation was completed by cross-measuring BU concentrations in samples with an accredited lab at Sydney, Australia. All samples (12/12,100%) were successfully cross-validated (within ±10%). Lastly, our recruited subject's disease was found to be in remission with no evidence of graft vs host disease and no episodes of mucositis or veno-occular disease.

Conclusion:
We have developed and validated a rapid and accurate method to measure BU levels in plasma. This will facilitate optimized real-time BU TDM-guided dosing for patients undergoing allogeneic myeloablative BU-based regimens in SGH.

Abstract ID:
A-121

Comparation of Fresh and Cryopreserved Allogenic Hematopoietic Stem Cell Transplantation Outcome from Unrelated Donors in Pediatric Patients: A Single Center Experience

Dr Leila Jafari, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Alireza Hatami, Department of Hematology, School of Medicine, Tarbiat Modares University (Tmu), Tehran, Iran
Maryam Behfar, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Rashin Mohseni, Department of Transolantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Negar Nejati, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Fahimeh Jafari, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Amir Ali Hamidieh, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran

Category: Pediatric Transplantation

Abstract Content:

Aim:
Hematopoietic stem cell (HSC) cryopreservation has become a widely utilized and standard procedure within the field of hematopoietic stem cell transplantation (HSCT), encompassing allogeneic, autologous, and cord blood transplants. The recent COVID-19 pandemic further underscored the significance of cryopreservation, as it facilitated the continued performance of allogeneic HSCT using grafts from related and unrelated donors, particularly within HSCT departments. Emerging research suggests potential differences in outcomes between patients receiving cryopreserved versus fresh HSCs. Hence, in this study, outcomes were retrospectively analyzed from a cohort of pediatric patients who underwent

HSCT using either cryopreserved or fresh stem cells derived from various sources.

Methods:

133 pediatric patients who underwent Allo-HSCT with unrelated donors at Children's Medical Hospital, Tehran, Iran, between January 2017 and December 2022 were selected for this study. The patients were divided into two groups: 70 patients received cryopreserved allo-HSCT, while the remaining 63 patients (35 males and 28 females) underwent fresh allo-HSCT. Clinical data were collected for comparative analysis between two groups.

Results:

From the 124 patients who were engrafted, neutrophil engraftment occurred at an average of 13 days (P=0.50), while platelet engraftment averaged 15 days post-HSCT (P=0.245), with no significant differences between the cryopreserved and fresh stem cell groups.

Acute GvHD (aGvHD) developed in 74.6% and 72.9% of patients in the cryopreserved and fresh groups, respectively, with no statistically significant difference between the two groups (P = 0.82). Chronic GVHD (cGVHD) was observed in 13 (18.6%) patients who received cryopreserved stem cells and 9 (14.5%) patients who received fresh stem cells. There was no statistically significant difference in the incidence of cGVHD between the two groups (P = 0.533).

The 3-year OS rate was significantly higher in patients receiving cryopreserved HSC, at 83.8%, compared to those receiving fresh HSC, at 72.6% (P < 0.0001).

Multivariate analysis revealed a significant association between source of stem cells and survival, indicating that the type of stem cell source had a meaningful impact on patient outcomes (P < 0.001). Within both groups, patients receiving peripheral blood (PB) stem cells had superior survival compared to those receiving stem cells from other sources.

Conclusions:

Our findings demonstrate comparable rates of engraftment and GvHD amongst patients receiving cryopreserved and fresh stem cells. Notably, a superior 3-year OS rate was seen in recipients of cryopreserved stem cells. This observation underscores the potential advantages of cryopreservation, particularly in scenarios where immediate donor accessibility presents a challenge. Furthermore, the study highlights peripheral blood (PB) as the most favorable stem cell source, indicating its potential to optimize transplant success. These findings collectively suggest that cryopreservation offers a valuable tool in allogeneic HSCT,

particularly in overcoming logistical hurdles and potentially improving patient survival.

Abstract ID:
A-123

The Outcome of Intravenous Mesenchymal Stem Cell Therapy against Chronic Graft-versus-host Disease of Pediatrics

Dr Rashin Mohseni, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Pouya Mahdavi Sharif, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Maryam Behfar, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Leila Jafari, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Zeynab Nikfetrat, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Fahimeh Jafari, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran
Amir Ali Hamidieh, Department of Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Iran

Category: Graft-versus-host Disease

Abstract Content:

Aim:
Both forms of graft-versus-host disease (GVHD), as grave complications of allogeneic hematopoietic stem cell transplantation (HSCT), are associated with tremendous morbidities. Despite advances in alleviating cGVHD manifestations with immunomodulatory agents, they not only have limited efficacy but are also associated with significant side effects. Mesenchymal stem cells (MSCs), with their anti-inflammatory and growth-promoting characteristics, have been effective in controlling degenerative diseases and have shown promising efficacy in preclinical models of cGVHD.
Methods:
In this analysis, we describe the long-term outcomes of pediatric recipients (aged under 18) of HSCT with different presentations of cGVHD who have received allogeneic adipose tissue-derived MSCs. Fresh adipose tissues from healthy donors (related or unrelated) were processed in a class B clean room, and MSCs were isolated according to the established protocols. After confirmation of their surface markers with flow cytometry, MSCs were cultured in the same clean room and applied to eligible

patients with a dose of 1 × 106 cells/kg. Follow-up evaluations and clinical assessments were conducted according to the NIH recommendations.

Results:

Twelve pediatric patients (five females) with an age median of 7 years (range 2 to 16) enrolled in the study and received adipose tissue-derived MSCs while continuing to have their immunosuppressive medications. Six patients had a diagnosis of bronchiolitis obliterans syndrome (BoS), while four had extensive skin involvement, and two had liver cGVHD. No treatment-related adverse events (including anaphylaxis, adverse drug reactions, infections, second malignancies, etc.) were encountered during the follow-up period. All four cases with skin cGVHD achieved a partial response, as their NIH skin score diminished by at least one point. The outcome of MSC therapy in four cases with BoS is previously published in a peer-reviewed article (partial response in three). Two other patients had no objective responses. One patient with grade IV liver cGVHD died three weeks after receiving the therapy. In another liver cGVHD case, although no more than 50% reduction in the bilirubin and liver enzyme levels ensued, his bleeding diathesis became controllable.

Conclusion:

MSCs are safe and modestly effective avenues against advanced-stage cGVHD. Prospective larger clinical trials with more frequent injections of MSCs will aid in drawing more solid conclusions.

Abstract ID:
A-126

Evaluation of The Prevalence and Risk Factors of Hemorrhagic Cystitis in Pediatric Immunodeficiency Patients Following Hematopoietic Stem Cell Transplantation

Dr Maryam Behfar, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran
Negar Nejati, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran
Leila Jafari, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran
Nadia Alipour, Department of Research Institute for Endocrine Sciences, Cellular and Molecular Endocrine Research Center, Research Institute For Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Iran
Zeynab Nikfetrat, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran
Rashin Mohseni, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran
Amir Ali Hamidieh, Department of Transplantation Department, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Iran

Category: Pediatric Transplantation

Abstract Content:

Aim:
Primary immunodeficiency disorders (PIDs) are a group of conditions that cause immune system malfunctions, making individuals more prone to infections, allergies, and autoimmune issues. The main treatment for PIDs is allogeneic hematopoietic stem cell transplantation (HSCT), widely used globally. Hemorrhagic Cystitis (HC) is a notable complication after HSCT which can lead to increased morbidity after HSCT. Despite its significance, the exact prevalence and risk factors of HC in PID pediatric who undergo HSCT are not well understood.
Methods:

We analyzed the prevalence of HC in 133 pediatric PID patients (83 Male and 50 Female) among 611 individuals who underwent HSCT at Children's Medical Center in Tehran, Iran, between September 2016 and June 2023. The mean age of patients was 6.3 years (range: 2m-16y). Sever Combined Immunodeficiency (SCID) was the most PID (n=36) and most patients were transplanted with a full match donor (n=110). Additionally, the stem cell source in 122 of patients was peripheral blood. All patients received the same reduced-intensity conditioning (RIC) regimen, including fludarabine, melphalan, and anti-thymocyte globulin. GVHD prophylaxis in all patients included cyclosporine and a short course of methylprednisolone.

Results:

The study identified a 9% prevalence of HC (n=12) within the pediatric PID cohort, compared to 22% in the total allo-HSCT. The severity of HC was mostly mild to moderate, with 7 cases classified as grade 1, 3 as grade 2, and 1 each as grade 3 and grade 4 with a mean onset time of 91 days post-HSCT. The mean duration of HC episodes was 12 days. In 4 patients (33.3%), urinary PCR analysis for the virus associated with HC was reported positive(3BK-JC,1CMV).

The study found no significant correlation between HC occurrence and patient characteristic factors like age, gender, disease type, or donor characteristics, but a significant risk increase was observed with a-GVHD (p-value = 0.043). However, the severity of a-GVHD did not significantly correlate with HC development. Additionally, although 56.4% (n=75) of PID patients were CMV positive post-HSCT, no significant association was found between CMV infections and the development of HC. Analyze showed patients with HC had a higher mortality rate (66.7%) compared to those without HC (32.2%), and a lower survival rate (33.3% vs. 67.8%) with ap-value of 0/024.

Conclusion:

The prevalence of HC in PIDs pediatric patients undergoing HSCT is significantly lower than other disorders. The only factor associated with HC in PID patients was a-GVHD. These results highlight the adverse impact of HC on patient survival post-HSCT, emphasizing the need for better management strategies for HC. Further research is needed to validate our findings.

Abstract ID:
A-128

Factors Contributing to Challenges in Hematopoietic Stem Cell Transplantation Nursing and Considerations for Necessary Nursing Education

Ms Satoko Nishio, Department of Hematology, Aichi Medical University, Japan
Tomoko Hattori, Department of Nursing , Aichi Medical University Hospital, Japan
Tomoko Takahashi, Department of Nursing , Aichi Medical University Hospital, Japan
Satueki Murakami, Department of Hematology, Aichi Medical University, Japan
Shohei Mizuno, Department of Hematology, Aichi Medical University, Japan
Akiyoshi Takami, Department of Hematology, Aichi Medical University, Japan

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims:
At our Hematopoietic Stem Cell Transplantation (HSCT) Center, we utilize the Nurse Education Ladder Ver3, established by the Japan Society for Transplantation and Cellular Therapy, to conduct nursing education. In collaboration with our Long-Term Follow-Up (LTFU) outpatient clinic, we play a central role in transplant nursing. Despite these efforts, many nurses still face challenges in transplant nursing. This study aims to identify the factors causing difficulties in transplant nursing and highlight educational challenges, thereby improving the quality of transplant nursing.
Methods:
The study targeted 36 nurses involved in transplant care. Data were collected and analyzed using a 35-item questionnaire based on the "Scale of Difficulties in Nursing Care for Patients with Hematological Malignancies" (Furukawa et al.) and an anonymous self-administered questionnaire. The total score on the Difficulty Scale is 175, with higher scores indicating greater difficulty. Statistical analysis was performed using Excel Statcel3, with a significance level set at 5%.
Results:
The questionnaire response rate was 97%. The nurses had an average of 9±8.2 years of nursing experience and an average of 3±3.4 years in transplant nursing. The average score on the Difficulty Scale was 113.8±21.8. Nurses with less than 5 years of experience had significantly higher Difficulty Scale scores compared to those with more than 5 years of experience. Key difficulties included understanding the pathology and diseases of hematologic malignancies, providing psychological support to

patients and families, and alleviating complications caused by the transplant. "Lack of knowledge and experience" emerged as a key factor contributing to difficulties. Although opportunities for self-study and ward-based study sessions in line with the Ladder exist, many respondents expressed a lack of confidence in transplant nursing. On the other hand, 20% of respondents reported finding fulfillment in transplant nursing, with an average Difficulty Scale score of 93.9±16.2 and an average experience of 6±3.5 years. Some nurses reflected on their transplant nursing experiences when facing difficulties and built trusting relationships with patients by collaborating with other professionals as needed.

Conclusions:

This study suggests that it is necessary to provide not only knowledge-based education but also opportunities for the entire ward to share and reflect on experiences in transplant nursing. Making this a routine practice will help create an environment where less experienced nurses can identify and address nursing challenges when they face difficulties in transplant nursing. Establishing such an environment is an educational challenge. To improve the quality of transplant nursing, it is important to develop and systematize indicators and tools to provide standardized nursing care. Additionally, multidisciplinary collaboration is essential to effectively support transplant patients who face various issues.

Abstract ID:
A-131

Impact of Post-transplant Cyclophosphamide (PTCy), Anti-thymocyte Globulin Combined with PTCy, PTCy Dose, and HLA Disparity on Development of Infectious Complications and Infection-related Mortality

Dr Hirohisa Nakamae, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Yasuhiro Nakashima, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Mitsutaka Nishimoto, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Hiroshi Okamura, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Yosuke Nakaya, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Masatomo Kuno, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Yosuke Makuuchi, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Kentaro Ido, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Kazuki Sakatoku, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Mirei Horiuchi, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Mika Nakamae, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan
Masayuki Hino, Department of Hematology, Osaka Metropolitan University Graduate School of Medicine, Japan

Category: Infectious and Non-infectious complications

Abstract Content:

Aims

Allogeneic hematopoietic cell transplantation (HCT) with post-transplant cyclophosphamide (PTCy) from an HLA-haploidentical hematopoietic donor (PTCy-haplo) has become a platform for HLA-haploidentical HCT; furthermore, the use of PTCy has been extended to HLA-matched HCT. However, several recent reports show that the risk of infectious complications, especially viral infections, is higher after PTCy-haplo than after conventional HCT from an HLA-matched donor. Recently, modifying

the dose of PTCy or combining PTCy with anti-thymocyte globulin (ATG) has been attempted in HLA-haploidentical HCT (i.e., PTCy-haplo with ATG). Therefore, this retrospective clinical study was conducted to determine the impact of PTCy, ATG plus PTCy, PTCy dose, and HLA disparity on the incidence of infectious complications and mortality after HCT.

Methods

Patients with hematological diseases who underwent PTCy-based HCT from June 2009 to December 2023, or conventional HLA matched HCT conducted during the contemporaneous period, were analyzed.

Results

In total, 425 patients (PTCy-haplo, n=196; PTCy-based HLA matched HCT, n=39; conventional HLA matched HCT, n=190) were included in the analysis. Mobilized peripheral blood stem cells were used as the stem cell source in 99% of PTCy-haplo, 51% of PTCy-based HLA matched HCT, and 40% of HLA matched HCT cases. Reduced-intensity conditioning was used in 84% of PTCy-haplo, 21% of PTCy-based HLA matched HCT, and 20% ofHLA matched HCT cases. ATG was administered in 37 (19%) PTCy-haplo cases.

The incidence of CMV infection in patients who did not receive letermovir after PTCy-haplo was significantly higher than that in those who underwentconventional HLA matched HCT. Furthermore, the incidence of CMV infection was significantly higher in cases of PTCy-haplo with letermovir than in cases of conventional HLA matched HCT. The incidence of non-CMV viral infections was significantly higher in cases of PTCy-haplo with ATG than in cases of conventional HLA matched HCT. In addition, there was a trend toward a higher incidence of non-CMV viral infections in cases of PTCy-haplo without ATG and cases of PTCy-based HLA matched HCT during the early phase post-HCT, although the increase was not significant. Moreover, the incidence of fungal infections was significantly higher in cases of PTCy-haplo with ATG than in cases of conventional HLA matched HCT. In addition, low dose PTCy in patients receiving PTCy-haplo without ATG was associated with a higher incidence of non-CMV viral and fungal infections than a standard dose. Multivariate analysis identified ATG use in cases of PTCy-haplo as a significant poor prognostic factor for infection-related mortality (HR, 3.27; 95% CI: 1.43–7.50; $P<0.01$).

Conclusions

The results of the present analysis show that PTCy was associated with increased risk of CMV infection, even in the letermovir era. Low dose PTCy was associated with increased occurrence of non-CMV viral and fungal infections, probably due to a high incidence of graft-versus-host disease. In

addition, the increased risk of infection-related mortality suggests that ATG in combination with even low dose of PTCy should be used with caution.

Abstract ID:
A-137

Safety and Efficacy of Generic Propylene Glycol Free Melphalan as Conditioning Chemotherapy for Autologous Stem Cell Transplant in Multiple Myeloma – A Single Center Experience from a Tertiary Care Hospital in Southern India

Dr Sudeep Vaniyath, Department of Clinical Hematology, Aster Malabar Institute of Medical Sciences, India
Kormath Veetil Gangadharan, Department of Medical Oncology , Aster Malabar Institute of Medical Sciences, India
Sreelesh Kombath Payini, Department of Medical Oncology , Aster Malabar Institute of Medical Sciences, India
Arun Chandrashekaran, Department of Medical Oncology , Aster Malabar Institute of Medical Sciences, India
Kesavan Melarcode Ramanan, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Pratibha Bharathan, Department of Transfusion Medicine, Aster Malabar Institute of Medical Sciences, India
Karthika Kundil Veetil, Department of Hematopathology , Aster Malabar Institute of Medical Sciences, India
Sreedhar Jayakrishnan Cherulil, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Anuja Monikantan Sathikumari, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Sarah Valson, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Sireesh Kumar CH, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Fathima Zereen Haris, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Amrutha Mohan, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India
Nayanathara Parayarukottayil, Department of Medical Oncology, Aster Malabar Institute of Medical Sciences, India

Category: Multiple Myeloma

Abstract Content:

Introduction

Propylene glycol (PG) is a common cosolvent used in intravenous melphalan formulations to improve its solubility but the resultant

combination has a short shelf life of 30 minutes when reconstituted. Propylene glycol free melphalan (PGF -melphalan) uses betadex sulfobutyl ether sodium instead of PG which ensures stability when reconstituted for about 4 hours in room temperature and for about 24 hours when refrigerated between 2 to 8 degrees centigrade. We aim to explore the safety and efficacy of generic PGF-Melphalan used for conditioning in Multiple Myeloma (MM) patients undergoing Autologous Stem Cell Transplant (ASCT) in Bone Marrow Transplant Unit, Aster MIMS Hospital, Kozhikode, Kerala, India.

Methods

Newly diagnosed and relapsed Multiple Myeloma patients who underwent ASCT using generic PGF – melphalan as conditioning chemotherapy were retrospectively analyzed between February 2022 and March 2024. All patients prior to ASCT were Partial Response and above. Patients with POEMS syndrome, amyloidosis and other hematological malignancies were excluded. PGF-melphalan doses ranged from 140 to 200 mg/m2. Oral cryotherapy was given to all patients. Between Day 80 to 100 post-transplant, all patients underwent Bone Marrow Studies including Minimal Residual Disease (MRD) (Using 10-color Flow cytometer), Serum Electrophoresis, Serum Immunofixation and Serum Free Light Chain Assay. All responses were as per International Myeloma Working Group Response Criteria and all adverse events were graded as per Common Terminology Criteria for Adverse Events, version 5.

Results

Twenty-one MM patients who had undergone high dose PGF Melphalan conditioning and ASCT were retrospectively analyzed. The median age was 54 years (range 30-65 years) and seven patients (33%) were female. 18 patients (86%) were in Very Good Partial Response (VGPR) and above pretransplant. Median dose of PGF-melphalan used was 150 mg/m2 (range 140- 200 mg /m2). Plerixafor was used in 12 (57%) patients. The median CD 34+ stem cell dose given was 6.1 million stem cells/Kg (range 3.8 – 8.2 million cells/Kg). Median Time to neutrophil and platelet engraftment were 11 days (range 10-12 days) and 12 days (range 10-15 days) respectively. Grade 3 mucositis was observed in 6 patients (28%), all of whom needed total parenteral nutrition support. Seven patients (33%) had grade 3 diarrhea. Other adverse drug reactions are elaborated in Table 1 (attachment). During response assessment, post-transplant MRD Negative was attained in 18 patients (86 %). Post-transplant Complete Response (CR), stringent CR and VGPR were attained in 3 (21%), 7 (33%), and 9 (43%)

patients respectively. One patient died 27 days after transplant due to complications of COVID pneumonia and another patient died after 6 months due to disease progression and myocardial infarction. The percentage overall survival and progression free survival of the study population was 90 % at the time of analysis.

Conclusion

This study shows the comparable safety and efficacy of generic PGF-melphalan conditioning used for ASCT in patients with multiple myeloma which is mainly due to the stability of the preparation which ensures accurate delivery of the dose needed for successful myeloablation irrespective of any unavoidable delays.

Abstract ID:
A-138

Long-term Outcome of the Second Allogeneic Hematopoietic Stem Cell Transplantation in Hematological Malignancies with Reduced Toxicity Conditioning and Donor Change

Mr Yongqiang Zhao, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Rui Wang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Feifei Li, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Dongfang Yang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Fang Fang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Yanzhi Song, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Zhihui Li, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Fan Yang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Tong Wu, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China

ategory: Quality of Life / Survivorship

Abstract Content:

Objective: In current clinical study, outcome was analyzed in patients undergoing the second allogeneic hematopoietic stem cell transplantation(allo-HSCT) with RTC and donor change for hematological malignancies relapse after a first allograft.
Methods: Between April 2018 and May 2021, total 44 patients with hematological malignancies (B-ALL 23, T-ALL/LBL 4,AML15,MDS 2) who relapsed to the first allo-HSCT and underwent the second allo-HSCT in our hospital were enrolled. The median age was 25(7–55) years old. Male to female was 21:23. Before the second allo-HSCT, 33(75%) patients were in complete remission (CR) (minimal residual disease (MRD) negative in 26, MRD positive in 7), and 11(25%) cases (B-ALL5,T-ALL/LBL2,AML3,MDS1) in non-remission(NR). The median interval between twoallo-HSCTs was 19.5 (6–77) months. All donors were changed for the second allo-

HSCT(haploidentical 32, unrelated 12). RTC regimens were mainly total body irradiation(TBI)/fludarabine (FLU)-based(n=38) or busulfan (BU)/FLU-based (n=4).One patient was with total marrow irradiation (TMI)/FLU-based regimen and other one was with BU/Cladribine. For TBI/FLU regimen, fractionated TBI (8Gy in 31, 10Gy in 7), cytarabine 1-2g/m2for 3 days,FLU 30mg/m2 for 5 days, Me-CCNU 250mg/m2 for 1 day, and ATG were used. For BU/FLU regimen, BU 0.8mg/kg q6h for 3 days, cytarabine ,FLU, Me-CCNU, and ATG were used. For TMI/FLU regimen, the same conditioning as TBI/FLU was used except fractionated TMI 12Gy instead of TBI. Decitabine (20mg/m2, 3 days) or etoposide (200mg/m2, 2 days) were administrated in some patients in NR or MRD positive. Cyclosporine, mycophenolate mofetil and short-term methotrexate were employed for graft-versus-host disease (GVHD) prophylaxis.

Results: All patients became full donor chimerism. The median time for neutrophil and platelet recovery was 15 (11-22) days and 15 (10-240) days. The incidences of grade II-IV acute GVHD (aGVHD) and chronic GVHD(cGVHD) were 20.5%, 50% (limited 20.5%, extensive 29.5%), respectively.The incidences of CMV and EBV reactivation were 29.5% and 6.8%. With a median follow-up of 47.5(3.5–73) months, 4-years disease-free survival (DFS) and overall survival (OS) were 56%and 56%. Nineteen patients died(relapse 16, infection 3).The one-year and 3-year cumulative relapse rate was 31.8% and 43.5%. Sixteen patients were died of relapse . Non-recurrent deaths (NRM) was only 6.8%(3/44). NR before transplant was high risk for disease recurrence post-HSCT. Relapse rates were 90.9% (10/11)vs. 18.2%(6/33) in NR and CR patients. Disease status before transplant was key impact factor for survival after the second allo-HSCT. Two-year OS in CR and NR settings were 78.5%, 27.3%, respectively,p=0.0001. Two-year DFS in CR and NR settings were 75.6%,and 9%, respectively,p<0.0001. Three-year DFS in CR was 72.5%(95%:0.537~0.846).No significant difference of OS or DFS was seen in interval between first and second HSCT >12 months or not, p=0.832and p=0.849.

Conclusions: With our strategy of RTC regimensand donor change, excellent outcomes of the second allo-HSCT in hematological malignancies have been achieved. Four-year DFS and OS are 56% of all patients. Three-year DFS in CR was 72.5%. The one-year and 3-year cumulative relapse rate was 31.8% and 43.5%. NRM was 6.8%. The most important factor on prognosis of the second allo-HSCT is disease status before transplant.

Abstract ID:
A-139

Secondary Salvage Allogeneic Hematopoietic Stem Cell Transplantation（allo-HSCT） in Relapsed and Refractory AML

Dr Zhanxiang Liu, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Tong Wu, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Yanzhi Song, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Erhui Yuan, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Kong Gao, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Qishu Qin, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Qi Wang, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Yongqiang Zhao, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Zhihui Li, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China

Category: Conditioning Regimens

Abstract Content:

Aims: Although HSCT is a powerful treatment for patients with intermediate and high risk AML, some cases of relapse still exist after transplantation, especially those who are still in good physical condition, with positive attitude and strong willingness to be treated, are still the population we need to focus on. This study attempted to treat these patients with secondary salvage HSCT.
Methods: From October 2019 to April 2023, 20 patients, 9 males and 11 females, with a mean age of 27.1 years (12-66), were sequentially enrolled in our transplant center. All of them had undergone once HSCT and other multiline therapy before enrollment, and their disease was in non-CR status, of which 14 patients had a mean leukemic cell load of 44.2% (5.5%-97%) in the bone marrow, and the other 6 patients had extramedullary lesions.

2 patients received unrelated donor HSCT and 18 patients received haploidentical donor HSCT. Myeloablative conditioning regimens, TBI/Flu (Cladribine) /Ara-c /ATG/Me-CCNU-based regimen was used in 16 patients, and BU/Flu (Cladribine) /Ara-c /ATG/Me-CCNU-based regimen was used in 4 patients. Increase the tumor-clearing intensity by selectively adding etoposide, VM-26, thiotepa, mitoxantrone, idarubicin, venetoclax, selinexor, and gilteritinib to the base regimen.
The prophylactic regimen for GVHD is cyclosporine +MTX + MMF. Venetoclax, selinexor, azacitidine, decitabine, donor lymphocyte transfusion (DLI), interferon, lenalidomide, sunitinib, olaparib, trametinib, imatinib, and cellular immunotherapy were given selectively as maintenance therapy after HSCT.
Results: Except for 1 patient with implantation failure and 1 patient who died before hematopoietic reconstruction, the remaining 18 patients completed hematopoietic reconstruction, with a median time to implantation of granulocytes of 15.5 d (9-22), and a mean time to implantation of platelets of 18 d (9-69).
Regarding transplantation-related complications, there was 1 severe CMV infection, 1 recurrent VZV infection, 1 HBV activation, 3 severe lung infections, 1 TMA, 1 poor implantation, 1 pure red cell aplasia, 1 implantation failure, 5 severe aGVHD, and 8 cGVHD.
At a median follow-up of 14.5 months (1-36), 3 patients did not achieve disease remission after transplantation, three relapsed in the early post-transplant period, and two relapsed in the late post-transplant period. A total of 9 patients survived, all in a leukemia-free state. Of the 11 patients who died, 1 died of implant failure, 2 severe pneumonia, 1 pulmonary GVHD, and 7 patients leukemia. The expected 2-year overall survival (OS) and leukemia free survival (LFS) after transplantation were both (45.5±14.0)%.
Discussion: 2nd salvage HSCT has shown good result in treating patients who relapse after 1st HSCT, with efficacy similar to salvage HSCT in relapsed refractory patients previously reported. In this study, we were able to obtain remission in 85% (17/20) of the patients after 2nd salvage transplantation, with an 2-year OS and LFS of up to 45.5±14.0%, by optimizing the conditioning regimen and individually designing the post-transplantation maintenance regimen. Influenced by objective factors of enrolled patients, the transplantation-related mortality rate was 20% (4/20), which was higher compared with consolidation HSCT. Overall, 2nd salvage allo-HSCT as an effective treatment for relapsed AML patients after 1st HSCT deserves further efforts and exploration.

Abstract ID:
A-143

Assessment of Patient Reported Symptom Burden and Impact on Daily Activities in Graft-versus-host Disease Patients

Mrs Sumaina Km, Department of BMT, Tata Memorial Centre,Actrec, India
Supriya Ghanbahaur, Department of BMT, Tata Memorial Centre, Actrec, India

Category: Graft-versus-host Disease

Abstract Content:

AIMS: The hematopoietic stem cell transplantation is the only potentially curative treatment modality used in several hematological malignancies. Graft versus host disease (GVHD)is a potentially life-threatening complication of allogenic hematopoietic stem cell transplantation which can be acute or chronic. The patients with graft versus host disease may experience significant health issues. This study aims to measure the symptom burden of GVHD in patients and patient's perception of effect of symptoms on their daily activities.
METHODS: The cross sectional descriptive study was conducted in a tertiary care cancer hospital to patients aged ≥18years who underwent allogenic HSCT in a time period of 2022 to 2024 May, were diagnosed with acute/chronic GVHD. Information on patient's demographics, disease characteristics, symptom burden and ability to perform ADLs was collected. Symptom burden was assessed using the validated Lee Symptom Scale and a separate genital urinary subscale. The LSS is composed of 7 subdomains (eyes and mouth, breathing, muscles and joints, skin, eating and digestion, mental and emotional and energy) covering 30 individual symptoms: the genital and urinary subscale assesses 4 individual symptoms. All data was analysed using descriptive and inferential statistics.
RESULTS: A total of 25 patients with GVHD participated in the study. The maximum patient were from the age group 18-30 years (52%) . More than half were males (64%). More patients (32%) were with AML and remaining were (12%) ALL, (20%) CML, HL (4%), MDS (8%). 72% underwent allogenic full match HSCT. Out of the patients 64% had lower gut GVHD and 32% with skin GVHD. More than half of them (64%) were affected with acute GVHD. More patients (40%) were experienced their symptoms <3 months. 48% patients described their symptoms as moderate, 40% as mild and

12% as severe. 96% patients considered weak muscles and loss of energy were the most burden symptom and weight loss were the second most (88%). Most of the patients had mental and emotional problems depression (68%), anxiety (64%) and difficulty in sleeping (76%). Participants reported a significant impact of symptoms on ADLs more on instrumental activities than compared to basic activities.
CONCLUSION: GVHD is a serious complication that affects patients of allogenic HSCT. From this study we conclude that most of the patients have symptom burden on LSS domains - energy, psychological, muscles and joints. Patients with GVHD had significant impact on their ADLs, both on basic and instrumental activities.

Abstract ID:
A-144

Incidence and Predictive Factors for the Development of Adverse Reactions during Peripheral Blood Stem Cells Apheresis

Ms Rudchanu Baosingsuay, Department of Nursing, Phramongkutklao Hospital, Thailand
Chonlada Laoruangroj, Department of Hematology, Phramongkutklao Hospital, Thailand
Tanapun Thamgrang, Department of Hematology, Phramongkutklao Hospital, Thailand
Panachai Silpsamrit, Department of Hematology, Phramongkutklao Hospital, Thailand
Pitipat Jamnarnwej, Department of Clinical Pathology, Phramongkutklao Hospital, Thailand
Kannadit Prayongratana, Department of Hematology, Phramongkutklao Hospital, Thailand
Piyarat Pimsi, Department of Faculty of Pharmacy, Silpakorn University, Thailand

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Peripheral blood stem cell (PBSC) apheresis is a method of collecting stem cells from the peripheral blood using a cell separator. Subjects who underwent this procedure often experienced apheresis-related adverse events (AEs), including hypocalcemia related to citrate toxicity, allergic reactions, and vasovagal reactions. Early recognition and treatment of these symptoms can reduce the severity of most of these reactions. Identifying potential risk factors is essential for enabling healthcare providers to monitor at-risk patients more effectively. **Aims:** The primary objective is to identify the risk factors for developing adverse reactions during PBSC collection, with the incidence of adverse reactions as the secondary goal. **Material and Methods**: A prospective cohort study was conducted on patients/healthy donors aged ≥ 20 years who underwent PBSC apheresis between October 2022 and February 2024. The patients/donors' characteristics, potential risk factors, and adverse events were monitored throughout the apheresis. The collection procedures were performed following departmental standards with acid, citrate, and dextrose solution (ACD) used as an anticoagulant at a proportion of 1:13. All subjects received prophylactic calcium orally for at least 3 days before the procedure.
Results: A total of 118 apheresis procedures were performed in 78 subjects (62.7% of patients and 37.3% of healthy donors). The median age

was 50 years (IQR 37-60) and 51.7% were male. The mean body weight was 68.5 ± 18.35 kilograms. The overall incidence of any AEs was 57.6%, with tingling/paresthesia being the most common (47.5%), followed by tachycardia (28.8%). No serious AEs and deaths had been reported. Univariable analysis revealed the volume of ACD > 783 mL (odds ratio [OR]=2.35, 95% confidence interval [CI]: 1.06-5.20) and total blood volume processed > 2.5 times total blood volume (OR=2.25, 95% CI: 1.06-4.77) were significantly associated with AEs.

Conclusions: Approximately half of the patients undergoing PBSC apheresis encountered AEs during the procedure. The significant risk factors for AEs were the amount of ACD used and the blood volume processed. The study findings are encouraging and valuable for identifying donors at risk for adverse reactions during PBSC collection. This enables close monitoring and prompt intervention during the procedure, helping to prevent most unpleasant events and avoid the progression of serious complications.

Abstract ID:
A-145

Nurses Attitude towards Caring for Patients during End of Life at a Tertiary Cancer Care Centre: A Cross Sectional Survey

Mrs Usha Vikas Gawade, Department of Nursing, Actrec Kharghar TMC, India
Dr Meera Sharad Achrekar, Department of Nursing, Actrec Kharghar TMC India, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aim: -
To assess nurses attitude towards caring for patients during end of life in cancer hospital.
To assess the correlation death and dying care such as experience, educational background, previous training in end of life care, age, gender etc.
Method: -
100 Nurese participated in the cross sectional study undertaken in a Tertiary cancer care centre.
Nurses was selected by Random sampling technique. Frommelt Attitude Toward Care Of The Dying Scale (FATCOD) is used to assess nurses attitude towards death and caring for dying patients along with demographic data by providing digital form.
Statistical analysis was done using Maan Whitney Test and Kruskal Wallis Test.
Results: -
Score on the FATCOD had a possibility to range from 30 – 150, with higher scores indicating a more positive attitude toward end of life care.
The score from this project ranged from 86 – 144 with a mean of 108.1(72.05 %) indicating an overall positive attitude toward end of life care.
This study show positive relationship between number of years of experience as a nurse and positive attitude towards caring for patients near the end of life with P value of 0.055.
There was no statistical significance in attitudes of participants according to gender, educational qualification towards end of life care with p value of 0.325 and 0.356 respectively.
Conclusion:-

Nurses in this cancer hospital showed positive attitudes towards end-of-life care, with experience being a key factor. Further research is needed to explore the influence of other factors and develop better support for nurses in this challenging role.

Abstract ID:
A-146

Transplanter's Agony: A Case Series of Melphalan-associated Encephalopathy Following Conditioning Chemotherapy for Plasma Cell Dyscrasia

Dr Suchita Shinde, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, Kolkata, India
Arijit Nag, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, Kolkata, India
Deepak Kumar Mishra, Department of Lab Hematology, Tata Medical Center, India
Jeevan Kumar, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, India
Dibakar Podder, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, Kolkata, India
Asish Rath, Department of Lab Hematology, Tata Medical Center, India
Reena Nair, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centet, Kolkata, India
Debranjani Chattopadhyay, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, India
Mayur Parihar, Department of Lab Hematology, Tata Medical Center, India
Sushant Vinarkar, Department of Lab Hematology , Tata Medical Center, India
Shouriyo Ghosh, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, India
Rizwan Jawed, Department of Clinical Hematology and Cellular Therapies, Tata Medical Center, India

Abstract Content:

Aims

To present the clinical profile and outcomes of patients experiencing Melphalan-associated encephalopathy following conditioning chemotherapy.

Methods

We conducted a retrospective chart review from electronic medical records of patients undergoing treatment with high-dose melphalan with stem cell rescue (HDT-ASCT) for plasma cell dyscrasia (multiple myeloma (MM) or AL Amyloidosis) from 2011 to 2024. HD**M**-associated **E**ncephalopathy (ME) was defined as altered mental status, seizure or unexplained loss of consciousness within 30 days of auto-HCT (1). Patients with an alternate identifiable cause for the symptoms were excluded from the analysis.

Results

A total of 171 patients underwent HDT-ASCT, among whom 5 (2.9%) had ME. The median age of affected patients was 60 years (range 25-63), including 4 females and 1 male (Table 1). Four out of these five patients had comorbidities, with one patient suffering from stage 4 chronic kidney disease (CKD). Baseline renal dysfunction was present in four out of five cases (median creatinine 3.28 mg/dl, range 0.88 to 12.56), with one patient requiring dialysis. Prior to transplantation, patients had received a median of one line of treatment, most commonly VRD (bortezomib, lenalidomide, and dexamethasone). Before transplant, three patients were in stringent complete remission (CR) and two were in very good partial remission (VGPR). Mobilisation was typically achieved using granulocyte colony-stimulating factor (GCSF) and plerixafor, with a median CD34+ cell dose collected of 6.4 x 106 cells/kg (range: 3.42 -8.88). Except for one patient, all received melphalan at a dose of 200 mg/m2, with the total dose ranging from 200 to 332 mg.

Of the five patients, four (80%) developed seizures following AutoSCT. 3 (75%) experienced seizures within 12 hours post-melphalan infusion. Neurological evaluations and imaging were non-contributory in all the patients. Seizure episodes were managed promptly with antiepileptic medications (levetiracetam +/- phenytoin). Patient #4 exhibited visual hallucinations, irrelevant speech, and subsequent intractable seizures on day 4 of HDT-ASCT, necessitating ICU admission and intubation. Despite non-contributory imaging (CT/MRI) and EEG results, the patient stabilised and was extubated after three days. A second seizure episode occurred on day 13 post-transplant, resulting in re-intubation and ICU transfer. Another 63-year-old gentleman (Patient #5), previously reported (2) with Stage 4 CKD at baseline underwent ASCT with reduced dose melphalan (140 mg/m2). On 7th post-transplant day, he experienced rapid mental decline, severe drowsiness, flapping tremors, acute-on-chronic renal failure necessitating hemodialysis and ICU transfer for mechanical ventilation. While renal function improved post-transplant, neurological recovery was delayed. After an extended hospital stay, he was discharged on day +31 and currently remains in remission without residual neurological deficits at 10 months post-transplant.

There was no neurological sequelae noticed in any of the patients described. None of the seizure episodes recurred after resolution of encephalopathy and patients were discharged on anti-seizure prophylaxis.

Conclusion

ME was experienced by 2.9% patients undergoing HDT-ASCT for plasma cell dyscrasia with Melphalan conditioning. ME is associated with complete neurological recovery and no increase in mortality.

Abstract ID:
A-148

Haploidentical Peripheral Blood Stem Cell Transplant with Fludarabine – Myeloablative Total Body Irradiation (TBI) as Conditioning Regimen with Post-Transplant Cyclophosphamide (PTCy) – A Single Centre Real World Experience

Dr Pragadeesh Thamaraiselvan, Department of Medical Oncology, Cancer Institute (WIA), India
Krishnarathinam Kannan, Department of Medical Oncology, Cancer Institute (WIA), India
Jayachandran Perumal Kalaiyarasi, Department of Medical Oncology, Cancer Institute (WIA), India
Prasanth Srinivasan, Department of Medical Oncology, Cancer Institute (WIA), India
Gargi Das; Department of Medical Oncology, Cancer Institute (WIA), India
Parathan Karunakaran, Department of Medical Oncology, Cancer Institute (WIA), India
Nikita Mehra, Department of Medical Oncology, Cancer Institute (WIA), India
Balaji Thiruvengadam Kothandan, Department of Medical Oncology, Cancer Institute (WIA), India
Venkatraman Radhakrishnan, Department of Medical Oncology, Cancer Institute (WIA), India

Category: Conditioning Regimens

Abstract Content:

Aims:
An analysis of the GVHD-Relapse-free-survival (GRFS), overall survival (OS) and complication rates of patients undergoing allogenic hematopoietic stem cell transplant (HSCT), with Fludarabine-TBI as the conditioning regimen in a Tertiary care standalone cancer centre.
Methods:
Patients who underwent allogenic HSCT with Fludarabine-TBI as the conditioning regimen in Cancer Institute, Chennai, from August-2015 to February 2024, were identified based on hospital records. Their basic characteristics, transplant related events, complications, Graft versus host disease (GVHD) and data regarding survival and relapse were collected and analysed. GRFS and OS were calculated using the Kaplan Meier method and difference between the sub-groups was calculated using Log-rank test.
Results:

Forty-two patients were included in this analysis. All patients received PTCy on D+3 and +4, and almost all (41/42, 97%) received Cyclosporine with Mycophenolate Mofetil as GVHD prophylaxis. The median age was 16.5 (Range 5-44) year, with majority being males (n=25; 60%). The diagnoses were AML (n=17; 40%), ALL (n= 15; 36%) and CML (n=5; 12%). Majority were in second complete remission at time of transplant (n=28; 66.7%). All patients received transplants from HLA-mismatched relatives. Ten transplants (24%) were from female donors.

The median stem cell dose infused was 6.7 x 10x6cells/kg (range 4-8). The median time to neutrophil and platelets engraftment was 14 and 15 days respectively. Only 6 (14%) patients had hemorrhagic cystitis, of which 3 were prior to engraftment and were possibly due to PTCy and all were grade-1/2; the other three patients had hemorrhagic cystitis after engraftment, were grade-3/4 and were positive for BK viremia.

Eleven patients (27%) had isolated acute GVHD; 5 patients (12%) had isolated chronic GVHD and 4 patients (10%) had both. Grade-3/4 acute GVHD was seen in 6 patients (14%). CMV reactivation was present in 26 patients (62%).

Median follow-up duration was 18.6 months (IQR 14.4 to 50.7 months). Median OS was not reached; 2-year OS was 50.2%. Median GRFS was 5.9 months, whereas the 2-year GRFS was 41.1%. Median GRFS was significantly better with male donors, compared to female donors (12.4 months vs 1.1 months; p=0.02).

At the time of data-cut-off, 22 patients were alive and disease free (52.4%), 19 were dead (45.2%), and 1 had relapsed and was on salvage therapy. Non relapse mortality rate was 33% (14 patients), of which 12 patients (28.5%) had early treatment related mortality before D100; 5 of which were due to sepsis, 2 due to thrombotic microangiopathy and 1 due to graft failure.

Conclusion:

Fludarabine - Total body irradiation with PTCy as a conditioning regimen for haplo-identical transplants has an acceptable GVHD and survival rates. Use of a single alkylating agent had resulted in reduced incidence of hemorrhagic cystitis, compared to other regimens using PTCy. Female donors are associated with worser outcomes, more prospective and registry data is required to clarify on the same. High early mortality due to multi-drug resistant sepsis continues to be a significant threat to haplo-identical transplants in a low-middle-income-country setting.

Abstract ID:
A-151

Brentuximab Vedotin Plus Cisplatin, Cytarabine, and Dexamethasone in Patients with Relapsed or Refractory Hodgkin's Lymphoma who are Eligible for Transplant

Prof Jun Ho Yi, Department of Division of Hematology-Oncology, Chung-Ang University, So0uth Korea
Young Hoon Park, Department of Hematology-Oncology, Ewha Womans University College of Medicine, South Korea
Myung-Won Lee, Department of Hematology and Oncology, Chungnam National University Hospital, South Korea
Kwai Han Yoo, Department of Hematology-Oncology, Gachon University College of Medicine, South Korea
Junshik Hong, Department of Hematology-Oncology, Seoul National University Hospital, South Korea
Young Rok Do, Department of Hematology-Oncology, Dongsan Medical Center, Keimyung University School of Medicine, South Korea
Dongwon Baek, Department of Hematology-Oncology, Kyungpook National University Hospital, South Korea
Ji Hyun Lee, Department of Hematology-Oncology, Dong-A University College of Medicine, South Korea
Jeong-Ok Lee, Department of Hematology-Oncology, Seoul National University Bundang Hospital, South Korea
Jae-Yong Kwak, Department of Hematology-Oncology, Jeonbuk National University Medical School, South Korea
Gyeong-Won Lee, Department of Hematology and Oncology, Gyeongsang National University College of Medicine, South Korea
Sung-Nam Lim, Department of Hematology-Oncology, Inje University College of Medicine, Haeundae Paik Hospital, South Korea
Hyeon Seok Eom, Department of Center for Hematologic Malignancies, National Cancer Center, South Korea

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims
Current standard of care for relapsed or refractory Hodgkin's lymphoma (RRHL) is a salvage chemotherapy followed by autologous stem cell transplantation (ASCT), and achieving a deeper response is essential for long-term survival after ASCT. Brentuximab vedotin(BV) is a CD30-directed antibody-drug conjugate, and BV-based combinations showed promising results in the Western countries. However, there has been little data in Asia

owing to the rarity of the disease and limited accessibility of the drug. To further define the role of BV-based salvage therapy in transplant-eligible RRHL in Asia, we carried out a phase II study.

Methods

Transplant-eligible (age 19-70, adequate organ function) RRHL (refractory to the first-line treatment or relapse after the first-line treatment) were recruited to receive 2 cycles of BV (1.8 mg/kg) plus DHAP (cisplatin 100mg/m2, cytarabine 2g/m2, dexamethasone 40mg). Non-progressed patients collected autologous stem cells and received 1 more cycle of BV-DHAP. After 3 cycles of BV-DHAP, responding patients (CR, PR) went on to receive ASCT. The primary end-point was CR rate after 2 cycles of BV-DHAP. Based on the single-stage phase II study design, a total of 30 participants were required (α 0.05, power 90%, P0 30%, P1 60%)

Results

Thus far, a total of 7 patients have been recruited. Their median age was 30 (range, 24 – 62) and M:F ratio was 5:2. All patients received at least 2 cycles of BV-DHAP and the ORR was 100% and 5 patients showed CR (71%). One patient withdrew consent after C2 and the other 6 patients received 1 more cycle of BV-DHAP. Among them, 1 patient refused to receive ASCT and the patient remained in CR for 14 months. Of the 5 patients who received ASCT, 5 patients achieved CR and no one progressed (remission duration: 2 – 17 months). During BV-DHAP treatment, 3 patients experienced dose reduction (2 AKI, 1 thrombocytopenia). Further toxicity profiles will be presented in the poster. There were no treatment-related deaths.

Conclusions

BV-DHAP is showed a promising efficacy in Asian RR HL patients. Because there are concerns about toxicity, careful monitoring is required.

Abstract ID:
A-152

Nursing Experience of Acute Lymphoblastic Leukemia Receiving CAR-T Cell Therapy with Cytokine Release Syndrome

Ms Fang-Yu Liu, Department of Nursing, National Taiwan University Hospital, Taiwan
Jui-Yi Chen, Department of Nursing, National Taiwan University Hospital, Taiwan
Shiouh-Chu Shieh, Department of Nursing, National Taiwan University Hospital, Taiwan

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims: Here we present the nursing experience of a 38-year-old patient with acute lymphoblastic leukemia (ALL) failed of multiple lines of chemotherapy. No suitable donor was found. Therefore, he received out-of-pocket CAR-T cell as salvage therapy. The patient encountered several major challenges, including inadequate disease control, treatment uncertainty, multiple side effects, and substantial medical costs, which contributed to significant anxiety.
Methods: During the nursing period from December 9, 2022, to February 4, 2023, the patient's physical, psychological, social, and spiritual aspects were assessed through observation, interviews, and physical assessments. A strong nurse-patient relationship was established through companionship, listening, and empathy. Chemotherapy-induced immunosuppression caused discomfort such as fever, poor appetite, and anal pain. CAR-T cell infusion also caused recurring high fever and enlarged neck lymph nodes.
Results: The main nursing problems included infections, cytokine release syndrome (CRS), and anxiety. Through multidisciplinary integration and coordination, we had provided medications and nursing interventions for the patient to achieve infection control, nutrition supplementation, fever relief, pain management, and enhancing the patient's self-care abilities. We had also assessed and managed the toxicities associated with CAR-T cell therapy, such as cytokine release syndrome (CRS), immune effector cell-associated neurotoxicity syndrome (ICANS), immune effector cell-associated HLH-like syndrome (IEC-HS). He experienced CRS grade 1 post-infusion. We monitored his vital signs and consciousness frequently, took blood test regularly and arranged a computed tomography (CT) scan assess progressing neck swelling. Using supportive care and both of

tocilizumab and anakinra for treatment. His cytokine release syndrome had resolved. Mindfulness-based art therapy (MBAT), group exercise activities, and mindful walking were utilized to help the patient focus on the present moment, thereby reducing psychological distress and anxiety.
Conclusions: Nurses played a crucial role in CAR-T therapy, include enhancing patient assessment, closely monitoring post-infusion toxicities, ensuring patient safety, and facilitating stress adaptation. Nurses should possess expertise and require ongoing, up-to-date training in the management of patients receiving CAR-T cell therapies. Additionally, employing multidisciplinary teamwork and shared decision-making had been crucial to deliver high-quality care to patients.

Abstract ID:
A-153

Efficacy and Toxicity For CD7 Chimeric Antigen Receptor T-cell Therapy In Patients with Relapsed/Refractory T-cell Lymphoma

Dr Fan Yang, Department of Hematology and Lymphoma Research Center, Beijing Gobroad Hospital, Beijing Gobroad Hospital, China
Hui Shi, Department of Hematology and Lymphoma Research Center, Beijing Gobroad Hospital, Beijing Gobroad Hospital, China
Rui Liu, Department of Hematology and Lymphoma Research Center, Beijing Gobroad Hospital, Beijing Gobroad Hospital, China
Biping Deng, Department of Cytology Laboratory, Beijing Gobroad Boren Hospital, China
Xiaoyan Ke, Department of Hematology and Lymphoma Research Center, Beijing Gobroad Hospital, Beijing Gobroad Hospital, China
Kai Hu, Department of Hematology and Lymphoma Research Center, Beijing Gobroad Hospital, Beijing Gobroad Hospital, China

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims: The aim was to assess humanize CD7 chimeric antigen receptor (CAR) T-cell safety and efficacy in patients with r/r T-cell lymphoma.
Methods: From August 2020 to April 2024, 38 patients were enrolled.The median age was 31.5(18-72) years old. The diagnosis included T cell lymphoblastic leukemia/lymphoma(T-LBL) (n=33),hepatosplenic T-cell lymphoma(HSTL,n=1)， monomorphic epitheliotropic intestinal T-cell lymphoma(MEITL,n=1) ,Sézary syndrome(SS,n=1),Extranodal NK/T-cell lymphoma(n=1)and cutaneous T-cell lymphoma(CTCL， n=1).The disease status was progressive disease (PD)in all patients who failed to multi-line therapies, including autologous HSCT (n=6), and alloHSCT(n=15).6 patients(6/38,15.8%) had a large mediastinal mass and 18 patients(18/38,47.4%) had bone marrow invasion.Six patients(8/38, 21.1%)had central nervous system involvement.In order to further reduce the tumor burden, 22/38(57.9%) patients were treated with bridging therapy before CAR-T cell infusion. Before the trial, the expression of CD7 antigen in tumor tissue was positive confirmed by pathology. Infusion of donor-derived CD7 CAR-T cells in patients who have relapsed after alloHSCT, whereas infusion of autologous CAR-T cells in other patients.Patients received FC regimens before CAR-T cell infusion.

Results: The median CAR-T cells infused were 1×105/kg (range,0.6-34×105/kg). For CAR T cell expansion,the peak time in vivo was on median 11(range,7-21) days after CAR-T cell infusion.The median peak kinetics of CAR-T cells in peripheral blood of individual patients measured by flow cytometry was 23.65(range,1.56-219)×106/L, which was no correlation with the number of CAR-T infused(P=0.15) .Peak CAR-T amplification is also independent of whether CART cells are sufficiently donor-derived(P=0.4692). Levels of CAR-T cells were very low after the first 1 months postinfusion. The incidence of grade 3 cytokine release syndrome (CRS) was 5.3% (2/38), and the incidence of grade 1-2 neurotoxicity was 2.6% (1/38).Although CD7-positive normal T cells were depleted, CD7-negative T cells expanded in all patients.Twenty-nine patients had occurred cytopenias. Nine patients （9/38,23.7%） had prolonged cytopenias (1 month).Viremia occurred in 20/38(52.6%)patients. 2/38(5.3%) patient developed post transplant lymphoproliferative disorders(PTLD)associated with EBV infection.1/15(6.7%) patients after allogeneic HSCT were found to have grade IV aGVHD (intestinal) .

The median follow-up was 8.16 months (95% CI: 2.3-30.5).The overall response (ORR) was 89.5%(CR 84.2% and PR 5.3%).

Of the 23 patients who were infused with autologous CD7 CAR-T, 18/23(78.2%) achieved CR and 2/23(8.3%) achieved PR.13/18(72.2%) bridged allogeneic transplants and 10/13(76.9%) survived disease-free.Five patients(5/23,21.7%)were maintained and three(3/5,60%) survived disease-free.

Of the 15 patients who were infused with donor-derived CD7 CAR-T, 14/15(93.3%) achieved CR.Of the 11/14(78.6%)patients who achieved CR, only 4/11(36.4%) survived disease-free, 3/11(27.3%) relapsed and died, and 4 died of infection during maintenance therapy. 3/14(21.4%) patients who achieved CR bridged the second allogeneic transplantation from a different donor, 1 survived disease-free, and 2 relapsed and died.

Conclusion: Our study showed promising efficacy of CD7 CAR-T cell therapy in r/r T-cell lymphoma.Similar efficacy of CAR-T from both autologous as well as donor-derived cell.Autologous CD7 CAR-T therapy to achieve CR after bridging allogeneic transplantation section improved survival.Patients in remission with donor -derived CD7 CAR-T after alloHSCT are still at risk of infection and relapse, and effective therapies need to be further explored.

Abstract ID:
A-154

Reducing Waiting Time for Therapeutic Plasma Exchange Procedure for Patients in Specialized Care Units: A Quality Improvement Project

Ms Nurasyikin Binte Mohamed Ishak, Department of Apheresis Unit, National University Cancer Institute, Singapore, Singapore
Liew Lai Sin, Department of Apheresis Unit, National University Cancer Institute, Singapore, Singapore

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Background
Therapeutic Plasma Exchange (TPE) is a vital medical procedure commonly used to remove
antibodies as an interim measure to mitigate effect of e.g autoimmune diseases, blood disorders, or prior to definitive treatment(s) such as transplant. For urgent cases, it is recommended to start TPE within 4 to 6 hours of referral. Delay in providing TPE may result in hastening disease progression, organ dysfunction, increased morbidity, and mortality. However, the current wait time for the commencement of TPE may take as long as 13 hours. Thus, this warrants a review of the processes to reduce the wait times to TPE.

Aim
To reduce wait time for TPE procedure commencement to less than 6 hours after activation of apheresis nurse.

Methods
The Quality Improvement Project (QIP) using the Plan-Do-Study-Act cycles, was implemented from October 2023 to June 2024.

In the Plan phase (January to September 2023), a monitoring system tracked activation time, start time, and delay causes. Statistics showed 43 out of 172 cases (25%) exceeded the 6-hour target. Work processes were evaluated to optimize scheduling and communication.

In the Do phase (October 2023), the apheresis team developed TPE checklist and visual guides summarizing the protocol for nurses and

doctors, uploaded to patient systems. Data tracking was halted for one month during end-user adaptation.

In the Study phase (November to December 2023), minimal 5% decrease in time to start was observed compared to pre-checklist implementation. To improve this, additional interventions were implemented in the Act Phase, including detailed physical order instructions, in-person guide orientation, and physician emails to ensure compliance. A 2pm deadline was added for procedure preparations, otherwise postponed to the next day unless critical. End-user satisfaction was measured through interviews.

Result

The baseline period (January to September 2023),172 procedures were included. Post-intervention (November 2023-June 2024), 134 procedures were included. Pre-interventions, 25% exceeded the 6-hour target, compared to only 6.82% post-interventions – a 73% reduction in delays. Main delay factors were patient transfers between wards (32%), incorrect consent forms (15%), and order changes (12%). End-user feedback was positive, with comments such as “less phone calling needed” and “protocol checklist is helpful”.

Conclusions

The introduction of a standardized TPE checklist and workflow interventions has streamlined the initiation process for TPE procedures. By clearly outlining roles, required forms and order sets, the new process empowered staff to proactively prepare for TPE treatments. Despite simple enhancements to communication and visual guidance, it can yield measurable improvements in patient care. Cases exceeding the 6-hour activation-to-start time decreased by 73% after project implementation. More importantly, the new process reduced stressful delays for critically ill patients awaiting urgent therapy. Clinician feedback indicates high satisfaction with the increased efficiency and standardization of the TPE workflow. This quality improvement initiative succeeded in optimizing the procedure start time, enhancing team collaboration, and facilitating prompt delivery of life-saving plasma exchange treatments.

Abstract ID:
A-159

Lymphocyte Recovery and the Risk of Viral Reactivation in Children Post Allogeneic Hematopoietic Stem Cell Transplantation: Single Centre Experience

Dr Archana Melavarige Venkatagiri, Division of Pediatric Hematology and Oncology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India
Swathi Pm, Division of Pediatric Hematology and Oncology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India
Emine A Rahiman, Division of Pediatric Hematology and Oncology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India
Santosh Asangi, Division of Pediatric Hematology and Oncology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India
Vasudeva Bhat K, Division of Pediatric Hematology and Oncology, Kasturba Medical College, Manipal Academy of Higher Education, Manipal, India

Category: Infectious and Non-infectious complications

Abstract Content:

Aim: Viral infections, most commonly CMV reactivation, affect both the clinical and immunological recovery following allogeneic HSCT. Early viral infections are linked with prolonged T-cell immunodeficiency. The study aimed to analyse the impact of immune recovery, represented by absolute lymphocyte count (ALC), on the risk and severity of viral reactivation post-allogeneic hematopoietic stem cell transplantation (HSCT).
Methodology: Immunological reconstitution and viral reactivation rates were analysed retrospectively in children who underwent allogenic Hemopoietic stem cell transplant between January 2021- December 2023
Results: In the total of 20 children with M:F ratio of 1.5:1, transplant sources included matched related donors (MRD) in 10(50%), mismatched family donors (Haploidentical HSCT, in 9(45%), and a match unrelated donor (MUD) in 1(5%). Pre-transplant CMV Serology (IgG) was positive in all recipients and donors included in the study. The indications for HSCT in 3/4th were primarily non-malignant diseases, while 1/4th of cases were malignancies. All except three patients received ATG as a part of the conditioning regimen. Stem cells were sourced from peripheral blood in 70% of the cases and bone marrow in the remaining 30%, with a median CD34 dose of 9.5x106 per kg [3.8-25 x106 per kg] of recipient weight. Five patients (25%) developed ≥Grade III acute GVHD requiring systemic steroid therapy or more.

Immunological reconstitution was measured by ALC at three points post-transplant: Day+15, Day+21, and Day+28, with average counts of 231/μL, 432/μL, and 843/μL respectively. Median CD3/CD4 positive lymphocyte count on day+28 was 78.75/μL (4-539/μL). CMV reactivation was observed in 70% of the participants at a median of 25 days post-transplant (8-29 days), with an average peak viral load of 7000 IU/ml. Additionally, significant viral infections documented within the first 90 days included Adenovirus (2) BK virus (n=1), Rhinovirus (n=1), Parainfluenza virus (n=1), and respiratory syncytial virus (n=1). Two patients (10%) exhibited CD3/CD8 positive T cell expansion in response to CMV reactivation.
Conclusion: The study's data indicate that CMV reactivation and other viral infections are common post-transplant complications, potentially linked to delayed T-cell recovery. The study found that despite good ALC values, the patients exhibited higher rates of CMV reactivation and other viral infections. This suggests that the ALC may not fully reflect the functional recovery of T-cells, which are critical for controlling viral infections. The patients exhibited higher CMV reactivation, likely due to pre-transplant positive CMV status, the use of ATG in the majority of patients, and the occurrence of GVHD which are known risk factors for CMV reactivation. Identifying high-risk patients through ALC and viral load monitoring can help guide targeted prophylactic and pre-emptive strategies, especially in resource-constrained settings like ours.

Abstract ID:
A-160

Outcomes of 1-day Non-myeloablative Salvage Regimen for Paediatric Patients with Graft Failure Following T-Cell Depleted Haploidentical Haematopoietic Stem Cell Transplantation in Hong Kong

Dr Chan Yau Ki Wilson, Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong
Cheuk Ka Leung Daniel, Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong
Lee Pui Wah Pamela, Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong
Leung Wing Hang, Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong

Category: Conditioning Regimens

Abstract Content:

Aims

Haploidentical haematopoietic stem cell transplantation (HSCT) had been increasingly employed as an alternative transplant strategy for patients who lack a suitable HLA-matched donor. T-cell depletion (TCD) reduces the risk of graft-versus-host disease (GVHD) but at the expense of increased incidence of graft failure or rejection, which is a potentially life-threatening complication as patients are at a high risk of severe infection owing to prolonged neutropenia after the initial HSCT. The ideal regimen for re-transplantation is currently unknown. Traditional approach of starting high-intensity myeloablative and immunoablative re-conditioning about 5 days before HSCT to suppress the recipient-derived immune system prolongs haematopoietic recovery and immunoreconstitution, inevitably leads to increased infection risk and transplant-related mortality. A shortened and reduced-intensity conditioning regimen may reduce infection risk and promote survival. Here, we report the outcome of 8 paediatric patients underwent 1-day reduced-intensity preparative regimen given prior to re-transplantation for graft failure following initial haploidentical TCD HSCT.

Methods

This is a retrospective study conducted in the Hong Kong Children's Hospital, the only territory-wide paediatric HSCT center in Hong Kong, during 1 January 2021 to 31 December 2022. Primary and secondary graft

failure were respectively defined as absence (absolute neutrophil count <0.5 x 109/L) or decline in already-recovered haematopoietic function necessitating blood products or growth factor support, with supportive evidence from donor chimerism testing using standard short tandem repeats, supplemented by lineage-specific flow chimerism testing as indicated. Graft rejection was defined as immune rejection of donor cells mediated by host cells. The salvage regimen consisted of fludarabine 30mg/m2, cyclophosphamide 2000mg/m2 or 60mg/kg, alemtuzumab 0.3mg/kg with or without 2 Gy total body irradiation, all administered 1 day before re-transplantation. GCSF-mobilized peripheral blood stem cells (PBSCs) were collected through apheresis and transplanted fresh without ex-vivo T-cell depletion. GVHD prophylaxis consisted of either cyclosporine, mycophenolate mofetil, tacrolimus or sirolimus.

Results

Total 8 patients were recruited including 6 males and 2 females with median age of 6.8 years (range 2.4-11.9 years). Underlying diseases include transfusion-dependent anaemias (n=4), chronic granulomatous disease (n=1), acute lymphoblastic leukaemia (n=1), post-transplant lymphoproliferative disease (n=1) and neuroblastoma (n=1). 4 patients had primary graft failure while remaining 4 had secondary graft failure. 6 patients underwent one prior HSCT while 2 had 2 prior HSCTs. Median interval between last HSCT to employment of 1-day regimen was 26.5 days (range 18-49 days). All patients received T-cell replete PBSCs from either same (n=3) or different (n=5) donors with median stem cell dose of 6.8x106 CD34+ cells/kg (range 5.5-20.6) and total nucleated cell dose of 8.0 x 108/kg (range 7.4-10). Haploidentical donors include father (n=4), mother (n=3), or other haploidentical relative (n=1). All patients demonstrated sustained engraftment and haematopoietic recovery. Median neutrophil and platelet (≥20x109/L) engraftment were on day+11 (range 10-19) and day+17 (range 10-35) respectively. Overall 1-year survival was 100%.

Conclusions

To conclude, local experience suggested that 1-day reduced-intensity regimen is feasible and promising to achieve sustained engraftment. It is a safe and appropriate approach in salvaging paediatric patients with graft failure or rejection requiring immediate re-transplantation following TCD haploidentical HSCT.

Abstract ID:
A-162

Lineage-Specific Chimerism Monitoring Using Flow Cytometry with Anti HLA-antibodies in Haploidentical Haematopoietic Stem Cell Transplantation

Dr Chan Yau Ki Wilson, Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong
Cheuk Ka Leung Daniel, Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong
Lee Pui Wah Pamela, Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong
Leung Wing Hang, Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims

Haploidentical haematopoietic stem cell transplantation (HSCT) had been increasingly employed as an alternative transplant strategy for patients who lack a suitable human leukocyte antigen (HLA)-matched donor. Regular monitoring of engraftment and chimerism can be critical to establishing the success of transplant. Short tandem repeats-polymerase chain reaction (STR-PCR) based chimerism analysis is widely used and is our current standard clinical practice, but most has been performed by testing total leukocytes. Analysis of chimerism in selected lineage-specific populations could provide more important information to guide patient management. However, STR-PCR of isolated cells is labour intensive and time consuming. Alternatively, flow cytometry (FCM) can be used to evaluate chimeric status in haploidentical HSCT based on disparity of HLA antigens between donor and recipient, and lineage-specific chimerism analysis (LSCA) could also be performed simultaneously, quickly and easily with more precise results.

Methods

This is a single-arm prospective comparative study conducted in the Hong Kong Children's Hospital, the only territory-wide paediatric haematopoietic stem cell transplant center in Hong Kong, from 1 January 2022 to 31 December 2024. We aim to evaluate the correlation between FCM chimerism and STR-PCR chimerism, to explore the utility of FCM-LSCA

results in clinical management, to describe the dynamics of lineage-specific chimerism in various T lymphocytes, B lymphocytes, natural killer cells and monocytes, to describe the clinical outcomes of mixed chimerism detected by FCM and to analyse factors associated with mixed chimerism. Extra 3ml EDTA blood was collected at routine clinical time points (during donor and recipient workup, at post-HSCT day 7, 14, 21, 28; week 6, 8, 10, 12; 6 months and 1 year) for flow chimerism study to be performed in the research lab at Hong Kong Children's Hospital. Correlation between FCM chimerism and the gold-standard STR chimerism was evaluated.

Flow cytometric analyses were performed using erythrocyte-lysed whole blood mononuclear cells using antibodies for HLA antigens. A panel of HLA-specific monoclonal antibodies were be selected to target HLA serotypes based on the allele distribution of HLA in Hong Kong Chinese population including A2, A3, A11, A23, A24, Bw4 and Bw6. Antibodies for cluster of differentiation (CD) antigens including CD3, CD16, CD19 and CD56 were used to target different cell populations and study the dynamics of lineage-specific chimerism.

Results and conclusion

Total 77 subjects (33 patients and 40 respective donors) had been recruited so far. Good correlation between FCM chimerism and STR chimerism had been demonstrated. The newly developed flow chimerism method is advantageous over existing gold standard as it is faster, less costly, less blood volume required, more sensitive and accurate, facilitates multi-parametric analyses and with extended utility. Apart from traditional haploidentical transplantation, the newly developed technique is also useful in chimerism monitoring for patients undergoing complementary (haplo-cord) transplant and haploidentical NK cell infusions.

Abstract ID:
A-167

A Retrospective Multi-centre Analysis of the Efficacy and Tolerability of ASCT for the Treatment of PCNSL

Dr Huirong Han, Department of Haematology, National University Cancer Institute Singapore, Singapore
Michelle Poon Li Mei, Department of Haematology, National University Cancer Institute Singapore, Singapore
Koh Liang Piu, Department of Haematology, National University Cancer Institute Singapore, Singapore
Jayalakshmi, Department of Haematology, National University Cancer Institute Singapore, Singapore
Hui Li Lim, Department of Haematology, National University Cancer Institute Singapore, Singapore
Lip Kun Tan, Department of Haematology, National University Cancer Institute Singapore, Singapore
Joanne Lee, Department of Haematology, National University Cancer Institute Singapore, Singapore
Esther H L Chan, Department of Haematology, National University Cancer Institute Singapore, Singapore
Sanjay De Mel, Department of Haematology, National University Cancer Institute Singapore, Singapore
Wei Teik Victor Ling, Department of Haematology, National University Cancer Institute Singapore, Singapore
Chee Yen Lin, Department of Haematology, National University Cancer Institute Singapore, Singapore
Nur Arifah Maziah Binte Moin, Department of Haematology, National University Cancer Institute Singapore, Singapore
Jedidah Lieow, Department of Haematology, National University Cancer Institute Singapore, Singapore
Foong Gwan Lee, Department of Haematology, National University Cancer Institute Singapore, Singapore
Yelly Suhadi, Department of Haematology, National University Cancer Institute Singapore, Singapore
Belinda Tan, Department of Haematology, National University Cancer Institute Singapore, Singapore
Meredith Wei-Yuan Tan, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Cheng Kiat Ng, Department of Haematology, Singapore General Hospital, Singapore

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims

There has been increased use of autologous stem cell transplantation (ASCT) as treatment for Primary Central Nervous System Lymphoma (PCNSL) in Singapore since 2018. However, there is a lack of data reviewing the real-world efficacy and tolerability of ASCT, especially in the elderly population. Our study aims to study the efficacy and tolerability of ASCT for the treatment of PCNSL.

Methods

The outcomes of 31 PCNSL patients who received ASCT from 2018-2023 in two Singapore tertiary institutions were studied. The patients were aged 27 to 75 years, with median age of 59. 11 patients were elderly (more than or equal to 65 years).

Results

25 patients received upfront ASCT, the remaining 6 patients received ASCT during time of disease relapse. At time of transplant, most patients were in remission- 18 in CR and 7 in PR. The patients received thiotepa based conditioning, together with BCNU (N=25), Etoposide/BCNU(N=5) and Busulfan/Cyclophosphamide (N=1). Within a follow-up period of 16 months, there was one transplantation-related death and three relapses post ASCT. The 2-year PFS was 84% and 2-year OS was 85%. There was no significant difference between the younger versus elderly cohort. There was a trend of improved 2-year PFS (92% vs 62%, p=0.2) and 2-year OS (92% vs 67%, p=0.1) in patients who received upfront ASCT compared to those who received ASCT during disease relapse. Patients with chemo-sensitive disease appeared to have improved outcomes compared to those with less chemo-sensitive disease (2-year PFS 89% vs 50%, p=0.06 and 2 year OS 86% vs 75%, p=0.3). For those who relapsed post ASCT, RT was the main salvage modality. The median OS after relapse post ASCT was 8 months.

Conclusions

Our study demonstrates the efficacy and tolerability of ASCT for the treatment of PCNSL both in the upfront and relapsed setting, and in both younger and elderly patients. In particular, patients with chemo-sensitive disease who received upfront ASCT demonstrated excellent outcomes, supporting the use of this treatment modality for this group of patients.

Abstract ID:
A-168

Combination of Low Dose Anti-Thymocyte Globulin (ATG) and Reduced Dose Post Transplant Cyclophosphamide (PTCy), for Haploidentical Stem Cell Transplant in Acute Leukemia : A Single Center Retrospective Study

Dr Wong Tien Gen, Department of Haematology, Hospital Ampang, Malaysia
Dr Sharifah Shahnaz, Department of Hematology, Hospital Ampang, Malaysia
Dr Tan Sen Mui, Department of Hematology, Hospital Ampang, Malaysia
Dr Ong Tee Chuan, Department of Hematology, Hospital Ampang, Malaysia

Category: Acute Leukemia

Abstract Content:

Background and Aim

Haploidentical stem cell transplant (Haplo-SCT) with standard dose post-transplant cyclophosphamide (50mg/kg, day +3, +4) is an effective platform, but with considerable early non relapsed mortality (NRM) in our patients. In recent years, haplo-SCT with combined reduced dose ATG and PTCy has shown to have improved NRM. We report our preliminary data on Haplo-SCT with a novel combination of low dose rabbit ATG (2.5mg/kg, day -2) with reduced dose PTCy (50mg/kg day+3), in patient with acute leukemia.

Methods

We retrospectively included 30 patients with acute leukemia, who underwent haplo-SCT from February 2021 till February 2024. Comparison was made between 20 patients who had standard dose PTCy and 10 patients with our novel combination (ATG/PTCy). Standard dose PTCY based transplant was done earlier in year 2021 till 2023, whereas ATG/PTCy based transplant was in 2023/2024

Results

The median follow up for PTCy group and ATG/PTCy group was 28 months (22-33) and 5.5months (3-15), respectively. There are no significant differences between the group in term of patients' age, gender, disease status, karnofsky score and donor-recipient CMV serology. All patients received myeloablative conditioning, except 2 patients in ATG/PTCy group received reduced intensity conditioning. ATG/PTCy group received a median CD34 cell of 5.9 x106/kg (4-7.1) and PTCy group received

5.0x106/kg (3.9-8.14). Neutrophil engraftment was earlier in ATG/PTCy group compared to PTCy, which was 11.5 days (10-15) and 16 days (13-21) respectively. Similarly, platelet engraftment in ATG/PTCy was 11.5 days (10-13), and 18 days (12-26) in PTCy group. The cumulative incidence of CMV reactivation at day +60 was 89% in PTCy group and 63% for ATG/PTCy group (P=0.018). Cumulative incidence of acute GVHD in PTCy group was 42% (95% CI: 18-67), compared to 50% (95 % CI:31-79) in ATG/PTCy (P=0.12). Acute GVHD in PTCy group were grade I-II, similarly in ATG/PTCy group, except for 1 patient who has grade III GVHD. 8 patients with hemorrhagic cystitis (grade II to IV) were reported in PTCy group, with only 2 (grade I and II) occurred in ATG/PTCy group. 11 deaths were reported in PTCy group, in which 4 deaths were before day +90. In ATG/PTCy group, there were 2 deaths due to disease relapsed and EBV-PTLD.

Conclusion

Our preliminary data shown that combination of low dose ATG/PTCy has earlier neutrophil/platelet engraftment and low occurrence of hemorrhagic cystitis, leading to a lower early NRM. The risk of CMV reactivation and acute GVHD is similar with standard dose PTCy.

Abstract ID:
A-169

Low-dose CD22 Monoclonal Antibody Bridging to Allogeneic Hematopoietic Stem Cell Transplantation for Acute B Lymphoblastic Leukemia in non-remission or Minimal Residual Disease Positive after CD19 or CD22 CART-cell Therapy

Dr Erhui Yuan, Department of Hematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Tong Wu, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Yanzhi Song, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Zhanxiang Liu, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Yongqiang Zhao, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Chunrong Tong, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Shuangyou Liu, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Lihong An, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China
Yuehui Lin, Department of Haematopoietic Stem Cell Transplantation, Beijing Gobroad Boren Hospital, China

Category: Acute Leukemia

Abstract Content:

Aims: CD19 or CD22 (chimeric antigen receptor T) CAR-T are effective treatments for relapsed/refractory (r/r) acute B lymphoblastic leukemia (B-ALL). However, there are still patients who can not get complete remission (CR) or minimal residual disease (MRD) negative (-) after CAR-T and their prognosis is extremely poor. We attempted to treat these patients with low-dose CD22 monoclonal antibody (Inotuzumab-ozogamicin) bridged by allogeneic (allo-) hematopoietic stem cell transplantation (HSCT) and improved their prognosis.
Methods: We consecutively included 8 patients who did not get remission or MRD- after CD19 or CD22 CAR-T. The median age was 16 (3-63) years, 5 males and 3 females. All patients had received multiple chemotherapy, 7 patients had received CD22-CART before CD22 antibody, 6 patients had

received ≧3 courses of CAR-T treatments, 2 received one or two courses of CAR-T. 5 patients were not remission before CD22 antibody, 3 patients were MRD positive (+) before CD22 antibody. One or two doses of Inotuzumab-ozogamicin (1 mg per dose for adults and no more than 0.85 mg/m2 per dose for children) were administered and allo-HSCT was performed in a median of 24 (11-37) days after CD22 antibody. Donors of allo-HSCT were 2 matched sibling, 3 unrelated and 3 related haploidentical donors. Five patients received a conditioning regimen based on TBI/FLU, and the other 3 received BU/FLU. Cyclosporine, MMF and a short course of MTX was used for GVHD prophylaxis in all cases except the two patients with matched related donors.

Results: At a median follow-up of 421 (59-1147) days, all 8 patients achieved complete hematopoietic reconstruction with complete donor chimerism. Median time to neutrophil reconstitution was 13.5 (8-19) days, and platelet was 13 (9-43) days. 5 patients (2 in non-remission group and 3 in MRD+ group) get CR and MRD- (62.5%) after CD22 antibody, 4 of them were continuously MRD- alive with the 2-year overall survival (OS) and leukemia free survival (LFS) were both 32.8%±25.4%. 3 patients did not get MRD- CR after CD22 anitbody, one achieved continuously MRD- after allo-HSCT and has been alive for 10 months post-HSCT, one get MRD- after allo-HSCT but relapsed 18 months post-HSCT, one with extramedullary disease did not get remission after both CD22 antibody and HSCT and died of leukemia. No sinusoidal obstruction syndrome (SOS) occurred. Grade 1 hepatotoxicity occurred in 3 patients (3/8). Grade I acute graft-versus-host disease (aGVHD) occurred in 2 patients, and limited chronic GVHD occurred in 3 patients. Infectious shock occurred in 1 case, septicaemia occurred in 1 case. Intestinal infection occurred in 3 cases. CMV activation occurred in 4 cases, grade I-II hemorrhagic cystitis in 2 cases, and HHV7 infection in 1 case. All the complications were relieved after treatments.

Discussion: Our primary results have shown our salvage regimen with low-dose CD22 monoclonal antibody bridging to HSCT are effective and safe for r/r B-ALL patients who can not get MRD- CR after CART. 7/8 (87.5%) got remission and the expected 2-year LFS was 32.8% and no SOS occured in the treatment period.

Abstract ID:
A-170

Poor Graft Function Following Autologous Stem Cell Transplant: A Retrospective Review

Dr Wong Tien Gen, Department of Hematology, Hospital Ampang, Malaysia
Dr Sharifah Shahnaz, Department of Hematology, Hospital Ampang, Malaysia
Dr Tan Sen Mui, Department of Hematology, Hospital Ampang, Malaysia
Dr Ong Tee Chuan, Department of Hematology, Hospital Ampang, Malaysia

Category: Infectious and Non-infectious complications

Abstract Content:

Background and Aim

Autologous stem cell transplant (ASCT) is commonly performed to consolidate treatment response in selected hematology malignancy. Poor graft function (PGF) is a not an uncommon complication post ASCT, but with limited data in our center. This study is aimed to identify the prevalence and risk factors for PGF in our center's cohort.

Method

Among the 140 ASCT performed from January 2023 until March 2024, 11 patients with PGF post ASCT were retrospectively identified and analyzed. PGF is defined as platelet counts <50,000/uL, ANC <1000/mm3, hemoglobin <8g/dl, or requirement of transfusions of blood products starting at +30 days post ASCT.

Result

The prevalence of PGF in our cohort was 7.8%. Among the patients with PGF, 4 have plasma cell neoplasm, 3 primary CNS lymphoma, 3 acute promyelocytic leukemia and 1 diffuse large B cell lymphoma, with median age of 48-year-old (16–66-year-old). The median follow up time was 6.5 months (2 -13 months). 7 patients collected at first attempt with G-CSF mobilization. 4 patients failed G-CSF mobilization, they were then remobilized with chemotherapy and collected. The median CD34 cell collected and infused was 3.04x106/kg (2.06 -6.68 x106/kg), with viability of 98% before infusion. All patient received full myeloablative conditioning. Median duration for G-CSF administration post infusion, was 10 days (7-17 days). Median neutrophil engraftment is 11 days (10-17 days), while platelet engraftment is 13 days (10-27days). Among the patients with PGF, the median time for full hematopoietic recovery is 3.5 months and each

patient require an average of 4-unit pack cells and 5-unit apheresis platelets, during the follow up period. 3 patients were still having PGF after 6 months ASCT. 2 deaths were reported, due to severe pneumonia and disease relapse respectively. Our cohort is too small to draw any statistically significant correlation.

Conclusion

PGF remains a common complication after ASCT. Its occurrence incurs higher health care cost and adversely affects patient overall survival. Malignant bone marrow disease, difficult stem cell mobilization and a low infused CD34 cell dose were risk factors for PGF.

Abstract ID:
A-171

Implementation of Use of Peripherally Inserted Central Catheter (PICC) for the Administration of Peripheral Blood Stem Cells (PBSC) in all Patients Receiving Hematopoietic Stem Cell Transplantation (HSCT): A Quality and Safety Improvement Project by the N

Ms Ngo Yu Ting, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Michelle Poon, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Grace Cham Swss Qynn, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Joanne Lee, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Clarice Choong, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Koh Liang Piu, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Tan Lip Kun, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Soh Teck Guan, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Che Gek Ling, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Tang Yoke Lai, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Ana Bte Latip, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Nur 'Arifah Maziah Binte Moin, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Lim Hui Li, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Jedidah Lieow, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore
Yap Eng Soo, Department of Haematology-Oncology, National Cancer Institute of Singapore (NCIS), Singapore
Chia Kwee Cheng, Department of Nursing, National Cancer Institute of Singapore (NCIS), Singapore

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims:

To evaluate feasibility and safety of using PICC to deliver PBSC to all HSCT patients. PICC are routinely used for chemotherapy administration, but there is limited data supporting their use for PBSC infusion. Until 2019, despite an existing PICC, our HSCT patients received additional CVC insertion through the internal jugular vein for PBSC infusions. Led by a multidisciplinary team,a stepwise validation/implementation project, through an in-vitro lab based validation process, followed by a clinical review was performed over a 4-year period, evaluating PICC use for PBSC infusions for all HSCT patients.

Methods:

1. Lab based validation

In vitro infusion of 6 cryopreserved PBSCs was performed, 3 infused PICC whist 3 via CVC. Each product was thawed for the same amount of time and drained by gravity. Pre-infusion and post-infusion total nucleated cell counts (TNC), CD34 counts and CD34 viability of the PBSCs were analysed by flow-cytometry and compared using paired T test. In vitro infusion rates were also compared between PICC and CVC groups.

2. Clinical Outcome Analysis

Following the in-vitro lab-based validation process, a first pilot using PICC for PBSC infusion was first performed (between 2019-2020) amongst autologous HSCT (autoHSCT) patients. Data for this was presented previously (Wan et al ASH 2021).
In this final analysis of our project, we extended this initiative to our allogeneic cohort (alloHSCT). Between 2023 to currently, a 2nd pilot involving 21 alloHSCT patients was conducted. Time to neutrophil/platelets engraftment, infusion and line-related complications were analyzed.

Results

1. In vitro findings:

Overall flow rates for infusion through PICC was slower (mean 0.1mls/s vs 0.3mls/s, $p < 0.05$). The % differences in TNC counts (5% vs 9%, $p=0.4$), CD34 counts (17% vs 15%, $p=0.9$) and viability (4% vs 7%, $p=0.2$) between pre and post infusion samples for PICC and CVC were however similar.

2. Clinical Outcome Analysis:

Data for the autoHSCT cohort was presented previously (Wan et al ASH 2021), showing comparable engraftement/safety data for the PICC cohort compared to a matched CVC historical cohort. Following this pilot, PICC has been used since 2021, for all autoHSCT with no unexpected safety signals.
For the alloHSCT cohort, 21 patients were included. 15 (71% of patients) had an existing PICC while 6 had PICC inserted for alloHSCT. For patients with existing PICC, median duration of catheter-in-situ was 166 days. No infusion or catheter-related complications were noted in all patients. Median time to neutrophil and platelet recovery was 12 (range 9-18) and 13 (range 11-27) days respectively, which compared favorably with our historical cohort data.

Conclusion:

Our findings confirm PICC for PBSC administration in patients receiving alloHSCT is safe, and can reduce additional line insertion in a significant proportion of patients. Our project findings support the implementation of PICC use for PBSC infusion for all HSCT patients, allowing costs reduction and improved safety for our patients.

Abstract ID:
A-172

Pilot Study of Efficacy of Romiplostim in Post-Transplant Settings to Hasten Platelet Recovery

Dr Madhupriya B, Department of Clinical Haematology, St Johns Medical College Hospital, India
Tiji Alphonse, Department of Clinical Haematology, St Johns Medical College Hospital, India
Seetharam Anandram, Department of Clinical Haematology, St Johns Medical College Hospital, India

Category: Infectious and Non-infectious complications

Abstract Content:

AIM:
To evaluate the usefulness of romiplostim in shortening the duration of thrombocytopenia - post-transplant patients.
METHODS:
• We treated **15 consecutive adult patients** who underwent peripheral blood-HSCT(allo HSCT 3 patients & Auto-HSCT 12 patients) with romiplostim. The patients were administered **Romiplostim 2-3 mcg/kg, median time of administration was on Day +7 post-transplant**. The patients with a history of thrombosis and deranged liver function tests were excluded.
• **The primary endpoint** was taken as a Platelet engraftment (Platelet engraftment was defined as the first of 3 consecutive platelet values >20 × 109 /L obtained on three consecutive days without transfusion).**Secondary endpoints** were platelet count 50000/mm3 with out transfusion and transfusion requirement after injection romiplostim.
RESULTS:
• In the cohort of 15 patients with 5 females and 10 males. All the patients received 3 mcg/kg of romiplostim. The **median time for platelet engraftment was 13.5 days (10-17).** The median time **for a platelet count of 50000/mm3 was 18 days** and **none of these patients received platelet transfusion** after injection romiplostim. None of the patients experienced any adverse events during the first 6 months of posttransplant. No adverse events were noted in these patients.
CONCLUSION:
• Romiplostim is **safe and potentially hastens platelet engraftment** in haematopoietic stem cell transplant.Romiplostim is beneficial in a setting

of HSCT, considering the morbidity and financial burden related to delayed platelet recovery and secondary thrombocytopenia after HSCT. **Pre-emptively administering romiplostim akin to GCSF**may be beneficial which requires confirmation by larger randomized clinical trials.

Abstract ID:
A-173

Establishment of the First Government-funded Paediatric Allogeneic Stem Cell Transplant Unit in Sri Lanka

Dr Shanika Vitharana, Department of Bone Marrow Transplant Unit, Lady Ridgeway Hospital for Children, Sri Lanka
Nipunika Senadheera, Department of Bone Marrow Transplant Unit, Lady Ridgeway Hospital for Children, Sri Lanka
Lallindra Gooneratne, Department of Bone Marrow Transplant Unit, Asiri Central Hospital, Sri Lanka
Ruwangi Dissanayaka, Department of Bone Marrow Transplant Unit, Asiri Central Hospital, Sri Lanka
Deepal Perera, Department of Paediatric Unit, Lady Ridgeway Hospital for Children, Sri Lanka
Dhammika Vidanagama, Department of Microbiology, Lady Ridgeway Hospital for Children, Sri Lanka
Nihal Gunatatne, Department of Transfusion Medicine, Lady Ridgeway Hospital for Children, Sri Lanka
Vikram Mathews, Department of Haematology, Christian Medical College, India

Category: Pediatric Transplantation

Abstract Content:

Introduction:

The haematopoietic stem cell transplant (HSCT) procedure is a standard of care for many benign and malignant haematological and non-haematological conditions. Indications for HSCT in the paediatric age group are largely non-malignant.

Method:

Sri Lanka is a low-middle income country (LMIC) and healthcare is provided free for all patients. Despite the availability of private-sector HSCT services, Sri Lanka lacked a government-funded paediatric transplant unit, limiting the accessibility to transplant care for low-income patients.
To address this the largest paediatric hospital in Sri Lanka established the first government-funded HSCT centre in 2020 with two positive-pressure patient rooms with high-efficiency particulate absorbing (HEPA) filters. The main hindrance was the trained staff. This was mitigated by arranging a special training at Christian Medical College (CMC) – Vellore – India through a memorandum of understanding (MOU). Additionally, local training was obtained, at the bone marrow transplant centre at Apeksha Cancer Hospital and Asiri Central Hospitals PVT(Ltd). The centre began with low-

risk diseases as the indications for autologous transplants are minimal in this age group. Low-risk transplants were expected to motivate the transplant team as their outcome is comparable to high-income countries and be cost-effective for the government as it requires a minimal set of drugs for conditioning and graft vs host (GVHD) prophylaxis regimens.

Results:

The first case performed at the centre was a 7-year-old patient with transfusion-dependent thalassemia (TDT) in December 2021. Since then, 12 allogeneic transplants were completed, with 11 match sibling donor-allogeneic and 1 haploidentical transplant. Recipients were from various regions of Sri Lanka. The indications were transfusion-dependent thalassaemia (TDT), severe aplastic anaemia (SAA), inherited bone marrow failure syndromes (IBMFS) and primary immune deficiency syndromes (PID).

The TDT cohort constituted the majority of cases 7/12 (58%). Transplant outcomes show promising results for TDT. Thalassaemia-free survival (TFS) at 3 months, 6 months and 1 year was 100% with 0% transplant-related mortality (TRM). One child had steroid-responsive grade 4 lower gastro-intestinal acute GVHD. However, in the aplastic anaemia cohort, both recipients died, one due to secondary graft failure and the other due to gram-negative septic shock. The centre's first haploidentical transplant using the post-transplant cyclophosphamide (PTCY) platform was performed for a 2-month-old child with a PID. The child died due to multi-organ failure following engraftment syndrome. The results indicate that the transplant-related mortality rate (TRM) and aGVHD risk for the entire cohort were 25% and 8% respectively. Bone marrow was the main graft source, 83.3% and peripheral stem cells were used only in two transplants.

Conclusion:

These outcomes highlight an emerging centre's successes and challenges in providing HSCT services. Achieving TFS, comparable to a well-established centre and catering to a diverse patient population, is significant in a resource-constrained setting. However, managing infection and regimen-related toxicity leading to TRM and aGVHD risk needs further improvements to achieve long-term success in the programme.

The aim is to broaden the services significantly by 2025. This expansion in infrastructure will cater to a diverse population with a wider range of disease conditions and be able to perform complex transplants.

Abstract ID:
A-174

Safety and Efficacy of Allogeneic Hematopoietic Stem Cell Transplantation with Teniposide Containing Conditioning in Patients of Hematologic Malignancies with Extramedullary Diseases

Ms Fang Fang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Rui Wang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Feifei Li, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Dongfang Yang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Yongqiang Zhao, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Tong Wu, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China

Category: Acute Leukemia

Abstract Content:

Aims: To evaluate the safety and efficacy of allogeneic hematopoietic stem cell transplantation (allo-HSCT) with teniposide containing conditioning in the patients of hematologic malignancies with extramedullary diseases (EMDs).
Methods: Between March 2023 and March 2024, 17 patients of hematologic malignancies with EMDs who underwent allo-HSCT in our hospital were enrolled. The median age was 29 (7-59) years old. The diagnosis included acute myeloid leukemia (n=2, 11.8%), acute B lymphoblastic leukemia (n=10, 58.8%), acute T lymphoblastic leukemia/lymphoblastic lymphoma (n=4, 23.5%) and granulocytic sarcoma (n=1, 5.9%). The disease status pre-transplant was complete remission (CR) in 13 (76.5%), partial remission in 1 (5.9%) and non-remission in 3 (17.6%). The EMDs involved sites included central nervous system (CNS) (n=7, 41.2%), lymph nodes (n=4, 23.5%), bones (n=3, 17.6%), eyes (n=2, 11.8%), liver (n=1, 5.9%), kidneys (n=1, 5.9%), pancreas (n=1, 5.9%), etc. The types of transplants were haploidentical (n=12, 70.6%) and unrelated (n=5, 29.4%). Five cases (29.4%) received the second allo-HSCT. The backbones of myeloablative conditioning regimens were total body

irradiation (TBI)/fludarabine (n=11, 64.7%), TBI/cladribine (n=3, 17.6%), busulfan /fludarabine (n=2, 11.8%), and busulfan/cladribine (n=1, 5.9%). All patients received teniposide during conditioning (11 cases (64.7%), 100mg/m2 x 3d; 4 cases (23.5%), 100mg/d x 3d; 1 case (5.9%), 100mg/m2 x 2d; 1 case (5.9%), 100mg/d x 2d). The reasons of reduced dose of teniposide in some patients were due to aging, the secondary transplant or incompletely controlled previous infections.
Results: All 17 patients achieved full donor chimerism. The median time for neutrophil and platelet recovery were 12 (9-19) days and 13 (9-30) days, respectively. By June 30, 2024, with the median follow-up 5 (2-10) months. the overall survival (OS) and progression-free survival (PFS) were 91.4% and 88.2%, respectively. One patient died from pulmonary infection. Five cases (29.4%) developed moderate to severe acute graft-versus-host disease. Ten cases (58.8%) had CMV infections and 2 cases (11.8%) had EBV reactivation. Thirteen cases (76.5%) achieved CR, one case experienced CNS recurrence, and three cases had not been evaluated EMDs yet post-transplant. The only relapsed patient was in her second transplants and currently surviving with the tumor. The most common adverse reactions with teniposide were gastrointestinal reactions, hair loss, mucosal inflammation and bone marrow suppression. Renal dysfunction was rare, and no other organ toxicities, allergic reactions, or drug-related deaths have been observed.
Conclusions: The present study has shown that allo-HSCT with teniposide containing conditioning in the patients of hematologic malignancies with EMDs is safe and effective. Teniposide has good CNS permeability and mild adverse reactions, and can be added into conditioning regimens for the patients of with EMDs. Longer follow-up and larger sample studies are required.

Abstract ID:
A-175

Incidence, Risk Factors and Clinical Consequences of Oral Mucositis in Hematopoietic Stem Cell Transplant (HSCT) Recipients

Mdm Hayati Binti Hussien, Department of Hematology, Hospital Pulau Pinang, Malaysia
Farah Haton Abu Hassan, Department of Hematology, Hospital Pulau Pinang, Malaysia
Sakinah Arifen, Department of Hematology, Hospital Pulau Pinang, Malaysia
Karthi Yayeni, Department of Hematology, Hospital Pulau Pinang, Malaysia
Norliza Muhamad, Department of Hematology, Hospital Pulau Pinang, Malaysia
Norhafizah Ismail, Department of Hematology, Hospital Pulau Pinang, Malaysia
Sharveena Chandran, Department of Hematology, Hospital Pulau Pinang, Malaysia
Siti Fazilah Ramli, Department of Hematology, Hospital Pulau Pinang, Malaysia
Tan Sui Keat, Department of Hematology, Hospital Pulau Pinang, Malaysia
Goh Ai Sim, Department of Hematology, Hospital Pulau Pinang, Malaysia

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims: Oral mucositis is a serious complication affecting both autologous and allogenic transplant recipients causing significant morbidity. The objective of this study it to evaluate the incidence, risk factors and clinical consequences of oral mucositis in patient undergoing HSCT.

Methods: This is a single center retrospective analysis of HSCT recipients from 1st January 2021 to 31st December 2023. The variables assessed included demographics, hematological diagnoses, types of HSCT, conditioning chemotherapy, incidence of mucositis, bacteremia, acute graft versus host disease (GVHD) and duration of hospitalization. Analyses were generated using SPSS version 26. Risk factors and clinical consequences were analysed using multivariate analysis logistic regression model.

Results: 87 HSCT recipients (43 male, 44 female) were evaluated. The median age of patients was 37 years (range : 15 -65 years). 58 (67%) were autografted while 29 (33%) were allografted. The commonest indication for HSCT was Hodgkin Lymphoma (35%), followed by Non - Hodgkin Lymphoma (24%), Acute Myeloid Leukemia (24%) and Multiple Myeloma (12%). Majority (87%) received myeloablative conditioning. Mucositis was reported in 51.7% (n=45) patients. 35 (40.2%) patients had grade I/II while 10 (11.5%) patients had grade III/IV mucositis. Allograft recipients using

methotrexate as GVHD prophylaxis are 4.44 times more likely to develop mucositis compared to autograft recipients and this difference is statistically significant (OR 4.44, 95% CI 1.690 - 11.684, p = 0.003). The odds of having mucositis are higher for female and recipients over 40 years old but the differences are not statistically significant. Patient with mucositis were found to have higher rate of bacteremia and prolonged hospitalisation.

Conclusions: Oral mucositis is a common and potentially debilitating complication of HSCT. Allograft recipients using methotrexate as GVHD prophylaxis is the major risk factor for mucositis in transplant patient.

Abstract ID:
A-176

Evaluation of WBC and Neutrophils Fluctuations in Adult Intensive Care Unit Patients without Steroid Or G-CSF Treatment: A Single Center Study in Korea

Prof Hee-Jeong Youk, Department of Laboratory Medicine, Kangwon National University, South Korea
Inhyeok Yim, Department of Family Medicine, Kangwon National University Hospital, South Korea
Oh Beom Kwon, Department of Internal Medicine, Kangwon National University Hospital, South Korea
Jungwook Rhim, Department of Artificial Intelligence Convergence, Kangwon National University, South Korea
Auk Kim, Department of Computer Science and Engineering, Kangwon Nation University, South Korea

Category: Quality of Life / Survivorship

Abstract Content:

Aims:
White blood cell (WBC) counts are critical indicators of immune response and systemic inflammation, particularly in intensive care units (ICUs). These counts can be influenced by infection, trauma, inflammation, stress, surgery, and pharmacological interventions. In the absence of specific immunomodulatory treatments such as granulocyte colony-stimulating factor (G-CSF) or steroids, the natural, cyclical fluctuations of neutrophils and WBC counts may better reflect the underlying pathophysiology in critically ill patients. This study aims to evaluate fluctuations in WBC and neutrophil counts at 6, 12, 24, and 36 hours post-admission to the ICU. By analyzing these patterns, the study seeks to determine whether they can help optimize therapeutic regimens and reduce unnecessary interventions.
Methods:
This retrospective study analyzed the medical records of adult patients (aged 18 years and older) admitted to Kangwon National University Hospital between January 1, 2014, and December 31, 2023. The cohort consisted of bedridden patients admitted to the CCU, NCU, and MICU who had (1) not received G-CSF or steroid infusions within 36 hours prior to WBC measurement and (2) received more than two WBC measurements during their ICU stay. Patients who had received steroid or G-CSF therapy at any point during their ICU stay were excluded. The statistical analysis was

conducted to assess fluctuations in WBC and neutrophil counts over the specified time intervals.

Results:

Analysis of data from 1,204 ICU patients (male = 648, female = 556) at specified intervals (6, 12, 24, and 36 hours) showed significant fluctuations in WBC and neutrophil counts, independent of steroid or G-CSF use, suggesting that intrinsic factors or other treatments may have played a role. Among these, 409 patients (male = 212, female = 197) showed significant fluctuations in WBC counts ($p < 0.05$). Specifically, 7, 36, 116, and 113 patients developed leukocytosis (average difference in fluctuations: 10,562/uL, 13,664/uL, 12,853/uL, 11,017/uL) within 6, 12, 24, and 36 hours, respectively, while 17, 37, 52, and 51 patients developed leukopenia (average difference in fluctuations: 9,861/uL, 10,484/uL, 9,286/uL, 10,681/uL) within these intervals. Next, 390 patients (male = 202, female = 188) showed significant fluctuations in neutrophil counts ($p < 0.05$). 7, 36, 36, and 110 patients developed neutrophilia (average difference in fluctuations: 10,562/uL, 13,664/uL, 12,853/uL, 11,017/uL) within 6, 12, 24, and 36 hours, respectively, and 15, 36, 46, and 59 patients developed neutropenia (average difference in fluctuations: 9,861/uL, 10,484/uL, 9,286/uL, 10,681/uL) within these intervals.

Conclusions:

This study demonstrates that significant WBC fluctuations can occur independently of the bedridden state, G-CSF, and steroid administration upon ICU admission. These findings suggest the potential for patient-specific tailored treatment protocols that could reduce unnecessary medical interventions. Future studies should explore which intrinsic factors or alternative treatments contribute to significant fluctuations in WBC or neutrophil count and how real-time data analytics can be integrated into ICU protocols to dynamically adjust treatment, thereby improving patient outcomes and ICU operational efficiency.

Abstract ID:
A-177

EASIX Score Predicts Overall Survival and Non-Relapse Mortality in Elderly Patients Undergoing Haploidentical Allogeneic Hematopoietic Stem Cell Transplantation

Ms Shipei Xiang, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Lizhen Liu, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Xiaoyu Lai, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Jimin Shi, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Yanmin Zhao, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Jian Yu, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Ying Lu, Department of Hematology, The Affiliated People'S Hospital of Ningbo University, China
Peipei Ye, Department of Hematology, The Affiliated People'S Hospital of Ningbo University, China
Guifang Ouyang, Department of Hematology, The First Affiliated Hospital of Ningbo University, China
Baodong Ye, Department of Hematology, The First Affiliated Hospital of Zhejiang Chinese Medical University, China
Jianping Lan, Department of Hematology, Zhejiang Provincial People'S Hospital, China
Xiaogang Wang, Department of Hematology, Zhejiang Provincial People'S Hospital, China
Pengfei Shi, Department of Hematology, Affiliated Hangzhou First People'S Hospital, School of Medicine, Westlake University, China
Haowen Xiao, Department of Hematology, Sir Run Run Shaw Hospital, China
Huarui Fu, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Luxin Yang, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Yishan Ye, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Yi Chen, Department of Hematology, The First Affiliated Hospital of Wenzhou Medical University, China
Yu Zhang, Department of Hematology, The First Affiliated Hospital of Wenzhou Medical University, China
Yang Xu, Department of Hematology, The Second Affiliated Hospital, School of Medicine, Zhejiang University, China
Huixian Hu, Department of Hematology, Jinhua Central Hospital, China

Huifang Jiang, Department of Hematology, Tongde Hospital of Zhejiang Province, China
Yamin Tan, Department of Hangzhou Institute of Medicine, Zhejiang Cancer Hospital, Hangzhou Institute of Medicine (HIM), Chinese Academy of Sciences, China
He Huang, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China
Yi Luo, Department of Bone Marrow Transplantation Center, The First Affiliated Hospital, Zhejiang University School of Medicine, China

Category: Infectious and Non-infectious complications

Abstract Content:

Aims

Allogeneic hematopoietic cell transplantation (allo-HSCT) has seen marked growth among older adults, where chronological age is no longer a barrier to transplant. As Elderly patients are at significantly higher risk of transplantation, estimation of the mortality risk in this population remains a key issue. The Endothelial Activation and Stress Index (EASIX) is a biomarker-based laboratory formula,which was originally designed to predict mortality in patients with acute graft-versus-host disease (GVHD).However, the utility of EASIX as a prognostic indicator in elderly transplant patients has not been investigated. Therefore, the aim of this study was to assess the capacity of EASIX in predicting transplantation risk and complications in an elderly cohort of patients undergoing haploidentical HSCT at various time points.

Methods

This retrospective study included elderly patients (≥60 years old) who underwent haploidentical HSCT at twelve transplant centres in Zhejiang Province, China, between April 2016 and November 2023.
The EASIX scores (lactate dehydrogenase × creatinine/platelets) were calculated at 0 to 30 days before initiating the conditioning regimen (EASIX-pre), at day 0 post-HSCT (EASIX-d0),at day 7 post-HSCT (EASIX-d7), at day14 post-HSCT(EASIX-d14), at day 28 post-HSCT (EASIX-d28), at day 56 post-HSCT(EASIX-d56) and at day 100 post-HSCT (EASIX-d100). In order to reduce bias, the EASIX scores were converted to a log2 form of analysis (log2-EASIX).

Results

The median age of all patients (n=164) was 63.5 years (range: 60.0-71.9 years). Acute myeloid leukaemia (n=71, 43%) and myelodysplastic syndromes (n=54, 33%) were the most common baseline diagnoses. All patients underwent haploidentical HSCT, and 91% (n=150) of patients received reduced-intensity conditioning. At day+100, the cumulative incidences of I–IV acute GVHD and transplantation-associated thrombotic

microangiopathy (TA-TMA) were 28.7% and 3.7%, respectively. The incidence of chronic GVHD at two year was 30.6%. With a median follow-up period of 14 months, the 2-year OS, NRM, and relapse incidence were 54.7%,28.8%, and 18.8%, respectively.

EASIX scores exhibited a rapid increase after HSCT and reaching a peak on day +7 , followed by a slight decline until day +28, but remained above the pre-HCT baseline.

The log2-EASIX-PRE(continuous variable) was significantly associated with worse OS (univariate analysis;[HR],1.25;95% CI,1.07 to 1.47;p= 0.005) and higher NRM (univariate analysis; [HR],1.32; 95% CI, 1.08 to1.62; p = 0.007), but not associated with relapse (univariate analysis; [HR], 0.98; 95% CI, 0.78 to 1.23; p = 0.86). Similarly, log2-EASIX-d0 ([HR], 1.25; 95% CI, 1.02 to 1.52; P =0.021),log2-EASIX-d7 ([HR],1.40; 95% CI, 1.05~ 1.61; P =0.015),log2-EASIX-d14 ([HR], 1.40; 95% CI, 1.12 ~ 1.74; P =0.003), log2-EASIX-d21 ([HR], 1.42; 95% CI, 1.19 ~ 1.69; P<0.001),log2-EASIX-d28 ([HR], 1.66; 95% CI, 1.43 ~ 1.94; P<0.001), log2-EASIX-d56 ([HR], 1.54; 95% CI, 1.33 ~ 1.79; P<0.001)and log2-EASIX-d100 ([HR],1.83;95% CI,1.42 to 2.36; P<0.001) were also found to be predictive of higher NRM.

The occurrence of cGVHD was found to be associated with log2-EASIX-d0([HR], 0.82; 95% CI, 0.67 ~ 0.99; P=0.039), log2-EASIX-d21([HR], 0.78; 95% CI, 0.65 ~ 0.92; P=0.003) and log2-EASIX-d28([HR], 0.76; 95% CI, 0.63 ~ 0.92; P=0.004) .

Conclusions

EASIX is a readily accessible dynamic prognostic score that accurately predicts OS and NRM in elderly patients undergoing haploidentical HSCT at various time points.

Abstract ID:
A-178

Outcomes of Allogeneic Stem Cell Transplantation in Relapsed/Refractory Classical Hodgkin Lymphoma Using Reduced Intensity Conditioning Regimens

Dr Suchita Shinde, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Arijit Nag, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Jeevan Kumar, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Rizwan Javed, Department of Apheresis and Cellular Therapy, Tata Medical Centre, Kolkata, India
Niharendu Ghara, Department of Pediatric Hemato-oncology, Tata Medical Centre, Kolkata, India
Reghu K.S., Department of Pediatric Hemato-oncology, Tata Medical Centre, Kolkata, India
Deepak Mishra, Department of Laboratory Hematology, Tata Medical Centre, Kolkata, India
Mayur Parihar, Department of Laboratory Hematology, Tata Medical Centre, Kolkata, India
Sushant Vinarkar, Department of Laboratory Hematology, Tata Medical Centre, Kolkata, India
Asish Rath, Department of Laboratory Hematology, Tata Medical Centre, Kolkata, India
Debranjani Chattopadhyay, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Dibakar Poddar, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Shouriyo Ghosh, Department of Clinical Hematology and Cellular Therapies, Tata Medical Centre, Kolkata, India
Reena Nair, Department of Clinical Hematology, Tata Medical Centre, Kolkata, India

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims

To assess the survival outcomes of Allogeneic Hematopoietic Stem Cell Transplantation (Allo HSCT) in Relapsed/Refractory Classical Hodgkin Lymphoma (R/R CHL).

Methods

Thirteen Allo-HSCTs using Reduced Intensity Conditioning (RIC) regimens were performed between November 2016 to April 2024.

Fludarabine Melphalan (140) (Flu-Mel) and Fludarabine-Treoslfan (10) (FT10) were the conditioning regimens used. Categorical and continuous variables are presented as counts (with respective percentages) and median (with range) values, respectively. Kaplan-Meier product-limit-estimate was used to calculate OS and RFS. Acute GVHD (grade III-IV), chronic GVHD (NIH moderate and severe), relapse and death were considered events for analysis of GRFS (1,2). Log-rank test was used to analyse the impact of covariates on RFS and OS. $p < 0.05$ was considered significant.

Results

Baseline characteristics of the 13 patients are presented in Table 1. 9 (69.2%) patients had Stage III-IV (9 patients) disease. The median number of prior treatment lines was 4 (range 3-5), including prior exposure to radiation (RT) [6(46.2%)] and brentuximab vedotin (BV) [12(92.3%)]. Six (46.2%) had received Nivolumab as the last line of salvage therapy prior to Allo HSCT. At least 6 weeks gap was given between last Nivo dose and Allo-HSCT. 7 patients (53.8%) had relapsed post Autologous stem cell transplantation (AutoSCT). 10(16.9%) patients were in CR at the time of Allo-HSCT.

Ten (76.9%) patients received stem cells from a Haploidentical-donor, while the rest had Matched Related Donors (MRD) grafts. All patients received peripheral blood stem cell (PBSC) grafts. Median CD34+ cell dose was 4.11 x 106/kg, (range:3-6.3). 4(30.8%) patients received Flu-Mel, while 9(69.2%) received FT(10). GVHD prophylaxis included PTCY+CNI+MMF in Haploidentical transplants (n=10) and CNI+MTX in MRD (n=3).

All patients engrafted with a median time of 17 days (range 9-23) for neutrophil and 21.5 days (range: 8-36) for platelet engraftment. Median follow up duration was 175 days (range: 8-2735). Five patients died, while there were no post-transplant relapses in the cohort. Two (40%) deaths were due to infection in the early post-transplant period. Predicted overall survival (OS) and relapse-free survival at 3 years for the cohort was 57.1% (95% CI: 25.1-79.7) [median OS/EFS : NR] (no relapses). Predicted GRFS at 1 year was 39.6 % (95%CI: 12.8-65.6).

On univariate analysis, there was no significant impact of recipient age/gender, donor age/gender, Stage of disease Conditioning regimen (Flu-Mel Vs FT10), status at transplant (CR vs Not in CR), presence of Acute/Chronic GVHD, prior lines of therapy, use of CPI (pre-AlloSCT) on OS/RFS. Use of CPI did not impact GRFS.

Conclusion

Patients of R/R CHL, attaining at least a partial remission with salvage therapy (including CPI), can be taken up for Allo-HSCT. Allo-HSCT is a potential curative therapy for heavily pre-treated patients with good survival outcomes.

Abstract ID:
A-179

The Outcome of CAR-T Therapy for Central Nervous System Lymphoma Following Failed Autologous Hematopoietic Stem Cell Transplantation

Dr Rui Liu, Department of Lymphoma Myeloma Department, Beijing Gobroad Hospital, China
Kai Hu, Department of Lymphoma Myeloma Department, Beijing Gobroad Hospital, China

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims
Relapsed or refractory central nervous system lymphoma (R/R CNSL) poses significant clinical challenges. High-dose chemotherapy followed by autologous stem cell transplantation (ASCT) achieves median progression-free survival (PFS) and overall survival (OS) of 41.4 months and 58.6 months, respectively, in primary CNS lymphoma (PCNSL). However, prognosis for CNS patients following ASCT failure is rarely reported. CAR-T therapy has demonstrated effectiveness in relapsed and refractory large B-cell lymphoma, with promising response rates observed in R/R CNSL cases. Our study aims to assess CAR-T efficacy and factors influencing long-term survival in patients with ASCT-refractory R/R CNSL.
Methods
This single-centre, retrospective study analysed patients with R/R CNSL who received CAR-T therapy at the Beijing GoBroad Boren Hospital between 2020/05 and 2024/01. 11 patients were included. 72% were female, the median age is 58 (range 43-69);72% (8/11) is PCNSL,28% (3/11) is SCNSL. The histology in SCNSL was DLBCL(n=2), HGBL(n=1) . Median number of previous regimen is 9 (4-23). 18% (2/11) were IPI≥3.91% (10/11) were resistant to HD-MTX. 72% (8/11) were resistant to BTK inhibitors. All cases were parenchymal involved. The patients underwent a median of 1 (range 0-5) cycle of bridging therapy. All infused CART cells target CD19, with 5 cases being of murine and 7 cases being humanized.The median infusion dose of CAR-T cells was 1.67 × 10^6 cells/kg (range 0.0485-10.01).
Results
Median follow-up time was 14.56 months. The 3-month overall response rate (ORR) was 100% (11/11), and complete response rate (CRR) was 100% (11/11).Median progression-free survival (PFS) and overall survival (OS)

were not reached. The one-year PFS rate was 87.5%, with an estimated two-year PFS rate of 65.6%. The one-year overall survival rate was 87.5%.The incidence of any-grade cytokine release syndrome (CRS) was 64% (7/11), and immune effector cell-associated neurotoxicity syndrome (ICANS) was 9% (1/11); no cases of grade 3 or higher CRS or ICANS were reported. The median time from ASCT failure to CAR-T cell reinfusion was 8 months (range 1.61-63.35). Prior to CAR-T therapy, complete remission status was achieved in 64% (7/11) of patients.CAR-T cell expansion can be amplified to 1.91×10^7 cells/L using flow cytometry for detection.
Conclusions
CAR-T cell therapy can achieve complete remission safely by bridging after tumor reduction with multi-drug targeted therapy in relapsed or refractory central nervous system lymphoma, even after autologous stem cell transplantation.

Abstract ID:
A-181

Pre-Emptive CMV-EBV Bi-Specific Cytotoxicity T Cell Therapy in Children Undergone Allogeneic Hematopoietic Stem Cell Transplantation – A Perspective Study

Dr Xindan Lian, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Yu Liu, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Uet Yu, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Chunjing Wang, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Chunlan Yang, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Yue Li, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Xiaohui Zhou, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Yu Zhang, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Qian Zhang, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Xiaodong Wang, Department of Hematology and Oncology, Shenzhen Children's Hospital, China
Sixi Liu, Department of Hematology and Oncology, Shenzhen Children's Hospital, China

Category: Pediatric Transplantation

Abstract Content:

Aims: In China, the seroprevalence of cytomegalovirus (CMV) and Epstein-Barr virus (EBV) often exceed 90%, significantly raising the risk of viral reactivation in allogeneic hematopoietic stem cell transplantation (allo-HSCT) recipients. Concurrent CMV and EBV infections can portend a poor prognosis with conventional antiviral treatments alone. Adoptive transfer of multi-antigen specific cytotoxic T cells (CTLs) has shown encouraging outcomes in adults, but its efficacy, safety in pediatric applications remain underexplored. This study aimed to evaluate the efficacy and safety of pre-emptive CMV-EBV bispecific cytotoxic T cell (CTL) therapy in pediatric patients with concurrent CMV and EBV infections post-allo-HSCT.

Methods: Between 1stJanuary 2019 and 31st July 2023, thirty-one pediatric allo-HSCT (aged 2-17) received CMV-EBV CTLs if they had: 1) persistent/worsening CMV-DNAemia after conventional antiviral treatment or confirmed end-organ CMV disease; and 2) EBV-DNAemia with evidence

suggesting PTLD or confirmed EBV-associated PTLD or end-organ disease. CTLs were prepared from haploidentical donors and were administered at 2-week interval between each transfusion.

Results: Among the patients, 27 experienced concurrent infections within the first 3 months, and 2 each within 3-12 and 12-24 months post-HSCT. Sixteen patients had CMV disease and five patients had EBV associated PTLD at transfusion. The disease remission rate after two transfusions was 81%. Six patients had 4-6 transfusions to achieve optimal response. No severe adverse reactions to CTL transfusions were reported. Acute graft-versus-host disease (GVHD) (grades I-III) occurred in six patients. One patient had mild chronic GVHD. Two patients had viral DNAemia recurrence post-CTL therapy. One patient died of CMV and EBV pneumonia. The 3-year overall survival rate post concurrent CMV and EBV infection was 96.77±3.17%.

Conclusions: This study represents one of the largest investigations into pediatric populations to date, indicating that pre-emptive CMV-EBV CTL therapy is effective and safe for managing concurrent CMV and EBV infections in pediatric allo-HSCT recipients.

Abstract ID:
A-182

Therapeutic Drug Monitoring of Busulfan as a Determinant of Sinusoidal Obstruction Syndrome in Pediatric Hematopoietic Stem Cell Transplantation

Mr Issanun Hunnuan, Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand
Prof Usanarat Anurathapan, Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand

Category: Pediatric Transplantation

Abstract Content:

Background: Busulfan (BU) is an alkylating agent commonly used in a standard conditioning regimen for patients undergoing hematopoietic stem cell transplantation (HSCT). Standard monitoring for pharmacokinetics-guided BU administration is recommended to optimize drug exposure, improve HSCT outcomes, and decrease therapy-related toxicities, including sinusoidal obstruction syndrome (SOS).
Objectives: This retrospective study determined the incidence of SOS and identified factors associated with it in pediatric HSCT at Ramathibodi Hospital. It also examined whether BU therapeutic drug monitoring (TDM) is affected.
Methods: Pediatric patients aged 1 month to 18 years at Ramathibodi Hospital received a BU-based conditioning regimen for HSCT between January 2015 and January 2024 were recruited and collected clinical information. The SOS was defined as a clinical diagnosis by the new European Blood and Marrow Transplant Society (EBMT) criteria for grading the severity of SOS in children.
Results: Two hundred sixty-nine patients with a median age of 8.3 years were enrolled. The studied population was male, 55.0%, and more than half of the patients had thalassemia disease (56.9%). Most of them (55.8%) received stem cells from haploidentical donors. The incidence rate of SOS was 19.3%, and surprisingly, 42.3% was of very severe severity. Of the 269 patients who received a BU-based conditioning regimen, 93 (34.6%) who BU TDM did not monitor developed SOS significantly higher than those who were monitored (28% vs 14.8%; P=0.009). The occurrence of SOS in the non-BU TDM group was faster than in those who were monitored (15 vs 19 days; p=0.007). Thalassemia disease significantly developed the SOS (OR, 4.56; 95% CI, 1.36 to 15.34; p=0.045). Prophylaxis with ursodeoxycholic

acid in the conditioning regimen significantly decreased the SOS (63.6% vs 48.1%; p=0.041). Nevertheless, the area under the drug plasma concentration-time curve (AUC) for the first dose and AUC cumulative showed no significant SOS correlation between the two groups. The median follow-up time was 4.4 years. Eighty-four percent of the patients were alive.

Conclusions: The SOS occurred in both groups but was less common in the BU TDM group. Therefore, TDM might be essential. Moreover, ursodeoxycholic acid prophylaxis helps prevent the SOS. Early detection and early treatment interventions may be required to prevent therapy-related mortality in pediatric HSCT patients.

Abstract ID:
A-183

Nursing Experience of a Severe AML Patient with Secondary HSCT Skin Infection Caused by Fusarium

Ms Shuyue Xu, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Xiaoxia Wang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Kun Xu, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Dandan Song, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Zixuan Liang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Lidong Cheng, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Lei Wang, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Zhihui Li, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China
Tong Wu, Department of Bone Marrow Transplantation, Beijing Gobroad Boren Hospital, China

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Objective: Nursing experience of a severe AML patient with Fusarium infection after secondary allo HSCT
Method: The patient, male, 33 years old, AML, was admitted to our department on January 12, 2024 for treatment with haploidentical hematopoietic stem cell transplantation. The pre-treatment plan is BU/FLU+CTX/ATG/Meccnu, combined with comprehensive treatments such as anti infection, liver protection, stomach protection, and heart protection. On January 30th (day 02), multiple ulcerated wounds appeared in the perineal area, and fungal culture confirmed infection with Fusarium. On day 5, multiple ulcerated wounds were found on other skin areas throughout the body. Wound treatment method: Wipe with iodine water, UV irradiation, wet compress with amphotericin B for 5 minutes, then apply acyclovir cream, terbinafine cream, and fusidic acid cream alternately, nursing three times a day. Observing the wound daily and taking photos for comparison, no significant improvement was observed+ After 11 days, the wound became red, swollen, hot, and painful, and the infection worsened+

After 13 days of decision-making by the head nurse and doctor, the treatment plan was adjusted: two types of ointments were added, namely traditional Chinese medicine wound wash and traditional Chinese medicine combined with cell regeneration formula ointment. After spraying, 6 layers of gauze were wrapped around the affected area, following the principle of wet healing.

Result: The perineal area was most severe on+11 days, with all scabs falling off on+15 days, and the cortex had healed on+19 days; Other wounds are most severe after 10 days, and hardening decreases after 18 days; After 10 days, white blood cells began to grow, and on 20 days, it was 19 × 109/L, neutrophils were 17.1 × 109/L, hemoglobin was 67g/L, and platelets were 31 × 109/L, which were successfully released from the warehouse.

Conclusion: During HSCT, when using amphotericin B, acyclovir, and terbinafine cream for 11 days, there was no significant improvement in skin infection caused by Fusarium oxysporum. After applying a 5-day traditional Chinese medicine wound wash and a combination of traditional Chinese medicine and cell regeneration formula ointment, the wound quickly healed. This method can continue to observe the effectiveness of its application on fungal infection wounds.

Abstract ID:
A-189

Efficacy of Bispecific Antibodies and Autologous Hematopoietic Stem Cell Transplantation in Relapsed/Refractory Diffuse Large B-cell Lymphoma: A Systematic Review and Meta-analysis

Dr Relly Kurniawan, Department of Internal Medicine, Dr. Kariadi General Hospital/Faculty of Medicine, Diponegoro University, Indonesia
Kevin Tandarto, Department of Internal Medicine, Dr. Kariadi General Hospital/Faculty of Medicine, Diponegoro University, Indonesia
Daniel Rizky, Department of Hematology, Medical Oncology Division, Department of Internal Medicine, Faculty of Medicine, Diponegoro University; Dr. Kariadi General Hospital Semarang, Indonesia
Damai Santosa, Department of Hematology, Medical Oncology Division, Department of Internal Medicine, Faculty of Medicine, Diponegoro University; Dr. Kariadi General Hospital Semarang, Indonesia

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Introduction: Relapsed/refractory diffuse large B-cell lymphoma (R/R DLBCL) presents a significant treatment challenge following first-line therapy. This systematic review and meta-analysis aims to assess the efficacy of bispecific antibodies and autologous hematopoietic stem cell transplantation (auto-HSCT) in improving clinical outcomes in patients with R/R DLBCL after first line theraphy.
Methods: In our literature review across PubMed, Embase, and Cochrane Library databases, we analyzed studies about bispecific antibodies and auto-HSCT in these patients in R/R DLBCL after first line treatment. Data extracted included overall survival (OS), progression-free survival (PFS), and objective response rate (ORR), median follow-up, and adverse effects. Meta-analysis was performed using a random-effects model. We included clinical trial studies.
Results: A total of 9 studies were analyzed, revealing a significant combined effect size (Odds Ratio: 0.52, 95% CI: 0.50-0.54). Epcoritamab in relapsed/refractory large B-cell lymphoma shows a median PFS of 4.4 months and OS not reached, with a 63.1% ORR. In comparison, autologous stem cell transplantation (ASCT) shows a 3-year PFS of 37% and OS of 49%, with PFS improving to 53% post-ASCT. The forest plot indicated consistent results across studies, with minimal heterogeneity. The funnel

plot suggested low publication bias. These findings demonstrate that bispecific antibodies and auto-HSCT are effective treatment options for R/R DLBCL, significantly improving patient outcomes by reducing the odds of adverse events.
Conclusion: This systematic review and meta-analysis indicate that bispecific antibodies and auto-HSCT are effective treatments for R/R DLBCL. With these results, even though not compared head-to-head, bispecific antibodies can become the best choice of second-line therapy for patients with refractory/relapsed DLBCL.
Keywords: Bispecific antibody, autologous hematopoetic stem cell, systematic review, meta-analysis

Abstract ID:
A-190

Growth Differentiation Factor 15 (GDF-15) Levels in Patients with Transfusion-Dependent Thalassemia

Dr Afshan Sumera, Department of AUC Medicine, University of Central Lancashire, United Kingdom
Ammu K. Radhakrishnan, Department of Pathology, Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, Malaysia
Abdul Aziz Baba, Department of Medicine, International Medical University, Malaysia
Soon Keng Cheong, Department of Pathology, Universiti Tunku Abdul Rahman, Malaysia

Category: Hemoglobinopathies, Primary Immune Deficiency, and Metabolic Disorders

Abstract Content:

Aims
The hallmark of TDT is ineffective erythropoiesis (IE) which is associated with a regular need for blood transfusions. Growth differentiation factor 15 (GDF-15), a member of the transforming growth factor-β (TGF-β) superfamily, increases during erythroid differentiation. It is negatively associated with the regulation of erythropoiesis. This study aimed to examine the association between GDF-15 levels and disease severity in patients with transfusion-dependent thalassemia (TDT).
Methods
A case-control study was conducted with 41 TDT cases and 35 age- and gender-matched controls in Malaysia. The cases included in this study were stratified into three groups: 1) newly diagnosed cases with a history of blood transfusion <5 years, 2) cases with 5-10 years of blood transfusion and 3) cases with a blood transfusion history of >10 years. The controls were age and gender-matched normal subjects. GDF-15 was measured using the enzyme-linked immunosorbent assay (ELISA) in all three groups.
Results
The serum levels of GDF-15 were found statistically significant to be high in cases compared to controls (p-value 0.000). A positive linear association was found with R2 of 0.836. Serum levels of GDF-15 in the cases (488.7 pg/ml (±42.3) were higher than in the controls (163.5 pg/ml (±36.6). Within groups, the levels were highest (541.9 pg/ml)in patients with a blood transfusion history of >10 years in groups 1 (429.1 pg/ml) and 2 (460.2 pg/ml).
Conclusions

Increased levels of GDF-15 were observed with the increasing severity of the disease and the duration of blood transfusion. Additionally, higher GDF-15 levels in TDT patients correlated with lower Hb levels, which are typically observed as a result of ineffective erythropoiesis (IE) in thalassemia. In the future, GDF-15 could be used as a suitable and useful quantitative marker of IE.

Abstract ID:
A-191

Quality of Life (QoL) in Patients with Graft Versus Host Disease (GVHD) Post Allogeneic Hematopoietic Stem Cell Transplant (HSCT), Department of Hematology, CMC, Vellore

Mrs Joyce Beulah, Department of Oncology Nursing, CMC, Vellore, Tamilnadu, India
Mrs Amalorpavamari Lucas, Department of Hematology Nursing, Cmc, Vellore, Tamilnadu, India

Category: Quality of Life / Survivorship

Abstract Content:

Introduction: GvHD is one of the dreaded complications of HSCT. GvHD might occur once the donor's cells have engrafted in the transplant recipient. It might develop in the skin, liver or gastrointestinal tract and symptoms might appear within weeks after transplant**.** GvHD can deeply impact QoL. It is a significant cause of morbidity and mortality following allogeneic stem cell transplantation. These patients face unique challenges due to the complexity of GvHD which can affect multiple organ systems. There are approximately 5500 total cases of GvHD annually (Wenzel, F et al., 2021). Patients of all age groups may develop GvHD, but it occurs more commonly in older persons who receive stem cells from female donors. The cumulative incidence of GvHD in patients with matched and unmatched donors, post HSCT is 40-60% (Jagasia, M et al., 2012). The incidence of GvHD is estimated to be 9.5x10-7 per 100,000 cases (Wenzel, F et al., 2021). **Methods:** The present study aims to determine changes in various aspects of quality of life in patients who underwent allogeneic HSCT. 50 patients who underwent Hematopoietic Stem Cell Transplantation were given a self-administered questionnaire comprising of 5 domains – Physical wellbeing, Social/Family wellbeing, Emotional wellbeing, Functional wellbeing and additional concerns. Data were analysed using descriptive and inferential statistics. The present study found that half of the participants were in the reproductive age. **Results:** The present study found that nearly 50% of them were between 18 to 35 years of age. 70% of them were males. 28% of them were diagnosed to have Acute Lymphoblastic Leukemia, 32% of the patients the duration after transplant was more than three months. 54% of them had skin involvement and 98% of them received stem cells from related donors

and 42% the HLA was fully matched. 100% of the donors and recipients viral Seropositivity was negative. 50 % of the patients had Grade2 GvHD. 86% of the recipients received myeloablative conditioning regimen. 56% of them received TBI Dose <12Gy. There is a statistically significant association between QoL and duration of post-transplant (p=0.023), between additional concerns and duration of post-transplant (p=0.000) and between functional well-being and duration of post-transplant (p=0.013). **Conclusion:** The study revealed that the overall QoL, functional well-being and additional concerns were significant for patients' post-transplant duration > 3 months.

Keywords: Quality of Life (QoL), Allogeneic haematopoietic stem cell transplantation (HSCT), Graft vs Host Disease (GvHD), Human Leukocyte antigen (HLA)Total body irradiation (TBI).

Abstract ID:
A-192

Perception of Patients in Relation to Her/His Experiences in Bone Marrow Transplant Unit (BMTU)

Mrs Jayakumari J, Department of Hematology Nursing, CMC, Vellore, Tamilnadu, India, India
Amalorpavamari Lucas, Department of Hematology, CMC, Vellore, Tamilnadu, India, India

Category: Quality of Life / Survivorship

Abstract Content:

ıntroduction: Hematopoietic stem cell transplantation (HSCT) is a complex medical treatment that involves invasive medical procedures associated with extended hospitalization, long period of isolation, adverse side effects, risk of mortality or relapse, and long recovery periods. Patients in BMTU receive constant support, attention and care, find the environment more positive (Carpenito, 1993). HSCT patients reported experiencing relatively high levels of distress during the initial phase of the COVID-19 pandemic in 2020 but were also likely to use healthy coping methods to deal with this stress(Mohanraj, 2022). **Methods:** The study was aimed to assess the perception of patients in relation to his/her experiences in BMTU. Fifty adult patients who fulfilled the inclusion criteria were administered a questionnaire consists of six domains: emotional factors, physical factors, social factors, environmental factors, nursing care and medical treatment. Data were analyzed using descriptive and inferential statistics. **Results:** Majority (40.8%) of the participants were in the reproductive age, males (74%), graduates (76%) and English speaking (70%). Participants with 10-20 days after discharge from BMTU were more (62%). Language & Medical treatment (p=0.013) and Number of days after discharge from BMTU & Medical treatment (p=0.032) have significant association. **Conclusion:** The study revealed that the overall perception of patients in relation to her/his experiences in bone marrow transplant unit was positive. The domain social factors were perceived to have not positive experiences, could be because of the isolation from family members and restricted visiting time and number of visitors.

Abstract ID:
A-193

Current Trends and Outcomes of Autologous Hematopoietic Stem Cell Transplantation for Multiple Myeloma in Mongolia

Dr Altanshagai Boldbaatar, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Anudari Bat-Erdene, Division of Research, Training and Cooperation, The First Central Hospital of Mongolia, Mongolia
Elbegjargal Erdenebaatar, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Baljinnyam Purevsuren, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Chinbat Gonchigdash, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Batchimeg Battumur, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Oyundelger Norov, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia
Khishigjargal Batsukh, Center of Hematology and BMT, The First Central Hospital of Mongolia, Mongolia

Category: Multiple Myeloma

Abstract Content:

Aims: Despite advancements in Multiple myeloma (MM) treatment, including proteasome inhibitors, immunomodulatory drugs, and monoclonal antibodies, Autologous hematopoietic stem cell transplantation (AHSCT) remains a crucial option due to its potential to significantly improve progression-free survival and overall survival by harvesting and reinfusing the patient's hematopoietic stem cells after high-dose chemotherapy, thereby reconstituting bone marrow with safety and feasibility further bolstered by enhanced supportive care measures such as improved infection prophylaxis and toxicity management.
Since Mongolia's first successful AHSCT for an MM patient in 2014, conducted in collaboration with the Bone Marrow Transplantation Unit of Seoul St. Mary's Hospital in Korea, our team has completed a total of 33 HSCT procedures for patients with MM, lymphoma, and acute myeloid leukemia. Our team completed the first case of allogeneic transplant for acute leukemia in 2022. This study aims to evaluate the feasibility, efficacy, and clinical outcomes of AHSCT for MM patients in Mongolia. By comparing

findings with international standards, the study seeks to identify ways to improve AHSCT implementation in Mongolia, ultimately enhancing MM management and prognosis in the region.

Methods: The study included 11 MM patients referred to The First Central Hospital of Mongolia between 2014 and 2024. We analyzed their cases by comparing laboratory results and clinical symptoms, employing statistical methods to benchmark Mongolian AHSCT outcomes against international standards. This retrospective cohort study spans clinical cases from 2014 to 2024, encompassing patients undergoing AHSCT for MM.

Results: This study evaluated patients' median ages of 55.7±8.9 years. The cohort comprised 4 males and 7 females, primarily diagnosed at stage II (63.6%) or III (36.4%) according to the Durie-Salmon staging system. At diagnosis, mean hemoglobin was 89.6±35.2 g/dL, average serum calcium 2.34±0.3 mg/dL, suggesting hypercalcemia in many, and mean creatinine 1.6±3.0 mg/dL, indicating renal impairment in some. All exhibited significant bone marrow infiltration by clonal plasma cells, averaging 34.3±18.8%. Common symptoms included bone pain (100%), fatigue (81.8%), and anemia (64%). Complete response was achieved in 54.5%, and partial response in 45.5% after Induction chemotherapy.

Stem cells were collected on average 1.8+1.0 times and infused at an average of CD34+cells count was 5.0+3.4 × 10^6 cells/kg. Platelets recovered an average of 16.6+7.7 days and neutrophils recovered an average of 13.2+4.2 days, demonstrating effective hematopoietic reconstitution crucial for patient recovery. Infection complications, specifically gram-positive bacterial infections, occurred in 7(63.6%) patients during neutropenia. These infections were confirmed through blood cultures, oropharyngeal swabs, and wound swabs. The Relapse rate was 45.5% and Overall Survival (OS) rate was 63.3% for 42.8 months.

Conclusion: Our study on AHSCT for MM in Mongolia demonstrates comparable outcomes to international standards, including a 63.3% overall survival rate over 42.8 months, underscoring the procedure's efficacy amidst challenges such as infection complications and advanced disease stages. Our findings underscore the critical role of advanced supportive care and emphasize the ongoing need for research and collaboration to further enhance treatment outcomes for MM patients in Mongolia.

Abstract ID:
A-194

Maintenance Therapy with Brentuximab after an Allogeneic Transplant for Relapsed Hodgkin's Lymphoma Post Autologous Transplant

Dr Kevin, Department of Internal Medicine, St Luke's Medical Center - Global City, Philippines
Francisco Vicente Lopez, Department of Section of Hematology, St. Luke's Medical Center - Global City, Philippines

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Aims
The standard treatment option for relapsed Hodgkin's Lymphoma (HL) after failed autologous stem cell transplantation (auto-SCT) is salvage therapy with the intent of bridging to an allogeneic stem cell transplant. There are promising salvage strategies, such as immune checkpoint inhibitors, brentuximab vedotin (BV) alone or with bendamustine, that have improved complete response rates. However, after bridging to an allogeneic-SCT, there is little data regarding usage of these strategies as maintenance therapy.

Methods/Results
This is a case report of a 28-year-old male with relapsed Stage III classical HL post-auto-SCT, who demonstrated that utilizing BV as maintenance therapy post-allogeneic SCT is well-tolerated and effective in prolonging disease remission.

The patient was initially diagnosed in 2013, attaining complete remission after (1) doxorubicin hydrochloride, bleomycin sulfate, vinblastine sulfate, and dacarbazine (ABVD) chemotherapy, (2) etoposide, cisplatin and cytarabine (ESHAP) chemotherapy, and (3) total body irradiation. He proceeded with auto-SCT last November 2014. After 5 months, a follow-up PET/CT scan demonstrated relapsed disease. Between Sept 2015 to Sept 2019, multiple salvage therapies were attempted but still with persistence of disease. Complete response was afforded only after 5 cycles of BV and bendamustine.

Allogeneic-SCT from a full match twin donor was initiated in Nov 2019. After 4 months, six cycles of BV were done; repeat PET/CT scan revealed no evidence of disease at the time. The patient has been in remission since.

Conclusion

Studies on BV as salvage therapy for relapsed HL showed high complete remission and response rates, but its effectiveness as maintenance therapy after allogeneic-SCT to achieve disease remission is yet to be determined. This case report highlights the feasibility of BV as a potential cost-effective, well-tolerated, and effective maintenance therapy.

Abstract ID:
A-195

Pyoderma Gangrenosum Complicated by Non-Pseudomonal Ecthyma Gangrenosum Caused by Escherichia Coli in a Patient with Myelodysplastic Syndrome Treated with Intravenous Antibiotics and Allogeneic Hematopoietic Stem Cell Transplantation

Dr Christine Faith Vasquez Tan, Division of Internal Medicine, National Kidney and Transplant Institute, Philippines
Lynn Baquiran Bonifacio, Division of Internal Medicine, National Kidney and Transplant Institute, Philippines
Minette Claire Ocampo Rosario, Division of Internal Medicine, National Kidney and Transplant Institute, Philippines
Adolfo Caballero Parayno, Division of Organ Transplantation and Vascular Surgery, National Kidney and Transplant Institute, Philippines

Category: Infectious and Non-infectious complications

Abstract Content:

Aims:
To present a case of a pyoderma gangrenosum complicated by ecthyma gangrenosum in a patient with myelodysplastic syndrome treated with intravenous antibiotics and allogeneic hematopoietic stem cell transplantation. To emphasize the importance of accurate diagnosis, integrated management, and the role of hematopoietic stem cell transplantation in the treatment of complex inflammatory skin conditions associated with hematologic disorders.

Methods:
Chart and literature review were done.

Results:
A 47-year-old Filipino woman with transfusion-dependent intermediate risk myelodysplastic syndrome (MDS) was admitted in our institution for allogeneic hematopoietic stem cell transplantation (HSCT). During the preparation for allogeneic HSCT, she developed several erythematous ulcerated lesions on the lower extremities which were initially managed as pyoderma gangrenosum (PG). Subsequent febrile episodes and worsening lesions with isolated *Escherichia coli* in blood and tissue cultures lead to the diagnosis of ecthyma gangrenosum (EG) complicating PG. She was

treated through targeted antibiotics, wound debridement and proper wound care. After resolution of infection and upon starting low dose immunosuppression followed by allogeneic HSCT, her left leg lesions showed progressive improvement. Six months after HSCT, lesions were completely resolved with complete epithelialization.

Conclusion

This case highlights the importance of accurate diagnosis and integrated management of complex conditions like PG and EG in immunocompromised patients. The successful resolution of lesions post-HSCT underscores the potential curative role of stem cell transplantation in managing MDS-associated PG, providing valuable insights for similar future cases.

Abstract ID:
A-196

Real-World Data of Defibrotide for Treatment of Adult Patients who Developed Severe Hepatic VOD/SOS after Allogeneic Hematopoietic Cell Transplantation

Prof Jae Ho Yoon, Department of Hematology, Catholic Hematology Hospital, Seoul St. Mary's Hospital, The Catholic University of Korea, South Korea
Daehun Kwag, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Gi June Min, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Sung-Soo Park, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Silvia Park, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Sung-Eun Lee, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Byung-Sik Cho, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Ki-Seong Eom, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Yoo-Jin Kim, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Hee-Je Kim, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Chang-Ki Min, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Seok-Goo Cho, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Seok, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea

Category: Infectious and Non-infectious complications

Abstract Content:

Aims: Hepatic veno-occlusive disease/ sinusoidal obstruction syndrome (VOD/SOS) is a rare but severe complication after hematopoietic cell transplantation (HCT) showing high fatality. Recently reported incidence of VOD/SOS in the Korea was 8.9% (7.8% in adults and 14.0% in pediatrics). Estimated 1-year overall survival (OS) of VOD/SOS was around 41% and the outcome was much dismal when it progressed to severe (36.8%) or very severe grade VOD/SOS (5.7%) based on the revised EBMT severity criteria. Defibrotide (DF) is the only approved agent for the treatment of severe to very severe VOD/SOS, and we tried to analyze the real-world outcome in Korea.

Methods: DF was approved in Korea since 2016, and we tried to retrospectively analyze the outcome of severe to very severe VOD/SOS treated with defibrotide from 2016 to 2023. Totally 73 adult patients were identified. DF was indicated in Korea in patients who satisfied 4 or more out of 6 severity parameters – Time from diagnosis to VOD, total bilirubin, bilirubin doubling time, elevation of aminotransferase, weight gain, and decreased renal function, which was amended to 2 or more out of 5 parameters (excluding weight gain). The diagnosis the severity was assessed by revised EBMT criteria.

Results: Median time from HCT to VOD/SOS diagnosis was 21 days (range D-1 to D+414), and the median time from diagnosis to defibrotide was 1 day (range 0 to 40). There were 40 severe and 33 very severe VOD/SOS at DF start, and they progressed to 20 severe and 53 very severe at worst period (WP). Overall response was observed in 34 (46.5%), and complete resolution (CR) was in 29 (39.7%) – 52.5% in severe and 24.2% in very severe. OS at 100-day was 34.2% (40.3% for severe-DF and 26.4% for very severe-DF, while 62.4% for severe-WP and 23.2% for very severe-WP, $p<0.001$). When only based on the total bilirubin level (<3, 3-5, 5-8, >8mg/dL), the CR rate (71.4%, 50%, 42.9%, and 25%) and 3-year OS (100%, 25%, 16.7%, and 13.2%) were well distinguished to predict prognosis. We also identified that early DF application within 2 days showed higher CR (55.6% vs. 30.4%) and better OS (37.0% vs. 26.1%).

Conclusion: Real-world outcome of defibrotide demonstrated early administration according to current indications showed good therapeutic effects.

Abstract ID:
A-197

Haplo-identical Hematopoietic Cell Transplantation in Older Adults with Acute Myeloid Leukemia and Myelodysplastic Syndrome in Korea

Prof Seongkyu Park, Department of Hematology, Soonchunhyang University Hospital, South Korea
Jong Ho Won, Department of Hematology, Soonchunhyang University Seoul Hospital, South Korea
Se Hyung Kim, Department of Hematology, Soonchunhyang University Bucheon Hospital, South Korea
Kyoung Ha Kim, Department of Hematology, Soonchunhyang University Seoul Hospital, South Korea

Category: Acute Leukemia

Abstract Content:

Background: Acute myeloid leukemia (AML) and myelodysplastic syndrome (MDS) are diseases predominantly affecting the elderly. Most older patients are not considered for transplantation, particularly with a haploidentical donor, due to concerns of higher transplant-related mortality. Haploidentical stem cell transplantation (Haplo-SCT) using reduced-intensity conditioning (RIC) has extended the feasibility of allogeneic transplantation, notably in older patients. However, there is limited data specifically focusing on patients aged 60 years and over with AML and MDS. Thus, the benefit of transplantation in this population is still debated. In this study, we compared the clinical outcomes of haplo-SCT in elderly patients with those in younger patients who received the transplant during the same period.
Methods: Data were collected from a total of 100 patients with AML or MDS who underwent haplo-SCT between 2010 and 2022. Patients were analyzed by dividing them into a study group, consisting of those who were 60 years old or older, or 55 years old and not suitable for standard conditioning, and a control group, consisting of those who underwent transplantation at a younger age (under 55 years). The median follow-up period for surviving patients was 34 months (range, 6.1-90.1). Patients received conditioning with a combination of busulfan, fludarabine, and anti-thymocyte globulin, with differences in the busulfan dose administered depending on the patient's condition.

Results: The baseline characteristics of elderly patients did not show significant differences from those of younger patients. In terms of treatment outcomes, the rate of complete donor chimerism at 3 months after transplantation was significantly higher in the elderly group, which is presumed to be due to the infusion of more CD34+ cells. There were no significant differences between the two groups in major parameters such as sinusoidal occlusion syndrome, overall acute GVHD, grade 2 or higher acute GVHD, chronic GVHD, viral reactivation, non-relapse mortality, and recurrence. In survival analysis, the 3-year survival rate tended to be higher in the older group (62.9% for the older group vs. 56.1% for the younger group, p=0.384), but there was no statistical difference. There was a significant difference in the long-term survival rate according to the timing of transplantation in both groups (42.9% in 2010-2015 vs. 68.6% in 2016-2022 for the older group, 37.5% in 2010-2015 vs. 66.4% in 2016-2022 for the younger group, p=0.037). Multivariate analysis showed that high risk based on HCT-CI, complete donor chimerism at 3 months after HSCT, and grade ≥2 acute GVHD were significant prognostic factors.
Conclusions: The study indicates that while older patients can undergo Haplo-SCT with outcomes similar to those of younger patients, certain factors such as high comorbidity and achieving complete donor chimerism are crucial for improving overall survival. Thus, age by itself should not be considered a formal barrier to Haplo-SCT.

Abstract ID:
A-198

A Successful Two Case Childhood Beta-Thalassemia Major in Indonesia's First Pediatric Hematopoietic Stem Cell Transplantation Unit: A Case Report

Ms Cresentia Irene Iskandar, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Edi Setiawan Tehuteru, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Anky Tri Rini Kusumaning Edhy, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Ludi Dhyani Rahmartani, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Ian Suryadi Sutedja, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Rendi Prawira Gunawan, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Christopher Khorazon, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia
Reganedgary Jonlean, Department of Pediatric Hematology-Oncology, Tzu Chi Hospital, Indonesia

Category: Pediatric Transplantation

Abstract Content:

Aims
This study report two cases of pediatric Beta-Thalassemia Major patient who underwent Allogenic Hematopoeitic Stem Cell Transplantation (allo-HSCT) at our center, Tzu Chi Hospital Jakarta, Indonesia.
Methods
We present a case report of two patients with Beta-Thalassemia Major who underwent allo-HSCT. Each patient's disease course and allo-HSCT protocol and outcome are described.
Results
Two patients with Beta-Thalassemia Major underwent allo-HSCT at our unit. Both patients had received a donor from their brother, with HLA-Matched Sibling Donor. They have had red blood transfusions up to four liters before transplantation and received routine chelation therapy with deferasirox and deferiprone. On the T2* MRI examination, there was mild hemosiderosis in the liver and pancreas. First patient, on screening we found that she had extrapulmonary tuberculosis, so the patient was treated

with anti-tuberculosis before transplantation began. And the donor was also IGRA positive, so he was prescribed isoniazid for tuberculosis prophylaxis. For conditioning, we used Busulfan (Bu) for four days, Cyclophosphamide (Cy) for two days and Anti-Thymocyte Globulin (ATG) for one day (Bu4Cy2+ATG). She received a total 7.4 x 10^6 CD34+ cells/kgBW from the donor. Second patient, for conditioning we did some adjustments, we used Bu4Cy4+ATG and she received a total 5.8 x 10^6 CD34+ cells/kgBW. The neutrophil engraftment was achieved on D+11 for the first patient and D+12 for the second patient. Platelet engraftment was achieved on D+43 for the first patient and D+25 for the second patient. Although both patients already received ursodeoxycholic acid for Veno-occlusive Disease (VOD) prophylaxis, they both still had VOD on their journey and were treated with defribrotide and Low-molecular-weight Heparin (LMWH). On D+28, we did Bone Marrow Analysis and Short Tandem Repeats (STR), engraftment was excellent with a donor chimerism of 100% for both patients.

Conclusions

We report two patients with Beta-Thalassemia Major who underwent successful allo-HSCT and achieved 100% engraftment. Both patients had VOD and were treated with defibrotide and LMWH. Neutrophil engraftment in both patients was the same (D+11 and D+12), but platelet engraftment was different (D+25 and D+43). For patients with Beta-Thalassemia Major, allo-HSCT is the only definiftive treatment that can minimize the need for chelation therapy and lifelong transfusions. The source of the donor is important because it affects the outcome, additional factors that affect the outcome include the initial condition, further complications, and early treatment as well.

Abstract ID:
A-200

Hematopoietic Stem Cell Transplantation (HSCT) for Hemoglobinopathies

Prof Amir Ali Hamidieh, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Leila Jafari, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Yalda Karamlou, Department of Transplantation, Center for Gene and Cell Therapy, Washington University of St. Louis, Bone Marrow Transplantation of Washington Dc, Usa, United States
Rashin Mohseni, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Mina Mokaram, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran
Maryam Behfar, Department of Transplantation, Pediatric Cell and Gene Therapy Research Center, Gene, Cell and Tissue Research Institute, Tehran University of Medical Science, Tehran, Iran

Category: Hemoglobinopathies, Primary Immune Deficiency, and Metabolic Disorders

Abstract Content:

Aim:
Hemoglobinopathies are the most common inherited genetic disorders. It has been estimated to affect millions of people worldwide. Thalassemia and sickle cell disease are the most prevalent diseases in this group. Today, despite the decreasing number of newborns diagnosed with a hemoglobinopathy, it remains an important health problem for many countries especially developing countries. Although supportive modalities such as regular red blood cell (RBC) transfusions, advanced iron chelation, and supportive therapy alternatives have improved life expectancy and clinical manifestation in these patients, allogeneic hematopoietic stem cell transplantation (HSCT) is the only curative treatment for these patients to prevent irreversible organ damage.
Method:
All of Beta Major Thalassemia (B-MT) pediatric patients who underwent allo-HSCT with non-total body irradiation myeloablative conditioning

regimen at Children's Medical Hospital, Tehran, Iran, were enrolled in this study.

Results:

Our results indicated less rejection and sooner engraftment with peripheral blood source in all patients, in addition, overall survival (OS) rate was approximately 90% in all patients. Acute Graft versus host disease (aGVHD) with III and IV grade decrease the OS rate of patients.

Conclusion:

Outcome of HSCT depend on different variables especially class of disease, age of patient, HLA matching, stem cell source and preparative conditioning regimen. Considering current experiences, HSCT is recommended in the presence of a matched sibling donor (MSD) or matched related or unrelated donor (MRD, MUD) respectively, with minimal complications

Abstract ID:
A-201

Optimization for Stem Cell Transplant through a Patient Centered Care (PCC) Multidisciplinary Team (MDT) Prehabilitation Approach: Case Report of a Multiple Myeloma Patient with Paraplegia from Spinal Cord Disease

Ms Lee Zhao Yuan, Department of Speciality Nursing, SGH, Singapore
Chen Yunxin, Department of Department of Haematology, SGH, Singapore
Daniel Quah Song Chiek, Division of Radiation Oncology, Division of Supportive & Palliative Care, NCCS, Singapore
Ramalingam Mothi Babu, Department of Rehabilitation Medicine, SGH, Singapore
Tan Pei Ling, Department of Rehabilitation Medicine, SGH, Singapore

Category: Multiple Myeloma

Abstract Content:

Background:
Multiple myeloma (MM) is a hematological malignancy involving the abnormal proliferation of plasma cells and can manifest with anemia, hypercalcemia, renal dysfunction and lytic bone disease. Allogeneic hematopoietic stem cell transplant (allo HSCT) may be offered in an upfront tandem auto-allo approach to young patients with ultra-high-risk disease to improve long term survival outcomes. We present a case of a young MM patient with severe functional impairment at presentation who was optimized for a tandem auto-allo transplant through an intensive multidisciplinary prehabilitation approach.

Case Presentation:
A 30-year-old female presented with severe lower back pain, progressive bilateral lower limb weakness and numbness. She was paraplegic with an ECOG of 4 at presentation. Investigations revealed high-risk MM with extramedullary disease involving bilateral breast, chest wall, paravertebral, paraspinal, bilateral adnexal, peritoneal, retro-peritoneal, and lucent bone lesions with extra-osseous soft tissue. Breast biopsy performed shown high risk features with FISH positive for 1q21 gain, monosomy 13 and t (14:16). This was further complicated by cord compression from spinal canal stenosis due to extensive epidural tumor involving the thoracic, lumbar, and sacral spinal.

In view of her high-risk disease and young age, she received four cycles of VRD-PACE and was opined to be a potential candidate for an upfront tandem auto-allo HSCT to improve long-term survival outcomes. However, her functional impairments and psycho-emotional distress were considered as limiting factors for successful transplantation. As a mother of two toddlers with good premorbid (ECOG–0), she experienced emotional distress including low mood and various physical issues including severe pain, loss of function, and inability to fulfil her role as a wife & mother.
A PCC approach involving a MDT of hematologists, breast specialists, orthopedics, palliative care specialists, nursing, radiation oncologist, rehabilitation medicine physicians, physiotherapist, occupational therapists, dietitian, music therapists and medical social services collaborated to address her complex disease related issues including her functional and psycho-emotional needs. Early optimization with analgesics including opioids and neuropathic adjuncts reduced her distress and facilitated her participation in rehabilitation. Nutritional assessment including nutritional supplementation were aimed to combat muscle loss and improve gastrointestinal side effects related to the treatment. Musical therapy interventions improved her mood, maintained her fine motor skills and dexterity. Other supportive measures include exercise based physical rehabilitation, psychosocial counselling, blood transfusion as required, bone anti-resorptive treatment, and vaccination. This PCC-MDT approach improved her ECOG to 2 within the first 3 months, allowing her to proceed with HSCT. Her ECOG further improved to 1 after alloHSCT. She is currently 18 months post-transplant, remains in complete remission and has successfully integrated back into her family and work. This PCC-MDT approach aimed to address both complex medical and psychosocial aspects of her condition, allowing for significant symptom improvement, enhanced quality of life (QOL) and overall survival.

Conclusion:
This case highlights the importance of collaborative PCC-MDT approach in managing extramedullary Myeloma. Coordinated care from various specialties not only improves treatment efficacy but also enhances patient's QOL. This model of care should be considered as standard of care in patients with MM to improve patient outcomes.

Abstract ID:
A-202

A Formula Using Day 4 Parameters to Predict Next-day Peripheral Blood Stem Cell Yield in Healthy Haematopoietic Stem Cell Donors

Dr Jing Yuan Tan, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Kim Siang Quek, Department of Haematology, Singapore General Hospital, Singapore
Hein Than, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Yew Leng Ho, Department of Haematology, Singapore General Hospital, Singapore
Francesca Wei Inng Lim, Department of Haematology, Singapore General Hospital, Singapore
William Ying Khee Hwang, Department of Haematology, Singapore General Hospital, Singapore
Yeow Tee Goh, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Cheng Kiat Ng, Department of Haematology, Singapore General Hospital, Singapore
Chieh Hwee Ang, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tansloan Tuy, Department of Haematology, Singapore General Hospital, Singapore
Kee Khiang Heng, Department of Haematology, Singapore General Hospital, Singapore
Yeow Kheong Woon, Department of Haematology, Singapore General Hospital, Singapore
Rohani Binte Salleh, Department of Haematology, Singapore General Hospital, Singapore
Angeline Hwee Yim Tan, Department of Haematology, Singapore General Hospital, Singapore
Lyn Lee Wong, Department of Haematology, Singapore General Hospital, Singapore
Zi Jing Seng, Department of Haematology, Singapore General Hospital, Singapore
Jing Jing Lee, Department of Haematology, Singapore General Hospital, Singapore
Gaoge Xie, Department of Haematology, Singapore General Hospital, Singapore
Yeh Ching Linn, Department of Haematology, Singapore General Hospital, Singapore

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Introduction

Peripheral blood stem cell (PBSC) is increasingly used as cell source for allogenic hematopoietic stem cell transplantation. PBSC harvesting is usually performed on the 5th day (D5) of granulocyte colony stimulating factor (GCSF) administration when D5 peripheral blood CD34+ cell (PB-CD34) is at its peak and predicts CD34 yield by leukapheresis on the same

day. However, it is more clinically relevant to be able to predict CD34 yield one day before harvesting, as it allows timely intervention pre-emptively, such as increasing G-CSF dose, or adminstering Plerixafor on the evening of D4, to maximize collection. We designed this retrospective analysis to develop a predictive model using D4 PB-CD34 and other D4 parameters to predict CD34 cell yield on D5.

Methods

We studied adult donors for recipients undergoing haploidentical transplant with a selective T cell depletion protocol, as D4 complete blood count and PB-CD34 were routinely checked. Donor demographics, blood counts and leukopheresis data were collected. Leukapheresis procedures were performed with a continuous-flow blood cell separator (Spectra Optia® TerumoBCT) following manufacturer's instructions. To account for variability in leukapheresis duration, D5 CD34 cell yield/kg donor's weight was standardised to 2.5 times of donor total blood volume (TBV) processed. CD34+ cell count was determined by flow cytometry according to the International Society for Hematotherapy and Graft Engineering (ISHAGE) single-platform protocol. Multiple linear regression analysis with backward stepwise algorithm was used to develop the predictive formula; p-value < 0.05 was taken as significant.

Results

This predictive model was developed from data of 77 healthy donors mobilised with G-CSF alone. Simple linear regression was first performed using donor's baseline characteristics (age, gender, donor's weight, GCSF dosing (mcg/kg)) as well as D4 laboratory parameters (PB-CD34 (/uL), haemoglobin (g/dL), platelet count (x106/uL), presence of myelocytes, neutrophil (%), lymphocyte (%), monocyte (%)) to analyse for any correlation with D5 CD34 yield. As D4 PB-CD34 was not the only significant variable that correlated with D5 CD34 yield, multiple linear regression analysis including all variables with stepwise selection was performed to establish a more refined predictive model.

From this analysis, four parameters were selected - donor's weight, D4 PB-CD34 (/uL), hemoglobin (g/dL) and lymphocyte (%). The following formula, which predicts standardised D5 CD34 yield, was derived using the regression coefficients of each of the 4 parameters rounded off to double digits:

Predicted standardised CD34 yield (million/kg)= 0.085 x D4 PB CD34 count (/uL) – 0.068 x Donor weight (kg) + 0.350 x Hemoglobin (g/dL) + 0.176 x Lymphocyte (%) + 0.52.

Adjusted r2 of the model was 0.713 with a low standard error of estimate (SEE) of 1.96. Our predictive model performs better than if D4 PB CD34 were used alone and is as good as using D5 PB CD34 alone (Table 1).

Conclusion

This is the first described predictive model using D4 parameters instead of D5 PB-CD34 to reliably predict D5 CD34 cell yield. It is of practical significance allowing clinicians to take action in time to rescue potentially poor mobilization, ultimately benefiting both donor and recipient.

Abstract ID:
A-204

Fluorescence in situ Hybridization (FISH) Analysis on Bone Core Specimens Detects Disease Relapse in Myeloid Malignancies with Fibrosis

Dr Chu Lee Voon, Department of Haematology, Singapore General Hospital, Singapore
Lim Tse Hui, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore
Tien Sim Leng, Department of Haematology, Singapore General Hospital, Singapore
Alvin Lim Soon Tiong, Department of Haematology, Singapore General Hospital, Singapore
Lau Lai Ching, Department of Haematology, Singapore General Hospital, Singapore
Yvette Yeap Yee Shan, Department of Haematology, Singapore General Hospital, Singapore
Ng Yit Jun, Department of Haematology, Singapore General Hospital, Singapore
Josephine Ho Kah Kee, Department of Haematology, Singapore General Hospital, Singapore
What Cheng Har, Department of Haematology, Singapore General Hospital, Singapore
Rebekah Loo Xin Ying, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho Yew Leng, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Quek Kim Siang, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lorraine Lim Wei Inng, Department of Haematology, Singapore General Hospital, Singapore
Chen Yunxin, Department of Haematology, Singapore General Hospital, Singapore
William Hwang Ying Khee, Department of Haematology, Singapore General Hospital, Singapore
Chandramouli Nagarajan, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Ng Cheng Kiat, Department of Haematology, Singapore General Hospital, Singapore
Melinda Tan Si Yun, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tansloan Tuy, Department of Haematology, Singapore General Hospital, Singapore
Ang Chieh Hwee, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore

Category: Myelodysplastic Syndromes

Abstract Content:

Background and Aim: Patients with haematological disorders often require bone marrow aspirate (BMA) and trephine biopsy as part of diagnostics and assessment of disease relapse. Conventionally, marrow is assessed by morphology, immunophenotyping, cytogenetics, fluorescence in situ hybridization (FISH), and mutation analysis. However, in myeloid malignancies such as myelofibrosis or myelodysplastic syndrome (MDS) with fibrosis, BMA may be dry or haemodiluted without representative marrow fragments, leading to failure in analysis or inaccurate findings. In such instances, cut sections of bone core from trephine biopsy, besides providing histopathology, can be analysed for informative markers by FISH on the formalin-fixed paraffin-embedded blocks (FFPE-FISH).

Methods: This is a retrospective study on patients followed up in Singapore General Hospital Department of Haematology who had informative results from FFPE-FISH performed on marrow bone core. FISH probes that detect chromosomal aberrations common in MDS including chromosome 5q, 7q, 20q, 17p and trisomy 8 were used in the panel. In addition, FISH for X and Y chromosomes (X/Y-FISH) was done for patients with gender-mismatched haematopoietic stem cell transplant (HSCT). Result of FFPE-FISH was compared with FISH on BMA samples (asp-FISH), karyotype analysis and variable number of tandem repeat (VNTR) analysis.

Results and Discussion: Ten HSCT patients had a total of 40 marrow samples taken at different timepoints. There was a total of 65 (39 MDS, 26 X/Y chromosome) FFPE-FISH tests performed. Fourteen BMA samples had both MDS and X/Y-FISH performed, 14 had only MDS FISH, while 12 had only X/Y-FISH done.

Of 28 marrow samples with MDS FFPE-FISH done, 11 (39.3%) had results discordant from corresponding BMA tests, of which 90.9% (n=10) had disease detectable by FFPE-FISH which were missed on either asp-FISH, karyotyping or both. Conversely, FFPE-FISH failed to detect the expected complex karyotype only in 1 instance (see Table 1). Among these 11 discordant samples, 7 (63.6%) were dry or haemodiluted. On the other hand, for the 17 concordant samples, a significant number (n=8, 47.1%) did not have detectable MDS markers. For those with true disease presence, most (62.5%) had adequate BMA samples making asp-FISH and FFPE-FISH comparable.

In the 26 FFPE-X/Y-FISH done on 7 patients with gender-mismatched HSCT, 22 (84.6%) had incomplete donor chimerism detected by FFPE-X/Y-FISH

where other tests failed to. Amongst them, 11 had parallel asp-FISH done where 8 (72.7%) failed to detect incomplete chimerism (62.5% hemodiluted); 14 cases had successful karyotyping done where all missed the presence of recipient-gender metaphases (50% hemodiluted). Similarly, 100% (n=17) available VNTR analyses done (82.4% from BMA) erroneously reported complete donor chimerism.

Alarmingly, when analysed in totality, 6 of the 10 patients (60%) and 24 out of 40 unique bone marrow specimens (62.5%) would have had disease relapse or incomplete donor chimerism missed if FFPE-FISH had not been performed on the bone core.

Conclusion: We have shown the usefulness of FFPE-FISH in the detection of disease relapse and falling donor chimerism post-HSCT, in the context of fibrotic or inadequate BMA samples. Our observation provides compelling evidence that FFPE-FISH should be performed in such patients with seemingly normal asp-FISH or karyotyping reports.

Abstract ID:
A-205

Asciminib, Ponatinib, and Prednisone for the Treatment of Relapsed/Refractory Acute Lymphoblastic Leukemia

Dr Kevin Sese, Department of Internal Medicine, St. Luke's Medical Center - Global City, Philippines
Francisco Lopez, Department of Blood and Marrow Transplant, St. Luke's Medical Center - Global City, Philippines

Category: Acute Leukemia

Abstract Content:

Background: The use of BCR-ABL1 tyrosine kinase inhibitor (TKI) with chemotherapy is the treatment regimen of choice for Philadelphia chromosome–positive (Ph+) acute lymphoblastic leukemia (ALL). Allogeneic hematopoietic stem cell transplant (HSCT) can begin once the patient achieves a first complete remission (CR). However, the treatment for relapsed/refractory (r/r) ALL is not clear-cut. There is no universally accepted treatment regimen. Relapsed or refractory disease is associated with resistance to TKIs due to the nature of resistance of BCR-ABL1 mutations. Optimal combinations of treatment are still being studied to address this.

Objective: This study aims to describe a case of a r/r B-cell acute lymphoblastic leukemia successfully treated with asciminib, ponatinib, and prednisone following a post-allogeneic HSCT.

Case: We present a case of a 29 year old female, with r/r Ph+ precursor B-cell ALL, initially presenting as rashes and pancytopenia. She achieved her first CR last 2021 with the hyper-CVAD protocol. A haploidentical stem cell transplant from her sister was immediately initiated. She had her first relapse in March 2022, achieving her second CR after a regimen of hyper-CVAD and ponatinib. She relapsed once more in October 2023 but showed persistent disease despite multiple chemotherapy regimens. Her bone marrow biopsy (BMB) in June 2024 showed residual disease at 28.81% by flow cytometry at 10^3 sensitivity. She was then started on a regimen of asciminib, ponatinib, and prednisone. A repeat BMB done after 4 weeks showed significant improvement, resulting in minimal residual disease at 0.123% at 10^4 sensitivity, providing a window for a second allogeneic HSCT.

Conclusion: This case is an example of how an individualized approach to each patient leads to a positive response. This particular combination of asciminib, ponatinib, and prednisone to treat r/r Ph+ ALL in literature is lacking. There is only one case that showed the utility of this combination. This protocol may serve as an alternative treatment for patients with r/r Ph+ ALL who do not have access to monoclonal antibodies.

Abstract ID:
A-206

Non-Hodgkin Lymphoma Evolving into Lymphoblastic Lymphoma in a 40-year-old Woman: A Rare Case with Poor Prognosis

Mrs Ainun Basyiroh Lubis, Division of Hematology and Medical Oncology, Department of Internal Medicine, Faculty of Medicine, Diponegoro University/Dr. Kariadi General Hospital, Semarang, Indonesia, Diponegoro University, Indonesia
Ainun Basyiroh Lubis, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Eko Adhi Pangarsa, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Budi Setiawan, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Damai Santosa, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Catharina Suharti, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Background: Non-Hodgkin Malignant Lymphoma (NHML) with the subtype Diffuse Large B-Cell Lymphoma (DLBCL) is an aggressive type of lymphoma. DLBCL can transform into lymphoblastic lymphoma, which carries a poor prognosis, although this is very rare. The incidence of this condition is higher in women compared to men.
Case Illustration: A 40-year-old woman was diagnosed with stage IIIB Diffuse Large B-Cell Lymphoma (DLBCL) and underwent 6 cycles of RCHOP chemotherapy from January to May 2023. A PET scan evaluation in June 2023 showed complete remission. In February 2024, the patient presented with lower back pain and lumps in several areas. Physical examination revealed multiple lymphadenopathies in the cervical, axillary, and inguinal regions. An abdominal ultrasound showed splenomegaly and suspected recurrent lymphoma. MRI of the thorax showed multiple nodules in the neck suggestive of malignant lymphoma with vertebral metastasis on thoracolumbar MRI. Inguinal tissue biopsy results indicated Non-Hodgkin Malignant Lymphoma (NHML) with immunohistochemistry (IHC) findings of CD3(-), CD10(+), BCL2(+), BCL6(+), MUM1(-), and Ki67 positivity at 80%. Other hematological parameters were normal except for leukocytes at 291,400/µL, and bone marrow puncture (BMP) showed

lymphoblastic lymphoma with 12% lymphoblasts. The patient received the HyperCVAD A/B regimen for 4 cycles, and post-chemotherapy laboratory results showed hemoglobin 10.4 g/dL, leukocytes 9,400/µL, and platelets 103,000/µL. The lumps had decreased in size, indicating partial remission. Next, the patient will undergo HyperCVAD chemotherapy.

Conclusion: The transformation of DLBCL into lymphoblastic lymphoma represents a complex and aggressive disease course that is extremely rare. Poor prognosis is seen in cases with complete remission that relapse in less than one year.

Keywords: Non-Hodgkin Malignant Lymphoma, Diffuse Large B-Cell Lymphoma, Lymphoblastic Lymphoma.

Abstract ID:
A-207

Barriers to Care of Pediatric Hematopoietic Stem Cell Transplantation in a Tertiary Government-run Hospital in the State of Karnataka, India

Dr Vasundhara Kailasnath, Department of Pediatric Bone Marrow Transplant, Kidwai Memorial Institute of Oncology, India
Amrit Kaur, Department of Pediatric Oncology, Kidwai Memorial Institute of Oncology, India
Sathya Murugasamy, Department of Pediatric Oncology, Kidwai Memorial Institute of Oncology, India
K Siddhanth, Department of Pediatric BMT, Kidwai Memorial Institute of Oncology, India
Lokesh Rajole, Department of Pediatric BMT, Kidwai Memorial Institute of Oncology, India
L Appaji, Department of Pediatric Oncology, Kidwai Memorial Institute of Oncology, India

Category: Pediatric Transplantation

Abstract Content:

INTRODUCTION:

Hematopoietic Stem Cell Transplantation (HSCT) is the sole curative treatment for various pediatric benign and malignant diseases. According to the Indian Society of Blood and Marrow Transplantation (ISBMT) 2021 data, approximately 2500
HSCTs are performed annually in India. Pediatric patients represent a minority of HSCT recipients and face unique challenges. Despite significant advancements in
the past two decades, financial, infrastructural, and manpower limitations hinder the provision of adequate pediatric HSCT services in our country.Most HSCTs in India occur in private-sector hospitals. Kidwai Memorial Institute of Oncology
(KMIO) is a pioneering government-run hospital offering pediatric HSCTs in Bangalore, Karnataka. The institute initiated pediatric HSCT services in April 2022 and has successfully conducted 26 procedures since then.We undertook this
study to identify the obstacles encountered in providing pediatric HSCT care at the newly established Bone Marrow Transplant (BMT) unit at KMIO, Bangalore, India

METHODS:

This was a retrospective descriptive study of pediatric patients who presented to the BMT unit of KMIO, Bangalore, for HSCT evaluation between January 2022 and December 2023. Data regarding patient demographics, diagnosis, disease stage
and eligibility criteria for HSCT was collected from the BMT unit's data entry register.

RESULTS:

A total of 220 new patients were registered; the majority (16.8 %) was in the age group of 8-10 years. Boys constituted 66% of the patient population. Nearly 75% of parents had completed middle and high school and only 6% were graduates and post-graduates. According to the Kuppuswami Scale 2023,
socioeconomic status classification showed that 186 (85%) of admitted children belonged to the lower middle and upper lower socio-economic strata. Of them, 70% were labourers and daily wage workers, 26% were self-employed and only 4% were salaried personnel. (Figure 1)
Geographically, 88.2 % of the patients were from the state of Karnataka, with the highest proportion originating from Bangalore district (16.8%) followed by Mysore (9.1%). The remaining 11.8% of patients hailed from other Indian states.
Of the total 220 patients requiring hematopoietic stem cell transplantation (HSCT), 74.5% (n=164) presented with malignant conditions and 25.5% (n=56) with benign disorders. Acute lymphoblastic leukemia was the most common malignant diagnosis, accounting for 42.9% (n=70) of cases, followed by acute myeloid leukemia 18.4% (n=30), high-risk neuroblastoma15.3% (n=26), relapsed/refractory Hodgkin lymphoma 12.3% (n= 20), others 11%(n=18). Among benign conditions, the beta-thalassemia major was the most prevalent, comprising 51% (n=29) of cases, followed by aplastic anemia 18%(n=10), primary immune deficiency 11%(n=6), and other diagnoses 20%(n=11).
Despite 220 registrations, only 26 patients (12%) underwent HSCT, primarily hindered by financial constraints (64%). Other reasons included disease progression and treatment refusal. Notably, there were no transplant-related mortalities, which is a significant milestone achieved in a setting of limited
resources and manpower. (Figure 2)

CONCLUSION:

Though this is data from a new HSCT centre spanning over two years, it indicates a huge barrier faced in the context of the need for HSCT in economically poor background patients hailing from the state of Karnataka, India. The maindrawback to the reception of HSCT is the financial constraint and lack of parental awareness.

Abstract ID:
A-208

Generic Health-related Quality of Life Among Patients who Received Hematopoietic Stem Cell Transplantation during Childhood: A Meta-analysis of Observational Studies

Dr Shohei Nakajima, Department of Nursing, Teikyo University, Japan

Category: Quality of Life / Survivorship

Abstract Content:

Background and Aim
Hematopoietic stem cell transplantation (HSCT) is an invasive treatment. While advancements in therapy have improved survival rates, health-related quality of life (HRQOL) remains a crucial clinical outcome for patients undergoing HSCT. This study aimed to synthesize the HRQOL of patients who underwent HSCT during childhood and compare it to that of healthy individuals.

Methods
A comprehensive literature review was performed using the Ichu-shi Web, PubMed, and Cumulative Index of Nursing and Allied Health databases up to June 30, 2024. The inclusion criteria were: (1) research with an observational study design; (2) patients who received HSCT; and (3) those who independently completed the Pediatric Quality of Life Inventory (PedsQL) Generic Core Scale. Standardized mean differences in HRQOL between patients in the eligible studies and those in the PedsQL developmental articles were used to estimate the effect sizes. Studies with a follow-up period of less than one year post-HSCT were excluded. Although the PedsQL Generic Core Scale assesses four functions, including physical, emotional, social, and school functioning, only total scores were analyzed in the present study. A random-effects model was employed to synthesize effect sizes, using R ver. 4.4.1 with a significance level of 5% (two-tailed test).

Results
Of the 68 identified articles, six met the inclusion criteria for the meta-analysis. The patient follow-up periods ranged from 1 to 8.7 years. No significant heterogeneity was observed among the included studies. The model's pooled effect size estimate was -0.06, with a standard error of 0.06. The z-value was -1.08 (P-value = 0.28), and the 95% confidence

interval for the effect size ranged from -0.18 to 0.05, indicating no significant difference in HRQOL between patients who received HSCT and healthy individuals.

Conclusions

This meta-analysis demonstrated no difference in HRQOL between patients who underwent HSCT and healthy individuals. Future research should accumulate more studies and include specific HRQOL domains affected by particular illnesses and treatments, such as utilizing disease-specific modules to capture patients' perspectives more accurately, considering the risk of chronic graft-versus-host disease and late effects.

Abstract ID:
A-209

Prospective, Single-arm Clinical Trial of Prevention of Severe Acute Graft-versus-host Disease after Adult Patients Receiving Allogeneic Hematopoietic Stem Cell Transplantation Using- a Machine Learning Model - The daGOAT Model

Dr Yigeng Cao, Department of Hematopoietic Stem Cell Transplantation Center, Institute of Hematology and Blood Diseases Hospital, China
El Jaing, Department of Hematopoietic Stem Cell Transplantation Center, Institute of Hematology and Blood Diseases Hospital, China
Yahui Feng, Department of Information and Resource Center, Institute of Hematology and Blood Diseases Hospital, China
Junren Chen, Department of Information and Resource Center, Institute of Hematology and Blood Diseases Hospital, China

Category: Graft-versus-host Disease

Abstract Content:

Background:
Allogeneic hematopoietic stem cell transplantation (allo-HSCT) has become the primary treatment method for some hematological diseases such as refractory and relapsed acute leukemia and bone marrow failure. The individuals are affected by dynamic and static multi-dimensional parameters as well as post-transplant immune reconstitution. The use of machine learning to integrate big data for predicting severe aGVHD (grade III–IV) may provide a new path towards understanding immune complications after transplantation. We have developed a dynamic forecasting model for severe aGVHD, termed the ‘daGOAT model’, achieving an AUROC score of more than 0.78.
Aims:
To evaluate the efficacy and safety of ruxolitinib for prophylactic therapy of adult patients who are predicted to have a high risk for developing severe acute graft-versus-host disease (aGVHD) by the daGOAT model.
Methods:
This is a prospective single-arm historical-control clinical trial. Adult patients receiving human leukocyte antigen (HLA)-mismatched allogeneic hematopoietic stem cell transplantation (allo-HSCT) will be enrolled after October 1, 2022. The daGOAT model will dynamically predict the risk for severe aGVHD daily from day 17 to day 23 after transplantation, and

medication will be adjusted according to the predicted risk. **Model-predicted high-risk patients (HR)**: ruxolitinib 5mg bid po until at least day 60 post-transplant and terminated after day 100. If severe hematological signs occur such as when there is severe neutropenia (<0.1×109/L), ruxolitinib can be used at half dose or discontinued as appropriate, and can continue to be used after hematology recovery. Model-predicted moderate-risk patients(MR): ruxolitinib 2.5mg bid p po until at least day 60 post-transplant and terminated after day 100. If severe hematological signs occur such as when there is severe neutropenia (<0.1×109/L), ruxolitinib can be used at half dose or discontinued as appropriate, and can continue to be used after hematology recovery. Model-predicted low risk(LR): regular aGVHD prophylactic regimens. Patients will be followed up at days 14, 28, 42, 60, 90, 180, 270, 360 and 540 after transplantation; data on infection, relapse, survival, and quality of life will be collected. Patients received HSCT from 2020/12/1 to 2021/12/31 were used as historical controls.

Results:

During 2023/1/17 to 2023/12/31, 44 patients were enrolled and completed the prediction. According to the model results from day 17 to day 23 after transplantation, there were 6 HR patients (14%), 20 MR patients (45%) and 18 LR patients (41%). A total of 3 cases of severe aGVHD occurred, with an incidence of 7%, which was significantly lower than that of historical controls (20%). Among them, 1 case of severe aGVHD in HR patients (17%) was significantly lower than that in the same group of historical controls (50%), 0 cases of severe aGVHD in MR patients (0%) was significantly lower than that in the same group of historical controls (30%), and 2 cases of severe aGVHD in low-risk patients (11%) were slightly higher than that in the same group of historical controls (6%).

Conclusion

The daGOAT model is effective and safe for predicting adult patients at high risk of severe aGVHD. This is the interim report of the project, which needs to be supported by further patient data.

Abstract ID:
A-211

The Efficacy and Safety of Ixazomib for Multiple Myeloma: A Systematic Review

Mrs Ainun Basyiroh Lubis, Department of Internal Medicine, Diponegoro University, Indonesia
Damai Santosa, Department of Internal Medicine, Diponegoro University, Indonesia
Daniel Rizky, Department of Internal Medicine, Diponegoro University, Indonesia
Budi Setiawan, Department of Internal Medicine, Diponegoro University, Indonesia
Eko Adi Pangarsa, Department of Internal Medicine, Diponegoro University, Indonesia
Catharina Suharti, Department of Internal Medicine, Diponegoro University, Indonesia

Category: Multiple Myeloma

Abstract Content:

Background: Multiple myeloma (MM) is a significant healthcare concern, comprising 1.8% of newly diagnosed cancers in the United States. Recent advancements in MM treatment, including novel agents like ixazomib, have improved patient outcomes. Ixazomib, an oral proteasome inhibitor, has shown promise in clinical trials, particularly in combination with lenalidomide and dexamethasone (IRd).
Method: We conducted a systematic literature review using Scopus, PubMed, Google Scholar, and ProQuest databases, focusing on randomized controlled trials (RCTs) evaluating ixazomib's efficacy and safety in MM treatment. Eligibility criteria included studies published within the last 10 years reporting data on ixazomib in MM patients. Quality assessment utilized the Cochrane Risk of Bias tool for RCTs.
Results: The review identified three studies demonstrating ixazomib's efficacy and safety in MM treatment across various patient groups. Benefits included improved PFS in non-transplant NDMM, significant PFS advantage in relapsed/refractory MM, and efficacy in transplant-ineligible NDMM induction regimens.
Conclusion: Ixazomib emerges as a well-tolerated maintenance therapy offering significant PFS advantages in non-transplant MM patients, irrespective of age or frailty status. Future research, including multicenter studies, is warranted to further elucidate ixazomib's role in MM management.

Abstract ID:
A-212

Examine the Prognostic Value of Geriatric Features in Allogeneic Hematopoietic Stem Cell Transplant Recipients Aged over 60 Years

Dr Lawrence Ng Cheng Kiat, Department of Haematology, Singapore General Hospital, Singapore
Lee Xiu Hue, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Quek, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lim, Department of Haematology, Singapore General Hospital, Singapore
William Hwang, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho, Department of Haematology, Singapore General Hospital, Singapore

Category: Quality of Life / Survivorship

Abstract Content:

Introduction
Allogeneic hematopoietic stem cell transplant (HSCT) offers curative potential for all hematological malignancies. Traditionally, elderly patients have been excluded due to fitness and comorbidities, but modern HSCT techniques have lessened age as a contraindication, emphasizing geriatric assessment in pre-transplant evaluations. This retrospective study examines post-allogeneic HSCT outcomes in older adults, focusing on geriatric aspects.
Aim
To investigate the demographics, geriatric features, and survival outcomes of consecutive older adults undergoing allogeneic HSCT.
Methods
We retrospectively analyzed data of older adult of age ≥ 60-years from the Singapore General Hospital transplant registry (2018-2023). Demographic data and geriatric assessments from medical records were collected. Survival outcomes including progression-free survival (PFS), overall survival (OS), and non-relapse mortality (NRM) were estimated using Kaplan-Meier curves. Univariate analysis was performed using the log-rank test, and multivariate analysis was conducted using Cox regression.
Results
A total of 54 patients were included, with a median age of 66 years (range 60-74), evenly split between males and females (n=27 each). The cohort comprised 32 patients with acute leukemia, 8 with myelodysplastic

syndrome, 7 with myeloproliferative neoplasm, and 7 with lymphoproliferative disease. Donor types included 7 matched siblings, 15 matched unrelated donors, and 32 haploidentical donors (8 with post-transplant cyclophosphamide, 24 with ex-vivo T-cell depletion). The median number of prior treatments was 1 (range 1-6).
Regarding fitness and geriatric factors, 46 patients had documented Karnofsky Performance Scores, with 54% scoring 90 or above and 46% below 90. HCT-CI scores were less than 3 in 85% of patients. Activities of Daily Living (ADL) were fully independent in 94% of patients. The Cumulative Illness Rating Scale for Geriatrics (CIRS-G) score was 7 or higher in 43% of patients. Hypoalbuminemia (<35g/dL) was noted in 59% of patients, while malnutrition (BMI <18.5) occurred in 20%, and overweight or obesity (BMI >25) in 17%. Polypharmacy (≥6 medications) was observed in 50% of patients, with 24% taking more than 10 medications.
After a median follow-up of 24.3 months, 44% of patients had died, with NRM accounting for 22% of deaths. The most common causes of NRM were pneumonia (n=7), secondary malignancies (n=2), and single cases of GVHD, TMA, and intracranial hemorrhage. Median OS was 30 months with a 2-year estimate of 53%. Haploidentical donor transplants demonstrated a 2-year OS of 62%, comparable to or better than other donor types.
Univariate analysis showed that Karnofsky score ≤80 and creatinine clearance (CrCl) <60ml/min were associated with poorer OS (2-year OS: 39% vs. 75%, p=0.03; 12% vs. 61%, p<0.01, respectively). In multivariate analysis, CrCl <60ml/min remained significant (HR 6.8, p<0.01, 95% CI 2.1-21.8), with 63% of patients with CrCl <60ml/min suffered NRM. HCT-CI, CIRS-G, albumin levels, BMI, and polypharmacy did not significantly impact OS or NRM.
Conclusion
Older adults over 60 years continue to benefit from allogeneic HSCT, especially with haploidentical donors. Low creatinine clearance is a strong prognostic factor for NRM and OS.

Abstract ID:
A-214

Extramedullary Acute Myeloid Leukemia among Filipino Female Hematopoietic Stem Cell Transplant Patients: A Case Series

Dr Aldous Stephen Quimpo Gomez, Department of Internal Medicine, St. Luke's Medical Center - Global City, Philippines
Tonee Ann Gradiola Abella, Department of Internal Medicine, St. Luke's Medical Center-Global City, Philippines
Carlo Francisco Noble Cortez, Department of Internal Medicine - Hematology - Bone Marrow Transplant, St Luke's Medical Center - Global City, Philippines
Francisco Vicente Formoso Lopez, Department of Internal Medicine - Hematology - Bone Marrow Transplant, St Luke's Medical Center - Global City, Philippines

Category: Acute Leukemia

Abstract Content:

Aims

Extramedullary Acute Myeloid Leukemias (eAML) also known as chloromas or myeloid sarcomas, have been described as a heterogenous disease entity of acute myeloid leukemias (AML) that arise in a variety of sites other than the bone marrow. Diagnosis mainly relies on imaging, histopathologic, and immunohistochemical methods due to its ability to mimic other pathologic lesions. In this case series, we aim to present cases of eAML manifesting as masses in the brain and the breast.

Methods

We present 2 Filipino patients with acute myeloid leukemia who were treated with cytarabine, etoposide, and idarubicin induction regimen prior to undergoing allogeneic hematopoietic stem cell transplant (HSCT).
The first patient is a 60 year old female diagnosed with AML who relapsed four months after undergoing allogeneic HSCT wherein she underwent a repeat Cytarabine-based regimen. Six months later she presented with left-eye esotropia. imaging revealed an ill-defined poorly-enhancing lesion on the left medial lobe. Excision biopsy done revealed an extramedullary myeloid tumor. Immunohistochemistry were CD34 positive, CD117 positive, CD68 negative, and myeloperoxidase negative, further supporting the histopathologic diagnosis.
The second patient is a 28 year old female diagnosed with AML. Four months after receiving her chemotherapeutic regimen, she was readmitted

for fever and leukocytosis and a concomitant solitary left breast mass. A repeat bone marrow biopsy was done which revealed relapse of her AML. A core needle biopsy of the breast mass revealed atypical mononuclear cell proliferation. On immunohistochemistry of the breast mass, specimens were noted to be positive for myeloperoxidase and CD 117.

Results

The first patient underwent medical decompression therapy due to increasing intracranial pressure exerted by the mass. She also continued a regimen of Gilteritinib and Venetoclax. Patient was apprised for further surgical interventions but succumbed to her disease and expired on the 23rd hospital day.

The second patient underwent a chemotherapy regimen of FLAG-IDA (Fludarabine, Cytarabine, Idarubicin and G-CSF) followed by a 5-day course of decitabine and a 20-day course of lenalidomide. She then underwent an allogeneic HSCT which was engrafted successfully. However, four months post-allogeneic HSCT, noted the appearance of right lateral breast mass accompanied by leukocytosis and was diagnosed as a second relapse.

Conclusion

Extramedullary acute myeloid leukemias are currently studied to be a clinical manifestation of AML relapse. Common locations cited in literature include connective/soft tissues, skin/breast, and the gastrointestinal tract. This case series showed that eAML may arise in a variety of anatomic sites presenting as a myriad of clinical signs and symptoms as well. eAMLs may also occur in concomitance with bone marrow relapse. Studying this propensity especially among allogeneic stem cell transplant patients may help improve understanding about post-transplant complications and improve anticipatory surveillance.

Abstract ID:
A-215

Hematopoietic Stem Cell Transplant as a Cure for Glucose 6 Phosphate Isomerase Deficiency in Siblings - Case Report from a Tertiary Care Centre in India

Dr Lakshmi T, Department of Pediatric Hematology-oncology, Mazumdar Shaw Medical Centre, Bangalore, India
Lakshmi T, Department of Pediatric Hematology-oncology, Mazumdar Shaw Medical Centre, India
Tanushree Paul, Department of Pediatric Hematology and Oncology, Mazumdar Shaw Medical Centre, India
Sunil Bhat, Department of Pediatric Hematology and Oncology, Mazumdar Shaw Medical Centre, India
Shobha Badiger, Department of Pediatric Hematology Oncology, Mazumdar Shaw Medical Centre, India

Category: Pediatric Transplantation

Abstract Content:

Aim: To describe two cases of transfusion dependent G6PI deficiency (a rare erythro enzymopathy) in siblings who were cured with matched sibling donor hematopoietic stem cell transplant (HSCT) – not previously reported in literature to our knowledge.
Methods: Siblings with this rare enzyme deficiency that causes hemolytic anemia requiring blood transfusions, were diagnosed based on a strong clinical suspicion, after ruling out the more common causes of hemolytic anemia. Quantitative enzyme level for G6PI was done, which was then confirmed by genetic testing. Both siblings were noted to have frequent packed cell transfusion requirement, were started on iron chelators and were planned for HSCT. Fortunately, their older sister was a full HLA match and was chosen to be the donor after her screening enzyme test for G6PI was normal. Pre transplant immunosuppressive therapy was given to the patient and then taken up for transplant- one after another 3 years apart. For both siblings, myeloablative conditioning with Cyclophosphamide, ATG, Busulfan and Fludarabine was used. A combination of Calcineurin inhibitor (Cyclosporine/Tacrolimus) and anti-metabolite (Methotrexate/MMF) was given for GVHD prophylaxis. Bone marrow from the donor was used as the source for both patients. Post transplant period was complicated by febrile neutropenia, moderate VOD, AKI and drug induced hypertension. Neutrophils and platelets engrafted around days 14

to 18 post transplant. Follow up chimerism done at 1 month, 3 months and 6 months post transplant were > 95%. The children are currently 3 years 4 months and 9 months post HSCT respectively. They have been asymptomatic, not required any packed cell transfusions till date, organomegaly has regressed, icterus resolved and are growing well.
Result : Both siblings engrafted without significant complications and doing well- 3.4 years and 9 months post transplant respectively.
Conclusion: Although splenectomy in G6PI deficiency has been effective in decreasing the frequency of blood transfusion, and thus complications related to iron overload on various organs of the body, it comes with serious complications mainly overwhelming infections post splenectomy and thrombosis. Hence stem cell transplant from a healthy donor can be considered an effective alternative, to attain permanent cure for this condition with limited complications and high success rates especially if a full HLA matched donor is available.

Abstract ID:
A-216

Durable Remission Achieved in Pediatric Patients with TCF3-HLF Positive R/R B-ALL by Dual CD19 and CD22-Targeted CAR-T Therapy

Dr Xinyu Wan, Department of Hematology and Oncology, Shanghai Children's Medical Center, Shanghai Jiao Tong University School of Medicine, China
Tianyi Wang, Department of Hematology and Oncology, Shanghai Children's Medical Center, Shanghai Jiao Tong University School of Medicine, China
Benshang Li, Department of Hematology and Oncology, Shanghai Children's Medical Center, Shanghai Jiao Tong University School of Medicine, China

Category: Cell and Gene Therapy

Abstract Content:

Aims: The objective of this study was to identify the efficacy and long-term follow-up of TCF3-HLF-positive patients who received autologous CAR-T cells enrolled between December 2019 and December 2023.
Methods: This is an ongoing Phase II trial (Chinese Clinical Trial Registry: ChiCTR2000032211) of CD19-and CD22-directed CAR T-cells enrolled children with relapsed or refractory B-cell malignancies. Updated trial results have recently been reported. This report precisely focused on long-term analysis of safety and efficacy outcomes in patients with *TCF3-HLF* positive B-ALL. Clinical characteristics, treatment responses, toxicity and outcomes were analyzed retrospectively. Treatment effects were assessed on Day 30 after each administration of CAR-T cells. Overall survival (OS) was calculated from the start of CAR-T cell infusion until the last follow-up or death. Relapse-free survival (RFS) was calculated from the achievement of CR after the start of CAR-T therapy until the last follow-up or relapse.
Results: A total of 16 patients received autologous dual CD19 and CD22-targeted CAR-T infusion and were followed up to a data cut-off of 1 May 2024, with a median follow-up of 12.52 months (range, 1.2–53.4 months). The median age was 10.69 years (range, 3.18-14.90 years). A median cell dose of 8.0 × 106/kg CAR-T cells (range, 3.48–11.4×106/kg) were infused. Consequently, 13 of 16 patients developed cytokine release syndrome (CRS) at a median of 5 days (range, 2–17 days) after infusions. CRS was relatively mild in most cases (grade 1, n=1 patient; grade 2-3, n=9 patients). Grade>3 CRS was only observed in 3 patients. Four patients had CAR-related neurotoxicity (grade 2, n=2; grade 3-4, n=2). On day 30 after dual-

targeted CAR-T infusion, all patients (100%) achieved complete response. Surprisingly, only one patient was observed with CD19 negative relapse after CAR-T infusion and durable remissions were lasted for more than 24 months in a proportion of treated patients. One patient underwent consolidative hemopoietic stem cell transplantation while in complete remission, and four patients maintained complete remission without any additional treatment at 12 months after infusion and three of them still persisted at 24 months . The 6-month RFS and 24-month RFS were 93.30% and 70.70%, respectively. Additionally, the OS rate was 93.75% and 82.03% at 6 months and 24 months, respectively.

Conclusions: It suggests that CAR-T might provide an attractive stand-alone treatment without SCT for *TCF3-HLF*-positive childhood B-ALL patients.

Abstract ID:
A-217

Five-year Study of Environmental Bacterial Sepsis in Children Undergoing Hematopoietic Stem Cell Transplantation

Mrs Jerlin Grace, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Mahalakshmi V P, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Sivakumar, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Kanaga Ravi, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Harini Kannan, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Sandhiya G, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aim

The neutropenic phase during hematopoietic stem cell transplantation poses a significant challenge with blood stream infections due to translocation of bacteria from the child's own gastrointestinal tract. Sepsis due to micro-organisms from the hospital environment including water supply can also result in infections. We performed an audit of the infections caused by these environmental bacteria to help plan interventions to prevent further outbreaks.

Patients and methods

This is a retrospective analysis of children between 0-18 years of age who underwent HSCT at our centre between January 2019 and December 2023. The patient related data and microbiological reports were collected from patient records and electronic data base. The data was recorded on an excel sheet and analysed on SPSS software. The study has been approved by our Institutional Ethics Committee.

Results

A total of 564 HSCTs were performed over five years at our unit. Thirty-one (5.4%) of these children had culture proven blood stream infections with environmental bacteria with a male to female ratio of 3.4:1. Seven (22.5%) children had an underlying malignant condition and 24 (77.4%) had non-

malignant disorders. Eighteen (58%) of these children had a haploidentical donor followed by matched family donor in 6 (19.3%), matched unrelated donor in 5 (16.1%) and autologous HSCT was done in 2 (6.4%). Pseudomonas was the most common bacteria seen in 16 (51%), followed by Burkholderia in 6 (19.3%). Acinetobacter and Ralstonia were documented in 2 (6.4%) patients each followed by Citrobacter, Lactobacillus, Brevundimonas, Brevibacterium, Roseomonas in one (3.2%) patient each. The median number of central line days in these children was 10 days. The catheter was removed in all of these children and infection related mortality was low at 6.4%.

Conclusion

Prolonged hospitalisation, presence of indwelling catheters, contamination of water in humidifiers of high-flow machines or invasive ventilators make the children vulnerable to bacterial infections from the environment. Adoption of central line bundle, an in-house checklist for regular replacement of water in humidifiers, infusion sets, and ventilator tubing, during HSCT is required to prevent morbidity and mortality. We have presented this data to our Hospital Infection Control (HIC) team to help reduce infection risk further in these immunocompromised hosts.

Abstract ID:
A-218

The Impact of Plasma Exchange for Donor Specific Antibodies in Children Undergoing Haploidentical Hematopoietic Stem Cell Transplantation for Thalassemia Major – What should Nurses Know

Ms Aiswarya Thirumal, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Jenofer Narkis Fathima, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Malathi.A, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Niketh Mahendran, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Shanthi.B, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Sathya.M, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aim

Haploidentical hematopoietic stem cell transplantation (HSCT) is increasingly being performed in children with thalassemia major. HLA antibodies some of which are donor specific (DSA) are common in these children who have been multiply transfused especially in low-middle income countries with no access to universal leucodepletion and family directed donations. We describe here our experience treating children with plasma exchange prior to HSCT and the unique complications in this cohort.

Patients and Methods

We collected data on children transplanted for Thalassemia Major using a uniform haploidentical HSCT protocol with rabbit ATG, thiotepa, fludarabine, 2 Gy total body radiotherapy and post-transplant cyclophosphamide. Cohort 1 had children who had HLA antibodies documented by Single Antigen Bead Assay (SABA) and Cohort 2 were HLA antibody negative and were age and sex matched for the children in Cohort 1. We collected data from charts retrospectively on blood product requirement, the presence of platelet refractoriness and bleeding and

mortality on excel sheet and analysed the data on SPSS software. The study has been approved by our Institutional Ethics Committee.

Results

Between 2021 and 2024 a total of 17 children were SABA positive with MFI over 3000 and underwent double volume plasma exchange on Day -10 just before conditioning regimen and formed Cohort 1. The children were aged between 4 and 20 years and were age and sex matched with patients who were SABA negative. The main finding was in the increased need for platelets with an average of 16 units in Cohort 1 and 11 units in Cohort 2 (p-value 0.001). The incidence of hematuria was high in both groups at 23%. Both groups required 8 units packed red blood cells each. Cohort 1 had a high incidence of platelet refractoriness at 82% compared to Cohort 2 at 52% resulting in mortality in 2/17 (11.7%) children. There was no mortality in Cohort 2.

Conclusion

Our study helped us understand that nurses need to be aware of the unique complications due to HLA antibodies in HSCT. Platelet refractoriness and bleeding manifestations are higher in this group of children. The families need to be counselled in advance for HLA matched platelet donors and the early use of recombinant Factor VIIa for children with hematuria and distressing bleeding manifestations

Abstract ID:
A-219

Infusion of ABO Incompatible Stem Cells – The Role of Nursing Team

Ms Jenifer R, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Sathya.M, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Vibisha V, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Abitha A, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Kasthuri M, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Manesha Selvam, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims

One-half of all hematopoietic stem cell transplantation (HSCT) will involve recipient - donor ABO incompatibility. Infusion of incompatible stem cells can result in acute hemolytic reactions despite optimal red blood cell and plasma reduction. Nursing guidelines exist for transfusion of ABO-incompatible stem cells. We describe here, our unit experience in the side effects seen and the management of acute complications during stem cell infusion of such a product.

Patients and Methods

We performed a retrospective analysis at our centre in children transplanted between January 2021 and December 2023 and collected data from medical records on ABO incompatible units transfused, data on vitals chart documented by the nurse during infusion and the interventions needed to manage the side effects. ABO incompatible units were issued after red cell depletion for major incompatibility and plasma depletion in minor incompatibility. In bidirectional mismatch both red cell and plasma depletion was performed. All children had a venous blood gas performed six hours after infusion and the urine colour and output were carefully documented. The study has been approved by our Institutional Ethics

Committee. The data was collected on an excel sheet and analysed using SPSS software.

Results

A total of 355 children underwent HSCT over a three-year period and 124/355 (34.9%) had ABO incompatible stem cell product infused. We documented major incompatibility in 51/124 (41.1%) children, minor incompatibility in 57/124 (45.9%) and bidirectional mismatch in 16/124 (12.9%). Hypertension with a rise in blood pressure above 95th centile for the age, height and sex of the child was the main side effect seen in 44/124 (35.4%) children. We treated the hypertension with oral nifedipine in 10/44 (23%) children and they responded. Sodium nitroprusside infusion was required in 34/44(77%) children during the infusion to control hypertension. There were no documented seizures or PRES – Posterior Reversible Encephalopathy Syndrome. The VBG was normal and the renal function and urine output were normal in all children.

Conclusion

Acute hypertension rather than hemolysis is seen in 35% of children during infusion of ABO-incompatible stem cell infusion. This needs to be addressed by the nursing team optimally to avoid PRES and seizures. A uniform unit protocol with the use of blood pressure centile charts, nifedipine and SNP infusion in a step wise fashion can ensure 100% safety during the procedure.

Abstract ID:
A-220

Survival Analysis of Patients Given First Autologous Stem Cell Transplantation in Hematologic Malignancies: A Single Center 10 Years Experience

Dr Mila Astrilia, Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Galih Prakasa Adhyatma, Faculty of Medicine, Universitas Muhammadiyah Semarang, Indonesia
Arcita Hanjani Pramudita, Research Affiliates at Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School, United States
Roman M. Shapiro, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School, United States
Eko Adhi Pangarsa, Hematology and Medical Oncology Division , Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia
Damai Santosa, Hematology and Medical Oncology Division , Department of Internal Medicine, Faculty of Medicine, Diponegoro University, Indonesia

Category: Quality of Life / Survivorship

Abstract Content:

Introduction
Autologous stem-cell transplantation (ASCT) is a medical procedure which involves administering healthy and functional hematopoietic stem cells to a patient who was given a high dosage of chemotherapy or radiation. ASCT has seen numerous successes in many hematologic malignancies. However, conflicting evidence regarding Overall Survival (OS) of treatment with ASCT in hematologic malignancies still exists especially in cases of multiple myeloma (MM) and lymphomas.
Aims
To describe the characteristics and overall survival of patients with MM and lymphomas given ASCT in Dr. Kariadi Hospital Semarang.
Methods
A retrospective cohort study design was applied among patients with MM and lymphomas who were given ASCT at Dr. Kariadi Hospital between January 2013 to May 2023. Data was collected from patients' medical records. Missing information and patients lost to follow-up were further investigated by using the patient's primary contact number. We analyzed overall survival and survival probability related to each risk factor using Kaplan-Meier and further described events such as infection using the swimmers plot. Statistical analysis was carried out with R software v.4.

Result

This study involved 20 patients with multiple myeloma (MM) and eight patients with lymphoma. The median age of patients was 50 years, with a majority of them being males (57%). We found that 21 patients (75%) had an infection after ASCT, with a majority of them infected within the first 10 days (95% of infected patients). Furthermore, 64% of patients had a normal BMI, and most of them (57%) had no comorbidities (**Table 1**). Further analysis of outcome showed a 1-year OS rate of 0.63 (95% CI; 0.45 - 0.89) after ASCT (**Figure 1**). Patients with MM had a lower survival probability (0.61 (95% CI; 0.4 - 0.93)) than those with lymphomas (0.7 (95% CI; 0.42 - 1))(**Figure 2**).Male patients had a higher survival probability compared to females (0.63 vs 0.6, respectively)(**Figure 3**).

Conclusion

In our 10 years experience, we discovered that ASCT provided a modest improvement in survival of patients with MM and lymphoma. We also discovered characteristics such as infection was commonly found within the first 10 days after ASCT in our center. However, a large scale study needs to be conducted to further investigate underlying factors which contribute to OS of these patients.

Keyword : Multiple Myeloma, Lymphoma, Autologous Stem Cell Transplantation, Survival

Abstract ID:
A-222

Chemical Stability and Sterility Of Plerifor® (Plerixafor) Solution for Injection after Opening Single-Use Vial

Ms Utairat Meeudompong, Department of Pharmacy, Siriraj Hospital, Mahidol University, Thailand

Category: Conditioning Regimens

Abstract Content:

Background: Pleixafor is an effective drug widely use combination with granulocyte colony stimulating factor (G-CSF) to mobilize hematopoietic stem cells to peripheral blood for collection and subsequent autologous transplantation in patients with non-Hodgkin's lymphoma and multiple myeloma. According to plerifor's label after opening the vial, the solution should be use immediately. The remaining must be discarded, resulting in a significant waste of this expensive drug.

Objective: This study aimed to investigate the stability and sterility of 24 mg/1.2mL (20 mg/ml) of plerifor® solution in a disposable plastic syringe over 3 months period under light protection at temperatures of 2-8 ◦C and 25 ◦C

Methods: The stability of Plerifor® solution was prepared by aseptic technique by withdrawing 0.1 ml injection concentrate via cannulas six times from same Plerifor® vial into 1 ml plastic syringes. Three syringes each were stored under refrigeration (2–8 °C) and at room temperature (25 °C), both light protected. The liquid chromatographic-mass spectrometric (LC–MS) assay is developed and validated for the quantification of plerixafor. After diluting the drug with a mixed solvent with an internal standard (IS) and the sample directly injected into LC-MS system. Chromatographic separation was achieved using an Agilent Technology InfinityLab Poroshell 120 EC-C18 100 × 3.0 mm, 2.7-µm column. The mobile phase was a mixture of 0.1% formic acid in deionized water and 0.1% formic acid in acetonitrile (20/80). Drug detection was performed by MS using electrospray ionization in the positive mode. Multiple reaction monitoring (MRM) with a mass spectrometer was used to detect the analytes. Precursor to product ion transitions of: m/z 605.5 and m/z 435.3 were used to quantify plerixafor and IS, respectively. Sample analysis time was 3 min for each injection. The mean concentration of plerixafor wasdetermined on days 0, 7, 14, 21, 30, 60, and 90.

Results: Plerifor® syringes containing 20 mg/mL plerixafor solution can be kept for up to 14 days under light protection and the concentrations declined less than 5 %. There was no macroscopic or microscopic evidence of aerobic or anaerobic bacteria or fungal growth in sample at 1 month. No particulate matter and no colour changes were observed over the period of 90 days.

Conclusions: Residual plerixafor after initial opening of a vial of the Plerifor product remained chemically stable for at least 2 weeks both at room temperature and under refrigeration. The sterility test at 1 month prove no microbial under refrigeration. The results of this study provide evidence to support multiple uses, instead of single use, of vials of this drug in an aseptic, controlled environment to reduce financial burden and drug wasted.

Abstract ID:
A-223

Efficacy of Modified Melphalan and Busulfan-based Conditioning Regimen for ASCT in Patients with Low- or Intermediate-risk AML

Dr Chen Shulian, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Zhang Xiaoyu, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
He Yi, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Feng Sizhou, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Han Mingzhe, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Zhao Xingli, Department of Hematology, Tianjin People'S Hospital, China
Bai Jie, Department of Hematology, The Second Hospital of Tianjin Medical University, China
Li Lijuan, Department of Hematology, Tianjin Medical University General Hospital, China
Zhang Zhihua, Department of Hematology, The Affiliated Hospital of Chengde Medical University, China
Wang Ying, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Wang Jianxiang, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Zhai Weihua, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China

Jiang Erlie, Department of Hematology, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China

Category: Conditioning Regimens

Abstract Content:

Aims:

Treatment options for patients with low-risk orintermediate-risk acute myeloid leukemia (AML) patients (non-M3) who achieved complete response (CR) after one course of induction chemotherapy include consolidation chemotherapy, autologous hematopoietic stem cell transplantation (ASCT) and allogeneic hematopoietic stem cell transplantation (allo-HSCT). Compared with chemotherapy, ASCT could significantly reduce relapse rate, as was associated with significantly lower transplant-related mortality compared with allo-HSCT, but relapse rate was relatively high. The selection of conditioning regimen was crucial to reduce relapse rate after transplantation. In this study, we made refinements in the conditioning regimen with two alkylating agents, namely MCBA (the combination of melphalan, cladribine, busulfan, and cytarabine). We aim to investigate the efficacy of MCBA conditioning regimen for ASCT in low-risk or intermediate-risk AML patients who achieved CR after one course of induction chemotherapy.

Methods:

This prospective multi-center clinical trial was conducted in 5 tertiary hospitals in China, and enrolled low-risk orintermediate-risk AML patients (non-M3) who achieved CR after one course of induction chemotherapy, followed by 1-2 courses of high-dose cytarabine consolidation chemotherapy, and underwent ASCT from May 2021 to January 2024 (ChiCTR Registration ID: ChiCTR2200056167). The MCBA conditioning regimen consists of melphalan 70mg/m2/d, day -6~-5, cladribine 5mg/m2/d, day -4~-2, busulfan 3.2mg/kg/d, day -8~-7, cytarabine2g/m2/d, day -4~-2.

Results:

This study included a total 26 AML patients, 18 males, 8 females, with median age 43 years (ranged 20–59years). According to the 2017 European LeukemiaNet (ELN) criteria, there were 9 low-risk and 17 intermediate-risk patients. The median counts of infused mononuclear cells and CD34+ cells were 11.94× 108 (range: 1.79 ×108–34.68 × 108) and 2.36 × 106/kg (range: 1.05 × 106–17.15 × 106), respectively. Neutrophil and platelet engraftment were achieved in all patients, with a median time of 12 days (range: 10–27)

and 31days (range: 12–150) respectively. On the day of reconstitution, all patients exhibited good responses, including hematologic CR and minimal residual disease (MRD) negativity rates of 100%. 18(69.2%) patients received maintenance therapy after ASCT, with a median time of 3.25 months (range:1–9 months). Azacytidine, venetoclax, decitabine or gilteritinib were the main maintenance therapies. Following a median follow-up of 511 days (range, 72–1048 days), the 1-year overall survival (OS) and disease-free survival (DFS) rates were 90.6% ± 6.3% and 72.0% ± 9.8%, respectively. Additionally, sevenpatients were reclassified as adverse risk cases based on the 2022 ELN criteria, three of whom experienced a relapse. In the univariate analysis, the absence of maintenance therapy post-ASCT and the adverse risk category based on the 2022 ELN criteria were significantly associated with worse OS.

Conclusion:

The preliminary data demonstrated the efficiency of MCBA conditioning regimenfor ASCT in low-risk orintermediate-risk AML patients who achieved CR after one course of induction chemotherapy. Immediate initiation of maintenance therapy post-ASCT is recommended to enhance OS. Utilizing the 2022 ELN criteria holds promise for better patient screening and improved autologous transplantation efficacy in the future.

Abstract ID:
A-224

Safety and Efficacy of Sodium Nitroprusside Infusion for Hypertensive Emergencies in Children Undergoing Hematopoietic Stem Cell Transplantation – Old Wine in a New Bottle

Ms R Nithiyalakshmi, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Karthika Mariappan, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
Suriya Prakash K, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
M Subasri, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
S Sowmiya, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
S Shanmugapriya, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
M Lakshmi, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India
C Priyadarshini, Department of Paediatric Blood and Marrow Transplant Nursing, Apollo Cancer Centres, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims

Nitroprusside (SNP) is a fast-acting, easily titratable, highly effective antihypertensive agent that must be used with extreme care. Nursing implications are high as we use it to treat hypertensive emergencies requiring a rapid reduction in arterial blood pressure. We report our experience in the use of SNP in children undergoing hematopoietic stem cell transplantation (HSCT).

Patients and Methods

We performed a retrospective study on the use of SNP infusion over a 30-month period in our BMT unit from January 2022 to June 2024 and collected data on the use of SNP for hypertensive emergencies, the median duration, the incidence of PRES – Posterior Reversible Encephalopathy Syndrome and seizures due to hypertension, the incidence of methemoglobinemia and the outcome of the event using excel sheet for data collection from

charts. SNP was dissolved in 5% dextrose and covered during infusion and started at a rate of 1 mcg/kg/minute and increased to a maximum of 4 mc/kg/minute based on continuous NIBP monitoring. Simultaneously, the children were started on oral antihypertensive agents to rapidly taper and stop SNP. The study has been approved by our Institutional Ethics Committee and we performed the data analysis using SPSS software.

Results

We performed 290 HSCT of which 127 children (43.7%) needed SNP infusion for hypertensive emergency. The median duration of SNP use was 4 days- range 1 hour to 14 days. The incidence of PRES was 15.7% (20/127) and there were no seizures or intubation or mortality related to hypertension. SNP had high efficacy as the need for a second intravenous antihypertensive was low at 4.8% (14 children). We had no case of methemoglobinemia but observed tachyphylaxis after 72 hours of SNP infusion.

Conclusion

Children undergoing HSCT are at high risk of hypertensive emergencies and the nursing team needs to be prepared to help predict and treat children at risk to avoid PRES and acute clinical deterioration events in the unit. SNP infusion is a simple and effective intervention to be used after training nursing staff and under supervision to prevent seizures secondary to acute hypertension.

Abstract ID:
A-225

Subcutaneous Daratumumab in the Treatment of Pure Red-cell Aplasia Post ABO-mismatched Allogenic Haematopoietic Stem Cell Transplant: A Case Report

Dr Nicole-Ann Lim, Department of Haematology, Singapore General Hospital, Singapore
Yunxin Chen, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Quek Kim Siang, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lorraine Lim, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tansloan Tuy, Department of Haematology, Singapore General Hospital, Singapore
Ang Chieh Hwee, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore

Category: Infectious and Non-infectious complications

Abstract Content:

Pure red-cell aplasia (PRCA) following an ABO-mismatched allogeneic haematopoietic stem cell transplant (SCT) is a rare but challenging complication without an established treatment. The pathophysiology involves a persistent elevation of anti-donor red cell antibodies, leading to delayed red cell recovery. If not adequately treated, patients with PRCA may eventually need frequent transfusions, which can lead to iron overload.

Several approaches have been proposed in the literature for the treatment of post-SCT PRCA. Erythropoietin-stimulating agents (ESA) are often the first line of treatment due to their safety and availability. Other treatment options focus on reducing anti-red cell antibodies. These include plasma exchange, donor lymphocyte infusions (DLI) to destroy residual plasma cells, tapering immunosuppressants to enhance the graft-versus-plasma cell effect, and anti-CD20 monoclonal antibody, rituximab to deplete antibody production by B-lymphocytes. Most recently, intravenous daratumumab, an anti-CD38 monoclonal antibody targeting plasma cells, has been found to be effective in selected cases. (1)

We describe our experience treating refractory PRCA post major ABO-mismatched allogeneic SCT with subcutaneous daratumumab. The patient was a 26-year-old female with severe aplastic anemia, with an HLA-matched sibling donor. The recipient was blood group O positive, and the donor was B positive. She received a preparative regimen with fludarabine, cyclophosphamide, and Campath. Neutrophils engrafted on D+10, and platelets on D +16 uneventfully.

However, her haemoglobin (Hb) remained persistently low between 4-5 g/dl, with reticulopenia even after 3 months post-transplant, despite normal white blood cell and platelet counts. Bone marrow studies demonstrated myeloid predominance with suppressed erythropoiesis. There was no evidence of haemolysis, and virology studies, including parvovirus B19, CMV, and EBV, were unremarkable. VNTR analysis showed an incomplete donor chimerism in the CD3+ lymphocyte compartment. Red cell anti-B antibody was detected to a titre of 1:256 using indirect antiglobulin testing. A diagnosis of PRCA post-SCT was made.

She was initially treated with ESA (Recormon 30,000 U weekly) which was stopped after 6 months due to lack of response. Her immunosuppressant cyclosporine A was tapered gradually. However, she remained transfusion dependent and required a chelating therapy for hyperferritinaemia and moderate iron loading in the liver.

She was started on a regimen of weekly injections of subcutaneous (SC) daratumumab 1,800mg for a total of 12 weeks, followed by a maintenance of 3 additional doses given every 4 weeks. SC route was chosen over an intravenous administration for better tolerability and reduction of infusion-related toxicities.
After completing 12 weeks of SC daratumumab, she was transfusion independent with Hb 7.9 g/dl and Rct of 5.31%. She achieved sustained response, monitored by serial Hb and reticulocyte count (Rct) readings (Figure 1). Conversion to the donor blood group (B positive) was subsequently complete with undetectable anti-B titres. The overall clinical picture was suggestive of resolution of PRCA.

Our report illustrates that SC daratumumab appears to be a viable and promising treatment option for PRCA that is refractory to other treatment modalities post-SCT.

Abstract ID:
A-226

Comparative Efficacy and Safety of Lenograstim Versus Filgrastim for Hematopoietic Stem Cell Mobilization in Autologous Hematopoietic Stem Cell Transplantation: A Systematic Review

Dr Vina Yunarvika, Department of Internal Medicine, Rsup Dr. Kariadi Semarang, Indonesia
Damai Santosa, Department of Internal Medicine, Kariadi Hospital, Indonesia
Daniel Rizky, Department of Internal Medicine, Kariadi Hospital, Indonesia
Eko Adhi Pangarsa, Department of Internal Medicine, Kariadi Hospital, Indonesia
Budi Setiawan, Department of Internal Medicine, Kariadi Hospital, Indonesia
Catharina Suharti, Department of Internal Medicine, Kariadi Hospital, Indonesia

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Background: Hematopoietic stem cell transplantation (HSCT) is crucial for treating various hematological malignancies, and effective mobilization of hematopoietic stem cells (HSCs) is essential for its success. Lenograstim and filgrastim are two granulocyte colony-stimulating factors (G-CSFs) used for HSC mobilization; however, comparative data on their effectiveness and safety remain limited.

Objective: This systematic review aims to evaluate and compare the efficacy and safety of Lenograstim and Filgrastim for HSC mobilization in patients undergoing autologous HSCT.

Methods: We conducted a systematic review by searching electronic databases such as PubMed, Embase, Cochrane Library, and ClinicalTrials.gov. We included studies published in English that compared Lenograstim and Filgrastim for HSC mobilization in autologous HSCT. The keywords used in the search were “Lenograstim,” “Filgrastim,” “Hematopoietic Stem Cell Mobilization,” “Autologous Stem Cell Transplantation,” and “Comparative Efficacy.”

Results: Five studies met the inclusion criteria. Lenograstim generally resulted in a higher mean number of harvested CD34+ cells compared to Filgrastim, with Resteli’s study reporting 10.10 ± 5.87 x10^6 cells/kg for Lenograstim versus 7.92 ± 3.90 x10^6 cells/kg for Filgrastim (p=0.0101). Lenograstim also led to faster recovery of neutrophils and platelets, with median times of 12 days for neutrophils and 12 days for platelets, compared to 13 days for neutrophils and 15 days for platelets with Filgrastim. Additionally, Lenograstim was associated with fewer instances of fever (p=0.01834) and reduced patient management costs by €566. Sarici’s study reported a 100% mobilization success rate for Lenograstim versus 93.8% for Filgrastim, though this difference was not statistically significant (p=0.2). Both G-CSF agents demonstrated

high mobilization success rates and similar outcomes in terms of leukapheresis sessions.

Conclusions: Lenograstim and Filgrastim both demonstrate high efficacy and safety for HSC mobilization in autologous HSCT. Lenograstim may offer advantages in terms of higher CD34+ cell yields, faster recovery, lower incidence of fever, and reduced costs. However, these potential benefits are not always statistically significant, and both agents provide comparable mobilization success rates. Further research with larger and more diverse populations is needed to confirm these findings and refine mobilization strategies.

Abstract ID:
A-228

Donor-recipient Weight Ratio as a Predictor for Stem Cell Yield in Peripheral Blood Stem Cell Collection

Dr Cheong Chin Sum, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Christina Lee Lai Ling, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Normala Arshad, Department of Nursing, Universiti Malaya Medical Center, Malaysia
Bee Ping Chong, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Edmund Chin Fui Min, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Shasha Khairullah, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Liong Chee Chiat, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia
Mohd Yazid Zamri, Department of Medicine, Universiti Malaya Medical Center, Malaysia
Gan Gin Gin, Department of Medicine, Faculty of Medicine, Universiti Malaya, Malaysia

Category: Conditioning Regimens

Abstract Content:

Aims: Peripheral blood stem cells (PBSC) are frequently used as the source of stem cell in allogeneic haematopoietic stem cell transplantation (HSCT). It is a preferred choice in view of its superiority in donor engraftment and 'graft versus leukaemia' effect compared to bone marrow stem cells. There are many factors that can affect the PBSC yield from healthy donors which include donor age, gender, body mass index and pre-collection white cell count. Identification and optimization of these factors can increase the successful rate of PBSC collection. We aim to investigate the factors associated with successful stem cell collection on day 1 of allogeneic PBSC collection.

Methods: This is a retrospective study conducted in a tertiary center in Kuala Lumpur involving healthy PBSC donors. These donors received granulocyte-colony stimulating factor (G-CSF) at 10mg/kg/day for 5 days prior to PBSC collection. The stem cell collections were performed from January 2013 to June 2024. Optimal stem cell collection was defined as a total CD34 collection of 2.0x106cells/kg or more of recipients' weight. Demographic data such as age and gender of the donors, as well as data

on the stem cell product were collected. Factors associated with optimal stem cell collection were analysed using multiple regression analysis.

Results: A total of 63 donors who had complete data were included for analysis. Mean age of the donors were 40.2 years old. Majority of them (52.3%) were male. The mean product volume was 65.7mls, whereas the mean CD34 cell dose was 5.79x106/kg. There were 85.7% of donors who had achieved optimal stem cell dose after 1-day PBSC collection. The mean donor-recipient weight ratio was significantly higher among donors with optimal stem cell collection (mean 1.113, standard deviation [SD] 0.377) compared with those with suboptimal collection (mean 0.87, SD 0.207) on day 1 (p=0.047, 95% confidence interval [CI] 0.003-0.520). Donors' demographic such as age, weight, body mass index and blood parameters such as hemoglobin levels, white cell counts, and platelet levels were not different between both groups. Only donor-recipient weight ratio of more than 1.0 was significantly associated with higher probability of successful day 1 PBSC collection after multiple regression analysis (OR 35.480, 95% CI 2.428-518.382, p=0.009).

Conclusions: Donor-recipient weight ratio of more than 1.0 is associated with higher probability of achieving optimal stem cell dose at day 1. The ratio should be considered as one of the important factors in donor selection for allogeneic stem cell transplantation. Choosing a heavier donor, if there is an option, would be ideal and this may be particularly important among the paediatric cohort.

Abstract ID:
A-230

In the Blink of an Eye - Bell's Palsy as an Initial Presentation of CNS Relapse of T-Cell ALL – A Case Report

Dr Jasmine Clarisse Cheng, Department of Internal Medicine, St Lukes Medical Center - Global City, Philippines
Francisco Lopez, Department of Internal Medicine, St Lukes Medical Center - Global City, Philippines
Carlo Francisco Cortez, Department of Internal Medicine, St Lukes Medical Center - Global City, Philippines
Dean Kyle Ang, Department of Internal Medicine, St Lukes Medical Center - Global City, Philippines

Category: Acute Leukemia

Abstract Content:

AIMS
T-cell Acute Lymphoblastic Leukemia (ALL), one of the common tumors in childhood, is characterized as abnormal proliferation of immature lymphocytes. The central nervous system (CNS) is the most common site of extramedullary involvement in ALL. While the presentation of relapse may be varied from headache, fatigue to fever. Here in this case report, presents a case of T Cell Acute Lymphoblastic Leukemia relapse presenting as unilateral facial palsy.

METHODS
This is a case of 21 y/o male diagnosed with T cell ALL, initially presenting as fatigue and jaundice with abdominal pain with leukocytosis of 239,000 with 61% abnormal mononuclear cells. A bone marrow biopsy was done which revealed 97.5% T cell ALL. Patient commenced on a regimen including Prednisone, Doxorubicin, L-Asparaginase and Vincristine. Following a month of treatment, on repeat bone marrow biopsy demonstrated remission. He received consolidation chemotherapy with Methotrexate and Cytarabine. Approximately a month after remission, patient developed pain on the right mandibular area, associated with unilateral facial asymmetry manifesting as right ptosis, inability to smile on the right side, dysgeusia, and hyperacusis. There were no symptoms of facial numbness, slurred speech, dysphagia, cough, cold, or fever. MRI findings included a solitary punctate white matter hyperintensity in the right corona radiata and suspicious punctate enhancement in the right internal auditory canal. Lumbar puncture revealed no growth on CSF

culture, a negative meningitis panel and negative for atypical cells. Hence, patient was treated as Bell's palsy and was started on Prednisone. Despite treatment, his condition progressed to bilateral facial palsy. Repeat investigation with a lumbar puncture yielded positive for atypical mononuclear cells signifying CNS relapse. Consequently, patient was treated with intrathecal chemotherapy twice weekly until CSF became negative. Patient underwent reinduction with a Bortezomib-based chemotherapy (Vincristine, doxorubicin, prednisone, bortezomib, L-asparaginase). Upon repeat bone marrow examination, confirmed remission. The patient proceeded to an allogeneic transplant with a haploidentical donor utilizing Fludarabine, Cyclophosphamide, 2 Gy total body irradiation as conditioning regimen. Patient engrafted 14 days after allogeneic transplant, and is in remission with no signs of acute graft versus host disease.

CONCLUSION

This case report highlights a 21-year-old male with T-cell acute lymphoblastic leukemia (ALL) who initially presented with unilateral facial palsy, mimicking Bell's palsy. Although central nervous system (CNS) involvement is frequent in cases of acute lymphoblastic leukemia (ALL), the clinical manifestations can vary significantly. While most cases typically present with non-specific neurological symptoms, this case report provides an alternative perspective on how these manifestations may present. A high index of suspicion is always advisable in such cases.

Abstract ID:
A-231

Bifidobacterium Quadruple Viable Tablets Combined with Bacillus Coagulans Tablets for Graft-versus-host Disease Prophylaxis in Allogenic Hematopoietic Stem Cell Transplantation

Ms Ruowen Wei, Department of Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, Institute of Hematology, China
Ao Zhang, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China
Hongru Chen, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China
Mengting Huang, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China
Xiena Cao, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China
Shengling Ma, Department of Section of Hematology-Oncology, Baylor College of Medicine, United States
Wei Shi, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China
Linghui Xia, Department of Department of Hematology, Union Hospital, Tongji Medical School, Huazhong University of Science and Technology, China

Category: Graft-versus-host Disease

Abstract Content:

Introduction
Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is a powerful method for curing hematologic diseases. Graft-versus-host disease (GVHD) is a critical complication affecting patient prognosis and quality of life. The intestine, a major target organ for GVHD, can be damaged by HSCT conditioning, broad-spectrum antibiotics, leading to infections and GVHD. Probiotic supplementation may prevent GVHD by supporting intestinal health. We conducted a retrospective study to investigate the effect of probiotic combinations on GVHD prevention.
Methods
We analyzed 494 allo-HSCT patients treated at our center between January 2021 and January 2024. Patients were divided into two groups: quadruple probiotics (4-Probiotics, n=188) receiving Bifidobacterium quadruple viable tablets (1g or 1.5g thrice daily), and quintuplet probiotics (5-Probiotics, n=306) receiving Bifidobacterium quadruple viable tablets (0.5g thrice

daily) plus Bacillus coagulans tablets (350mg daily). We assessed engraftment, viral reactivation, complications, GVHD incidence, relapse and survival outcomes. Statistical analyses included cumulative incidence calculations, survival estimates, and multivariate analysis using competing-risk and Cox proportional hazards model.

Results

Engraftment rates were similar between groups (4-Probiotics vs. 5-Probiotics): neutrophil engraftment (98.9% vs. 97.4%, p=0.390) and platelet engraftment (95.7% vs. 95.4%, p=0.867). The 5-Probiotics group showed faster neutrophil engraftment (median 11 days, IQR 10-12 vs. 12 days, IQR 11-15, p<0.001) and platelet engraftment (median 11 days, IQR 10-12 vs. 13 days, IQR 11-14, p<0.001). CMV reactivation rates were similar (42% vs. 43.8%, p=0.700), while EBV reactivation was higher in the 5-Probiotics group (9.2% vs. 4.3%, p=0.042). The 5-Probiotics group had lower incidences of pneumonia within 3 months post-HSCT (27.8% vs. 39.4%, p=0.007), hemorrhagic cystitis (11.8% vs. 28.7%, p<0.001), and grade III-IV oral mucositis (2% vs. 9.6%, p<0.001). Five-month cumulative incidence of grades II-IV acute GVHD (30%, 95%CI: 25%-35% vs. 46%, 95%CI: 39%-53%, p<0.001) and grades III-IV aGVHD (15%, 95%CI: 12%-20% vs. 25%, 95%CI: 19%-31%, p=0.010) were lower in the 5-Probiotics group. One-year cumulative incidence of mild chronic GVHD was 19% (95%CI: 14%–23%) vs. 12% (95%CI: 8%-18%, p=0.10), while moderate and severe cGVHD was significantly reduced in the 5-Probiotics group (12%, 95%CI: 8.3%-16% vs. 33%, 95%CI: 26%-40%, p<0.001). One-year cumulative incidence of relapse (15%, 95%CI: 11%-19% vs. 13%, 95%CI: 8.8%-19%) and transplantation-related mortality (17%, 95%CI: 13%-21% vs. 20%, 95%CI: 14%-26%) were similar. One-year overall survival (76.9%, 95%CI: 72.1%-81.9% vs. 74.6%, 95%CI: 68.4%-81.4%, p=0.54) and progression-free survival (68.5%, 95%CI: 63.3%-74.2% vs. 66.7%, 95%CI: 60.1%-74.1%, p=0.93) were comparable, but the 5-Probiotics group showed significantly higher 1-year GVHD-and-relapse-free survival (53.1%, 95%CI: 47.5%-59.3% vs. 31.1%, 95%CI: 24.9%-38.9%, p<0.001). Multivariate analysis revealed quintuplet probiotics as an independent protective factor for II-IV aGVHD (HR:0.66, 95%CI:0.44-0.97, p=0.036), moderate and severe cGVHD (HR:0.42, 95%CI:0.24-0.73, p=0.002), and GRFS (HR:0.63, 95%CI:0.46-0.88, p=0.006), but not for III-IV aGVHD (HR:0.95, 95%CI:0.56-1.61, p=0.85).

Conclusion

This retrospective study suggests that probiotic supplementation, particularly the quintuplet combination, may be effective in preventing

GVHD in allo-HSCT patients. The 5-Probiotics group showed faster engraftment, lower incidences of complications and GVHD. While overall and progression-free survival were similar, the 5-Probiotics group demonstrated significantly higher GVHD-and-relapse-free survival. These findings provide a foundation for future prospective studies exploring probiotic interventions for GVHD prevention and treatment in allo-HSCT patients.

Abstract ID:
A-233

Treosulfan, Thiotepa, Fludarabine Based Reduced Toxicity Conditioning Regimen in Children with High Risk Thalassemia Major - Report from a Tertiary Care Center in India

Dr Ravi Joshi, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Sunil Bhat, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Pooja Mallya, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Shobha Badiger, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Rhea Daruvala, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India

Category: Hemoglobinopathies, Primary Immune Deficiency, and Metabolic Disorders

Abstract Content:

Background and Aims
Allogeneic hematopoietic stem cell transplant in High risk Beta Thalassemia Major is challenging because of moderate to severe liver and cardiac iron overload ,high risk for regimen related toxicities including veno occlusive disease of liver and other co morbidities. A reduced toxicity conditioning regimen with Treosulfan, Fludarabine, and Thiotepa (TTF) in these patients has significantly improved HSCT outcomes. Here we present our experience in using this regimen in children with high risk Thalassemia major.

Methods
We have analyzed data of children with high risk Thalassemia major (Pesaro class II and class III) who received TTF conditioning regimen and underwent HSCT at our center from June 2017 to June 2024.Pesaro class I cases were excluded from the study.Data regarding patient and various transplant characteristics were collected.

Results
Total 57 children underwent HSCT in the study period , majority were Pesaro class III (77.2%) with median age of 160 months at transplant (Range 22-270 months). Table 1 depicts patients and transplant characteristics. Matched related ,unrelated , haplo identical HSCT with

TCR Alpha beta depletion and haplo identical HSCT with PTCY constituted 14 (24.6%) ,19(33.3%) ,22 (38.6%) and 2 (3.5%) respectively.Peripheral blood stem cells were source for majority (80.7%) of HSCT. Total 51 (89.5%) children achieved neutrophil engraftment with median days for Neutrophil and platelets engraftment of 12 days and 14 days respectively. Veno occlusive disease of liver was seen in 9 children (15.8%). Acute GVHD was seen in 24 children (42%) , 17 (29.8%) had grade I/ II and 7 (12.3%) had grade III/IV acute GVHD .With available data chronic GVHD was seen in 12 children (21.1%) .Total 7 children had primary graft failure,mixed chimerism was seen in 4 children (7%) and rest had complete donor chimerism at last follow up. At a median follow up of 1 year , overall survival (OS) and Thalassemia free survival (TFS) were 82.45% and 78.94% respectively. Overall survival at last follow up were 92.9% , 84.2% ,72.7% ,50% for MRD ,MUD , Haplo with depletion and haplo with PTCY cohorts respectively.Overall survival at last follow up were 91.7% and 77.3% for Pesaro class II and class III respectively. Of 57 children ,11 died ,with bacterial sepsis being most common cause for mortality.

Conclusion

Reduced toxicity conditioning with TTF provides an excellent opportunity to offer HSCT in children with high risk Thalassemia major ,with significant reduction in veno occlusive disease of liver and excellent overall and Thalassemia free survival.

Abstract ID:
A-234

Low Dose Post Transplant Cyclophosphamide as GVHD Prophylaxis for Matched Unrelated Donor Allogeneic Hematopoietic Stem Cell Transplants in Children

Dr Ravi Joshi, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Sunil Bhat, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Pooja Mallya, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Shobha Badiger, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India
Rhea Daruvala, Department of Pediatric Hematology Oncology and Bone Marrow Transplant, Mazumdar Shaw Medical Center Narayana Health City, India

Category: Graft-versus-host Disease

Abstract Content:

Background and Aims
Acute Graft vs host disease (GVHD) remains a major complication post matched unrelated donor (MUD) Hematopoietic stem cell transplant (HSCT) in children. Literature mentions about 40-50% chances of having grade III/IV acute GVHD post MUD HSCT leading to morbidity and mortality. The use of post-transplant cyclophosphamide (PTCy) is highly effective in preventing graft-versus-host disease (GVHD) in the haploidentical transplant setting and is being increasingly used in matched sibling (MSD) and MUD HSCT. In a few studies in children , 50mg per kg of Injectable Cyclophosphamide is used on day +3 and 4 as GVHD prophylaxis on a backbone of reduced intensity conditioning regimens.
Here we present our experience of using low dose Injectable Cyclophosphamide (25mg per kg on day+3 and 4) in children who underwent MUD HSCT at our center, on a backbone of Busulfan/Treosulfan based myeloablative conditioning regimen (MAC).
Methods
We have analyzed data of children who underwent MUD HSCT at our center from February 2023 to July 2024.Data regarding patient and various transplant characteristics were collected.
Results

Total 14 children underwent MUD HSCT in the study period with median age at transplant of 110 months (Range 36-244) .All patients received MAC regimen. For GVHD prophylaxis they received low dose Injectable Cyclophosphamide (25mg per kg on day+3 and 4) followed by Mycophenolate mofetil (MMF) and Calcineurin inhibitors. Of 14 children ,11 engrafted neutrophils ,with median day of Neutrophil and Platelets engraftment being 12 days . 3 children with Thalassemia major had primary graft failure ,and rescued with Autologous stem cells. Acute GVHD seen in 6 children (54%) , 4 (28.5%) had grade 1,2 and 2 (14.2%) had grade IV GVHD.Total 4 (36%) children had chronic GVHD. Median follow up period was 296 days with an Overall survival of 78%.

Conclusions

Need a larger data to assess effectiveness of low dose PTCy as GVHD prophylaxis to decrease incidence of grade 3 ,4 acute GVHD in children undergoing MUD HSCT.

Abstract ID:
A-235

Favourable Outcomes of Allogeneic Stem Cell Transplants in Chronic Myeloid Leukaemia: Data from a Tertiary Care Cancer Centre in India

Dr Shouriyo Ghosh, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Arijit Nag, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Suchita Shinde, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Niharendu Ghara, Department of Paediatric Oncology, Tata Medical Center, India
Reghu Ks, Department of Paediatric Oncology, Tata Medical Center, India
Debranjani Chattopadhyay, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Jeevan Kumar, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Dibakar Podder, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Rizwan Javed, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India
Asish Rath, Department of Haematopathology, Tata Medical Center, India
Mayur Parihar, Department of Haematopathology, Tata Medical Center, India
Sushant Vinarkar, Department of Haematopathology, Tata Medical Center, India
Deepak Mishra, Department of Haematopathology, Tata Medical Center, India
Rimpa Basu Achari, Department of Radiation Oncology, Tata Medical Center, India
Reena Nair, Department of Clinical Haematology and Cellular Therapies, Tata Medical Center, India

Category: Myeloproliferative Neoplasm

Abstract Content:

Aims: The management of Chronic Myeloid Leukaemia (CML) has seen a paradigm shift with the use of tyrosine kinase inhibitors (TKIs). Stem cell transplants (SCT) are indicated in advanced disease (disease progression on TKIs or blast phase) and in cases of TKI intolerance. Our aim in this study was to evaluate the outcomes of allogeneic SCT in CML patients in the above settings.
Methods: Retrospective audit of all cases of SCT performed for CML between May 2013-April 2024. Patient characteristics, transplant details and outcomes were recorded and analysed using appropriate statistical tools.

Results: Twenty-seven patients underwent SCT. Males constituted 77.8 % of the cohort (21/27) and median age was 31 years (range 7-50 years). Detailed patient characteristics are mentioned in Table 1. Patients in blast crises received chemotherapy prior to transplant. Twelve patients each achieved CP1 and CP2 status, while 3 had active disease. Median time to transplant was 539 days (141-2955). Majority were haplo-identical transplants (17/27; 63%). Most patients (22/27, 84.6%) received myeloablative conditioning (MAC): Fludarabine-Busulfan-4 (n=10), Fludarabine-Total-Body-Irradiation (TBI) (n=10), Fludarabine-Cyclophosphamide-TBI and Cyclophosphamide-TBI in 1 each. Reduced intensity/reduced toxicity conditioning [RIC/RTC] consisted of Fludarabine-Melphalan (n=2), Fludarabine-Treosulfan-10 (n=1) or Fludarabine-Treosulfan-14 (n=2). Graft-Versus-Host-Disease (GVHD) prophylaxis was PTCY-TAC-MMF in haploidentical SCT and Cyclosporine-Methotrexate in the matched donor settings respectively. Mean CD-34 cell dose used was 6.0 x 106cells/kg. Median time to neutrophil and platelet recovery was 15 and 13 days respectively. Grade III/IV regimen related toxicity was seen in 20/27 patients and was predominantly mucositis. Veno-Occlusive-Disease and Diffuse-Alveolar-Haemorrhage occurred in 1 patient each. All-grade acute-GVHD was seen in 11/27 (40%), of which grade III/IV acute-GVHD was seen in 4/27 (14.8%) patients. Chronic GVHD was seen in 12/27 (45%) of which moderate to severe cGVHD was seen in 4 patients (14.8%). Median duration of follow-up was 427 days (range: 42-3773). GVHD-free, relapse-free survival (GRFS) at 1 year and 3 years was 50.6% (95% CI: 30.4-67.6) and 36.5% (95% CI: 18.1-55.2) respectively. GRFS at 1 year stratified by CML phase was 83.3% (95% CI: 27.3-97.5) for patients in chronic phase, while it was 40.6% (95% CI: 19.7-60.7) for patients in blast phase. [Figure 1] Ten patients (37%) were on TKI maintenance post-transplant (3-imatinib; 2-dasatinib; 4-ponatinib; 1-asciminib+ponatinib). Three patients received DLI post-transplant for relapsed disease. Median Overall Survival (OS) was not reached and OS at 1 and 3 years were 72.7% (95% CI: 50.9-86) and 63% (95% CI: 40.4-79) respectively. Event Free Survival (EFS) post-transplant was also not reached and at 1 and 3 years were 69.2% (95% CI: 47.7-83.3) and 58.8 (95% CI: 36.1-75.8) respectively. Cumulative incidence of relapse at 1 and 3 years was 22.7 % (95% CI: 9 - 40.2) and 33.2% (95% CI: 14.8-52). Median Non-Relapse-Mortality (NRM) was not reached and at 100 days, 1 and 3 years was 3.7% (95% CI: 3-16.3), 8% (95% CI: 1.3-23.1) and 8% (95% CI: 1.3-23.1) respectively [Table 2, Figure 1].

Conclusion: Allogeneic SCT in advanced-stage CML provides a durable and event free survival, with acceptable toxicities and should be offered to eligible patients.

Abstract ID:
A-237

Allogeneic Stem-cell Transplantation Following Chimeric Antigen Receptor T-cell For the Treatment of Relapsed/Refractory Hematologic Malignancy in Pediatrics and Young Adults: A Systematic Review and Meta-analysis of Clinical Studies

Dr Reganedgary Jonlean, Department of Hematopoietic Stem Cell Transplantation Unit, Indonesia Tzu Chi Hospital, Indonesia
Ghea Mangkuliguna, Department of School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, Indonesia
Edi Setiawan Tehuteru, Department of Hematopoietic Stem Cell Transplantation Unit, Indonesia Tzu Chi Hospital, Indonesia
Nicholas Adrianto, Department of School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, Indonesia
Stella Kallista, Department of School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, Indonesia

Category: Pediatric Transplantation

Abstract Content:

Aim: This paper aims to ascertain whether incorporating consolidative allogeneic stem-cell transplantation (allo-SCT) after chimeric antigen receptor (CAR) T-cell therapy can augment the therapeutic outcome of pediatric and young adult patients with relapsed/refractory (R/R) hematologic malignancy.
Methods: This review was reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria. Pooled data from the meta-analysis were presented in a forest plot. Newcastle-Ottawa Scale (NOS) was used to determine the quality of studies. Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) was used to evaluate the confidence in cumulative evidence. The protocol had been recorded in the International Prospective Register of Systematic Reviews (PROSPERO) (CRD42023433417).
Results: We observed a trend of higher complete remission (OR 2.74; 95% CI 0.88 to 8.54) and lower mortality rate (OR 0.58; 95% CI 0.27 to 1.27) in the CAR T-cell + SCT group compared to those who did not proceed to SCT, although the difference was not statistically significant. There was a significant reduction of relapse rate among patients who received SCT after CAR T-cell therapy (OR 0.18; 95% CI 0.06 to 0.56). In addition, both overall

survival (OS) and leukemia-free survival (LFS) showed a favourable trend towards the CAR T-cell + SCT group, respectively (HR 0.44; 95% CI 0.25 to 0.77 and HR 0.29; 95% CI 0.17 to 0.49). Risk of bias assessment showed that most of the studies had good quality. The overall quality of evidence was low.

Conclusions: Allo-SCT following CAR T-cell infusion has significantly improved patients' survival. More clinical studies are warranted to elucidate the benefit of consolidative allo-SCT after CAR T-cell therapy.

Abstract ID:
A-238

An Observational Study on the Variability of Nutritional Status and its Impact on Transplant Outcomes in Patients Undergoing Hematopoietic Stem Cell Transplant

Dr Manasi Gupta, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Vijay Chaudhary, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Pavitra DS, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Wesley Joyal, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Kashika Vats, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Himanshu Aggarwal, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
Chirag Trivedi, Department of Clinical Haematology, Christian Medical College, Ludhiana, India
M Joseph John, Department of Clinical Haematology, Christian Medical College, Ludhiana, India

Category: Quality of Life / Survivorship

Abstract Content:

Aims
Malnutrition in recipients of hematopoietic stem cell transplant can lead to increased risk of transplant related complications, prolonged hospitalisation and higher incidence of morbidity and mortality. The present study aims to study the variability of nutritional status during the pre- and post-transplant period, factors influencing the same and the impact of malnutrition on transplant outcomes.
Methods
This is an ambispective observational study which was carried out in the department of Clinical Haematology at Christian Medical College and Hospital, Ludhiana. Baseline demographic and transplant details were collected for all the patients. Weight and calorie intake were checked at baseline, day 0, day +7, day +14, day +21, day +30 and day +60 for the prospective group and till day +21 for the retrospective group. Other parameters, including documented infections, incidence of mucositis,

occurrence of acute GVHD, length of hospital stay, and non-relapse mortality, were also assessed for their correlation with nutritional status.

Results

A total of 50 subjects (26 prospective and 24 retrospective) were analysed. The median age for the study subjects was 19.5 years (2-64 years) and majority were males (58%). Most common indication for transplant was thalassemia (40%) followed by multiple myeloma (20%). Seventy two percent of the transplants were allogeneic out of which 75% were matched related donor. Majority (62%) of the study subjects had normal nutritional status at time of transplant, 16% were obese, 14% overweight and 8% were underweight. Three out of the 4 underweight subjects had thalassemia. Mean percentage weight change showed a declining trend post-transplant with maximum change at Day+30 (-7.65%). However, maximum decline in mean calorie intake was seen on Day +7 (-441 Kcal) (Table 1). Repeated measures anova test showed significant change in weight from baseline at Day 0, Day +7, Day +14, Day +21, Day +30 and Day +60 ($p<0.001$); and calories from baseline at Day 0, Day +7 and Day +14 ($p<0.001$).

Mucositis was seen in 36% cases, acute GVHD in 52% of the allogeneic transplant recipients and infection requiring antibiotics in 98% cases. Most common infections seen were bacterial (62%) followed by viral (32%) and fungal (30%). Mean length of hospital stay was 36 days. Median duration of follow-up was 1 year. Overall survival (OS) at 1 year was 68% and median OS was not reached.

No statistically significant association was seen between baseline grade of malnutrition and incidence of mucositis, GVHD, infections and mean length of hospital stay. However, over 50% of the underweight, obese and overweight subjects had mucositis as compared to 25.8% with normal nutritional status. Incidence of GVHD was maximum in the underweight group (50%). There was no correlation between OS and grade of malnutrition. (Figure 1)

Conclusion

There was a significant decline in weight and calorie intake post-transplant with maximum decrease in calorie intake one-week and maximum loss of weight 1-month post-transplant. Early intervention aimed at better nutrition in the peri-transplant transplant period can help in minimizing the weight loss and calorie deficit which can improve the outcomes and quality of life of the transplant recipients.

Abstract ID:
A-241

Donor Factors Affecting Outcomes of PTCy Based T Cell Replete Haploidentical Transplants: A Single Centre Experience from India

Dr Nishant Jindal, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Sachin Punatar, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Malini Garg, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Kaumil Patel, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Muralidaran C, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Komal Kumbhalwar, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Selma D Silva, Department of Transplant Immunology & Immunogenetics Lab, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Meenakshi Singh, Department of Transplant Immunology & Immunogenetics Lab, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Sadhana Kannan, Department of Biostatistics, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Libin Jacob Mathew, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Sumeet Mirgh, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Akanksha Chichra, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Lingaraj Nayak, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Avinash Bonda, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Anant Gokarn, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Bhausaheb Bagal, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India
Navin Khattry, Department of Medical Oncology, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), India

Category: Infectious and Non-infectious complications

Abstract Content:

Background

Allogeneic transplant remains the only curative option for several hematological malignancies. A significant proportion of eligible patients do not have an HLA matched related/ unrelated donor. We report outcomes of patients who underwent haploidentical transplants using post-transplant cyclophosphamide (PTCy) and analyse donor factors affecting outcomes.

Methods

This is a single centre retrospective study. Seventy-one patients who underwent haploidentical transplants for malignant conditions between July 2010 and March 2022 were included. The study cohort included patients with AML (29), ALL (21), CML (10), Hodgkin Lymphoma (8) and MDS (3). Conditioning regimens used were Flu-Mel140 [22], Flu-Treosulfan (30 mg/m2 to 42 mg/m2) [24], Flu-TBI (7.2 Gy/8 Gy) [18], Flu-Bu (6.4-9.6 mg/kg IV busulfan) [4], Flu-TBI (4 Gy) [1], Flu-TBI (12Gy) [1] and Flu-Treo-Thiotepa [1]. Peripheral blood was the stem cell source in all but 2 patients who received marrow graft. GVHD prophylaxis included PTCy 50 mg/kg on D3 and D4, calcineurin inhibitors from D5 onwards and MMF from D5 to D35. Donor factors analysed included donor age, gender, kinship, HLA mismatches in HvG/GvH direction, DRB1 mismatch, ligand-ligand/receptor-ligand mismatch (L-L, R-L mismatch) and donor KIR haplotype. Patient KIR ligand was also evaluated for a potential impact on outcomes. Cumulative incidence of relapse (CIR) was computed with transplant related mortality (TRM) as competing risk.

Results

Baseline characteristics are summarized in table 1. All but 2 patients received reduced intensity regimens. Seven had graft rejection (9.8%) and the incidence was significantly higher if there were only 0-1 mismatches in GvH direction (50% vs 6.2% p=0.001). The incidence of grade II-IV aGVHD was 42.3% and was lower with female donors (31.8% vs 46.9% p=0.233). cGVHD was seen in 47.7% patients and was more with female donors (66.7% vs 37.9% p=0.07). Overall TRM was 42.3%. There was a trend towards lower TRM with female donors (27.3% vs 49%, p=0.087) and this benefit was irrespective of the kinship. At two years, CIR was 22.14% (0.13-0.32). BX with 2DS2 donor KIR haplotype was associated with lower relapse (SHR 2.9, CI 0.9-9.2, p=0.064 for BX without 2DS2, SHR 3.33, CI 0.97-11.43, p=0.055 for AA) (figure 1A). Also, Bw6Bw6 ligand in patients was associated with a lower risk of relapse (SHR 0.6, CI 0.2-1.8, p=0.378 for Bw4Bw6, SHR 0.19 CI 0.03-1.00, p=0.050 for Bw6Bw6) (figure 1B). Five year DFS and OS were 27.8% and 31.9% respectively. On multivariate analysis, female donors were associated with better OS (HR=0.465, 95% CI 0.222 to 0.974, p=0.042) (figure 1C).

Conclusion

A third of our patients who underwent haploidentical transplant are long-term survivors. The outcomes are limited by a high incidence of TRM. Fewer mismatches in GvH direction was associated with a higher risk of rejection. Female donors, BX with 2DS2 KIR haplotype in donor and Bw6Bw6 ligand in the patient were associated with better transplant outcomes. A large multi-center cohort is needed to validate the findings from this study.

Abstract ID:
A-242

Efficacy and Safety of Blinatumomab as Maintenance Therapy in Patients with High-risk B-lineage Acute Lymphoblastic Leukemia Post Allogeneic Hematopoietic Cell Transplantation

Ms Tingting Zhang, Department of Hematopoietic Stem Cell Transplantation Center, Institute of Hematology and Blood Diseases Hospital, China
Donglin Yang, Department of Hematopoietic Stem Cell Transplantation Center, Institute of Hematology and Blood Diseases Hospital, China

Category: Acute Leukemia

Abstract Content:

Introduction: Allogeneic hematopoietic cell transplantation (allo-HCT) represents a potential treatment for patients with high-risk B-lineage acute lymphoblastic leukemia (B-ALL). However, owing to high relapse rates, strategies to reduce the risk of relapse following allo-HCT are being implemented. In order to reduce the risk of relapse, we investigated the role of blinatumomab which is a bi-specific T cell immunotherapy targeting CD19, as maintenance therapy following allo-HCT in patients with high-risk B-ALL. This study aimed to investigate the efficacy and safety of blinatumomab therapy post allo-HCT in patients with B-ALL.
Methods: We conducted a prospective, single-arm 2 phase study investigating the efficacy of 4 cycles of blinatumomab administered every 3 months following allo-HCT. Eligible patients received blinatumomab for the first time with a daily dose of 8.75 μg/day from day 1 to 4, followed by 17.5 μg/day on days 5 and 6, and 28 μg/day from day 7 to16. Patients administered with bevacizumab prior allo-HCT, received blinatumomab at a dose of 17.5 μg/day on days 1 and 2 followed by 28 μg/day starting on day 3 to day 12. The primary endpoints were the 3-year cumulative recurrence rate (CIR) and drug related toxicity. Secondary endpoints included overall survival (OS), recurrence free survival (RFS), incidence of acute and chronic graft-versus-host disease (GVHD).
Results: Eleven of 30 patients were enrolled to date and received at least 1 cycle of blinatumomab (range:1 to 4) during the first-year post allo-HCT. Seventy-three percent of the patients were male, with a median age of 34 (16 to 62) years. The median days from allo-HCT to the cycle 1 of blinatumomab was 78 days (range, 44 - 105). The decrease of

immunoglobulin A and G is the most common side effects, with 10 patients occurred. During medication, 3 patients presented with fever whereas 2 developed headache. Only 1 patient developed mild pulmonary infection, which improved after anti-infectious treatment. Hematologic cytopenias, including leukopenia in 5patients and neutropenia in 2 patients. One case of acute grade 1 GVHD was observed. The median time of follow-up from diagnosis to allo-HCT was 2.5 months (range:3 to 67). Only one patient had molecular biology recurrence, with the remaining patients all in duarable remission. No case of non-relapse mortality was reported.
Conclusion: Blinatumomab maintenance therapy following allo-HCT has shown initial feasibility and efficacy for B-ALL and is well tolerated. Future studies with a large number of patients are required to confirm the efficacy of blinatumomab post allo-HCT.

Abstract ID:
A-244

Molecular Profiling of an Acute Myeloid Leukaemia Transplantation Cohort in the Era of Next-generation Sequencing

Dr Ang Chieh Hwee, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Quek, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tuy, Department of Haematology, Singapore General Hospital, Singapore
William Hwang, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lim, Department of Haematology, Singapore General Hospital, Singapore
Khoo Si Jie, Department of Haematology, Singapore General Hospital, Singapore
How Gee Fung, Department of Haematology, Singapore General Hospital, Singapore
Lalitha Krishnan, Department of Haematology, Singapore General Hospital, Singapore
Charles Chuah, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore

Category: Acute Leukemia

Abstract Content:

Aim

Acute myeloid leukaemia (AML) is a genetically heterogeneous disease, in which specific genetic mutations and chromosomal aberrations are known to bear prognostic implications. Since the end of 2021, next-generation sequencing (NGS) with DNA and RNA sequencing has been established in our institution as an integral investigation in our management algorithm for patients with newly diagnosed and relapsed AML. Here we aim to study the molecular profile of our AML cohort who underwent allogeneic haematopoietic stem cell transplantation (allo-HSCT).

Methods

Our study cohort consisted of AML patients who underwent allo-HSCT between January 2022 and December 2023 in Singapore General Hospital. We analysed bone marrow samples from these patients at the time of initial diagnosis of AML and at relapse (if applicable) prior to allo-HSCT. Extracted genomic DNA and RNA were amplified, and library preparation was performed with the OncomineTM Myeloid Research assay (Thermo Fisher Scientific) to interrogate 40 DNA genes and 29 fusion driver genes. NGS libraries were sequenced on the Ion GeneStudio S5 System (Thermo

Fisher Scientific) and analyzed using in-house bioinformatics pipelines and the Ion Reporter software. The limit of detection was determined as 3% allele frequency for DNA variants and 10-2 for RNA fusions. Cytogenetic analysis was performed on paired bone marrow samples.

Results

Our cohort (n=29) comprised 14 males and 15 females, with median age of 52 years (range, 26 to 70). Characteristics of the study cohort are shown in Table 1 (Supporting Data).

Figure 1 (Supporting Data) illustrates the detected DNA mutations, RNA fusions and cytogenetic abnormalities per patient. 12 patients (41.4%) have a normal karyotype. The average number of DNA mutations in this cohort is 2.2 (range, 0 to 4), with the most frequently mutated genes being DNMT3A (34.8%) and FLT3-ITD (34.8%), followed by IDH1 (26.1%) and CEBPA (26.1%). All cases with DNMT3A mutations had co-existing mutations in other genes.

Six patients (20.7%) had RNA fusions detected with corresponding cytogenetic changes. Both cases of KMT2A-rearranged AML did not have concurrent DNA mutations.

Conclusions

We have demonstrated the utility of NGS in characterising the mutational profile of our AML transplantation cohort. This is especially important given that a significant proportion of our cohort has cytogenetically normal AML. Future work is directed towards correlation of these molecular profiles with transplant outcomes.

The authors have no conflict of interest to disclose.

Abstract ID:
A-247

Korean Real-World Experience of Blinatumomab for 8 Years Regarding Predictive Factors including Lymphocyte Kinetics for Response and Survival Outcome in Adult Patients with Relapsed or Refractory Acute Lymphoblastic Leukemia

Dr Seonghan Lee, Department of Hematology, Catholic Hematology Hospital, Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea,, South Korea
Jae-Ho Yoon, Department of Hematology, Catholic Hematology Hospital, Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Seok Lee, Department of Hematology, Catholic Hematology Hospital, Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea

Category: Acute Leukemia

Abstract Content:

Aims: Blinatumomab became available in Korea since 2016 and has proved its efficiency for remission and safe bridging role to allo-HCT in patients with R/R BCP-ALL. This T-cell engager system has changed the paradigm of ALL treatment in terms of safe chemotherapy-free approach and need for understanding T-cell immunology. Here, we report our long-term experience of blinatumomab regarding well-known traditional factors and lymphocyte kinetics during blinatumomab treatment.
Methods: We analyzed 152 adult patients (median age 59.5 years, range 18-79) with R/R BCP-ALL treated with blinatumomab between 2016 and 2023 (110 Ph-negative, 42 Ph-positive). Ph-negative BCP-ALL could be treated with blinatumomab from first line salvage while Ph-positive BCP-ALL after Dasatinib failure, thus at least from second line salvage. The standard protocol consisted of pre-phase dexamethasone, first cycle blinatumomab 28 days (9mcg during initial 7 days followed by 28mcg for 21 days) was followed by 2-week resting period and second or more cycle of 28mcg blinatumomab for 28 days. For post-remission therapy, allo-HCT was conducted as early as possible.
Results: After first cycle, CR was achieved in 98 (64.5%) and best response was in 104 (68.4%) patients after median 2 cycles, and 74 responders (48.7%) subsequently proceeded to allo-HCT. After median follow-up of

45.2 months, 4-year OS and CIR was 25.7% and 61.0% in entire cohort, and 37.0% and 47.9% after allo-HCT. We observed higher relapse rate with short CR duration, PB blast prior to blinatumomab, and later-line salvage were related with poor response to blinatumomab and old age and early relapse for poor OS even after allo-HCT. Regarding absolute lymphocyte count (ALC), ALC at first day of blinatumomab was not significantly associated with CR rate (OR=1.00, P=0.0523), OS (ALC≥500: 21.8% vs. ALC<500 36.6; P=0.160), as well as CIR (ALC≥500: 50.2% vs. ALC<500 55.7; P=0.819). However, we observed ALC decrement>2000/mcL at 2-weeks after blinatumomab was predictive for poor response (OR 2.88, P=0.011), and that ALC<250/mcL and decrement>2000/mcL at 2-weeks after blinatumomab was associated with poor survival (Figure).
Conclusions: Our data shows that blinatumomab can be effective even in patients with low ALC at first day of blinatumomab, and that lesser decrease in ALC predicts higher CR in adult patients with R/R ALL.

Abstract ID:
A-248

Etiology of Diarrhea in Patients Undergoing Colonoscopic Biopsies Post Allogeneic Hematopoietic Stem Cell Transplant for Suspected Acute Gut Graft-versus-host Disease

Dr Sachin Punatar, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Niket Mantri, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Saswata Saha, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Gourav Bain, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Mukta Ramadwar, Department of Pathology, Tata Memorial Centre, India
Prachi Patil, Department of Gastro-enterology, Tata Memorial Centre, India
Shaesta Mehta, Department of Gastro-enterology, Tata Memorial Centre, India
Aditya Kale, Department of Gastro-enterology, ACTREC, Tata Memorial Centre, India
Sridhar Epari, Department of Pathology, Tata Memorial Centre, India
Sridhar Sundaram, Department of Gastro-enterology, Tata Memorial Centre, India
Koustubh Shekar, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Anant Gokarn, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Akanksha Chichra, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Sumeet Mirgh, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Nishant Jindal, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Lingaraj Nayak, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Libin Mathew, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Shesheer Kumar, Huwel Labs, India
Rachana Tripathi, Huwel Labs, India
Bhausaheb Bagal, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India
Navin Khattry, BMT Unit, Department of Medical Oncology, ACTREC, Tata Memorial Centre, India

Category: Graft-versus-host Disease

Abstract Content:

Background
We routinely perform colonoscopy in patients with suspected lower-gut acute graft-versus-host disease (aGVHD) to distinguish GVHD from its mimics (*viz*. CMV colitis). We conducted this retrospective analysis to evaluate etiologies of diarrhoea by colonoscopy and biopsy for patients with suspected lower-gut GVHD post allogeneic hematopoietic cell transplant (AHCT).
Methods:
This is a single-centre retrospective analysis of patients who underwent colonoscopy for suspected lower-gut aGVHD between May 2016-June 2023. Prior to colonoscopy, stool infective workup was done to rule out C.*difficile*, norovirus, rotavirus, astrovirus & adenovirus (AdV). Steroids could have been started for clinical suspicion of aGVHD prior to colonoscopy. At each colonoscopy, targeted biopsies were taken if abnormal findings were present. Additionally, random biopsies were taken from macroscopically normal looking mucosa for histopathology and tissue viral PCRs for CMV, EBV and AdV from different sites of colon (caecum to rectum). For tissue PCRs - lower limit of detection of CMV, EBV and AdV were 65, 100 and 250 IU/ml respectively. The initial treatment of histologically proven lower-gut aGVHD was 1-2 mg/kg methylprednisolone with oral budesonide. If biopsy showed concomitant CMV inclusion bodies (proven CMV colitis) or PCR copies >103IU/ml (possible CMV colitis), then ganciclovir 5mg/kg BD was started at physician's discretion. If AdV-PCR copies were ≥104IU/ml, cidofovir 5mg/kg weekly for 2 weeks followed by 2 doses every 2 weeks was planned. No patient was treated for EBV-PCR positivity. If biopsy did not show GVHD, then steroids were rapidly tapered and stopped. Our primary objective was to identify the proportion of patients with both histologically confirmed gut GVHD and concomitant proven/possible viral colitis. We also analysed the correlation of colonoscopic findings with histology.
Results:
Eighty-five colonoscopies were performed in 62 patients. The demographic parameters are shown in Table 1. Median time to colonoscopy from onset of diarrhoea was 4 days. Systemic steroids were started prior to colonoscopy in 51 episodes (60%). Colonoscopic findings, histology & results of tissue PCRs for CMV, EBV and AdV are shown in Table 1. Overall, 54 (63%) colonoscopic biopsies had histologically confirmed GVHD. Among these 54, 8 biopsies (15%) had proven CMV colitis (Figure 1). With respect to colonoscopic appearance (n=83), aGVHD was confirmed histologically in 58%(n=32/55) biopsies with macroscopically normal

mucosa, 79% (11/14) with erythema alone, 90% (9/10) with erythema and ulceration and 25%(n=1/4) with ulcerations alone. Amongst remaining 30 biopsies without GVHD, 50%(n=15) had possible CMV colitis and 16%(n=5) adenoviral colitis. Amongst these patients who received additional antivirals, two-third patients responded.

Conclusions:

In suspected gut GVHD, more than one-third biopsies did not have histological evidence of aGVHD. This reiterates the need for colonoscopy which would thereby prevent unnecessary steroids. Half of the patients with macroscopically normal mucosa had proven aGVHD, thereby justifying the role of random biopsies. Concomitant proven CMV colitis was present in 15% of those with biopsy proven aGVHD. Even in those with normal histology, possible viral colitis is present in half of the biopsies. Therefore, it may be worthwhile doing tissue viral PCRs for all patients undergoing colonoscopic biopsies.

Abstract ID:
A-249

Graft Rejection and Failure after Allogeneic Peripheral Blood Hematopoietic Stem Cell Transplant among Patients in a Tertiary Hospital in the Philippines: A Case Series

Dr Micah Fiel Baliclic, Department of Medicine, St. Luke's Medical Center - Global City, Philippines
Glenn Wilson Ng, Department of Section of Hematology, St. Luke's Medical Center - Global City, Philippines
Francisco Vicente Lopez, Department of Section of Hematology, St. Luke's Medical Center- Global City, Philippines

Category: Infectious and Non-infectious complications

Abstract Content:

Aims
In several malignant hematologic diseases such as acute myeloid leukemia, acute lymphoblastic leukemia, lymphomas, and multiple myeloma, hematopoietic stem cell transplantation (HSCT) has been considered an important therapeutic option. Allogeneic HSCT particularly involves donor cells obtained from a family-related or an unrelated donor's bone marrow, peripheral blood, or cord blood. Few of the major complications include graft failure and graft rejection which are associated with dismal prognosis, contributing to morbidity and mortality after HSCT. The study aims to present the baseline characteristics and outcomes of Filipino patients who underwent allogeneic hematopoietic stem cell transplant and eventually experienced graft failure/ rejection.

Methods
This is a case series consisting of ten (10) patients who received treatment with HSCT in a tertiary hospital in the Philippines from 2013- 2023. The baseline characteristics and clinical outcomes (survival and graft failure or rejection) were collected retrospectively from medical records and included in this report.

Results
Table 1 summarizes the patient and transplantation characteristics. The patients who received allogeneic HSCT were mostly adults of 30 to 60 years of age and one was pediatric (8 years of age). Diagnoses of these patients

include lymphoblastic and myelogenous leukemia, myeloid leukemia, plasma cell leukemia, plasmacytoma, multiple myeloma, myelofibrosis, and myelodysplastic syndrome. There was a mean duration of 22 days interval between diagnosis and treatment. Majority (6 out of 10) of donor-recipient pairs were of the same sex. Only one patient had a major ABO mismatch and 16/16 HLA-matched and others had at least 9/16 HLA-matched. Among these patients, Cyclophosphamide/ Fludarabine/ TBI and Tacrolimus/ MMF/ Post transplant cyclophosphamide (PTCy) were the predominant conditioning and graft-versus-host disease (GVHD) prophylactic regimen for stem cell transplantation, respectively. The outcomes of the allogeneic HSCT are presented in Table 2. Engraftment during the 1st HSCT was observed in the median of 15th day (range 13 to 121 day). Of all these HSCT patients who had graft failure or rejection, 4 were eligible for a 2nd transplantation. Two of the patients developed acute GVHD and 1 was identified with cytomegalovirus (CMV) reactivation. After the allogeneic HSCT, mortality was observed in 80% of the patients regardless of the number of transplants they received. The 2 patients who survived similarly lacked ABO mismatch, were 9-10/16 HLA-matched, and did not develop CMV reactivation and chronic GVHD. However, 1 of them was diagnosed with acute GVHD.

Conclusions

The study reported the baseline characteristics of Filipino patients identified with graft rejection or failure after allogeneic HSCT in different malignant hematologic diseases. Cyclophosphamide/ Fludarabine/ TBI was generally tolerated as a conditioning regimen for allogeneic HSCT. Findings showed low incidence of CMV reactivation and GVHD, but high mortality rates among these patients.

Abstract ID:
A-251

Allogeneic Peripheral Blood Stem Cell Transplantation Outcomes Among Adult Filipino Patients with Myelofibrosis: A Case Series and Review of Literature

Dr Fredrich Marlou L. Nierra, Department of Medicine, St. Luke's Medical Center - Global City, Philippines
Glenn Wilson Y. Ng, Department of Hematology, St. Luke's Medical Center - Global City, Philippines
Ma. Angelica Pauig-Cabbuag, Department of Hematology, St. Luke's Medical Center - Global City, Philippines
Francisco Vicente F. Lopez, Department of Hematology, St. Luke's Medical Center - Global City, Philippines
Category: Myeloproliferative Neoplasm

Abstract Content:

Aims:
Myelofibrosis is a myeloproliferative neoplasm associated with cytopenias, transfusion-dependence, hepatosplenomegaly, and likelihood for acute myeloid leukemia transformation in high-risk disease. Despite the utilization of cytoreductive agents and JAK2 inhibitors, survival is dismal among chronic patients with advanced age. Allogeneic stem cell transplant has been demonstrated to be a treatment modality with significant potential to ensure long-term disease remission and possible cure. The goal of the study is to evaluate diagnosed myelofibrosis patients who underwent allogeneic stem cell transplant with their respective baseline characteristics and clinical outcomes after transplant.

Methods:
This is a retrospective study of ten (10) myelofibrosis patients in a tertiary hospital from the year 2013 to 2023. Pre- and post-transplant disease characteristics and patient statuses were considered.

Results:
Patients included were predominantly males (80%), and the median age at the time of transplantation was 45.5 years (range 38-61). All cases were primary myelofibrosis except for one (1) whose disease evolved from essential thrombocythemia. Five (50%) subjects were JAK2 mutation positive, similarly, the same proportion of patients were placed on Ruxolitinib prior to and after transplant. Most of the donors were

haploidentical (70%) while others were matched sibling donors. All patients were subjected to reduced-intensity conditioning (RIC). For graft-versus-host disease (GVHD) prophylaxis, two (2) used Cyclosporine and Mycophenolate mofetil, two (2) other patients were given Tacrolimus and Mycophenolate mofetil, the rest were given the latter with post-infusion Cyclophosphamide. Neutrophil engraftment occurred at a median of 18.5 days post-stem cell infusion. Acute GVHD was seen in all subjects, of which two (20%) Grade 1, six (60%) Grade 2, and one (10%) Grade 3, while one patient was suspected to have marrow GVHD due to persistent pancytopenia. Chronic GVHD was observed in 70% of patients, involving only the skin. Donor chimerism on Day +30 onwards showed full donor chimerism in five (50%), while three (30%) revealed mixed chimerism only and one (10%) experienced graft failure. After Day +100, two (20%) patients with full chimerism converted to mixed status, three (3) patients were not assessed, while one (10%) showed engraftment failure. Relapse or progression was observed in seven (70%) patients, two (20%) of which transformed to acute myeloid leukemia. A second allogeneic transplant was done in four (40%) patients while donor lymphocyte infusion for two (20%) patients. Survival until the present was observed in 50% of the subjects, two (2) of which had undergone second transplantation.

Conclusions:
The study has observed that administration of Ruxolitinib during the pre- and post-transplant may contribute to disease control in the long term. Moreover, the selection of a more myeloablative conditioning regimen, albeit with tolerable toxicity may be an option to avert relapse and improve engraftment. A second allogeneic transplant may have benefit in survival and increase the likelihood for disease remission among mixed chimerism or graft failure patients.

Abstract ID:
A-252

42 Patients with Hemorrhagic Cystitis after Allogeneic Hematopoietic Stem Cell Transplantation Undergoing Continuous Bladder Irrigation Nursing Care

Mrs Huijuan Zhang, Department of Hematopoietic Stem Cell Transplantation Center, Blood Diseases Hospital, Chinese Academy of Medical Sciences, China
Zhang Huijuan, Department of Hematopoietic Stem Cell Transplantation Center, Blood Diseases Hospital, Chinese Academy of Medical Sciences, China

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

[Purpose] To analyze and summarize the complications of continuous bladder irrigation and its influencing factors in patients presenting with hemorrhagic cystitis after allogeneic hematopoietic stem cell transplantation.
[Methods] A total of 42 patients who underwent allogeneic hematopoietic stem cell transplantation complicated with hemorrhagic cystitis and performed continuous bladder irrigation from January 2017 to April 2024 were retrospectively analyzed in the department. The statistics from the grading of hemorrhagic cystitis, type of three-lumen urinary catheter, manifestation of complications after retention, whether bladder irrigation therapy was taken and its effectiveness as well as duration of retention of urinary catheter with therapeutic efficacy were performed, and relevant influencing factors were found.
[Results]Among the 42 patients, there were 27 males and 15 females, with an average age of 40.6 years; hemorrhagic cystitis was graded as degree II in 8 cases, degree Ⅲ in 21 cases, and degree IV in 11 cases; complications during indwelling three-lumen urinary catheter were mainly pain (bladder spasm, pain at the urethral orifice, and pain in the renal area were predominant), urinary catheter obstruction, urinary leakage, and medical adhesive-associated skin injuries; and the average duration of the urinary catheter's indwelling time was 20 days. Bladder spasm was the most common complication, and there was a correlation between the type of urinary catheter and the amount of water balloon filling with the incidence of bladder spasm and the degree of pain; bladder perfusion therapy could shorten the duration of the patient's illness to some extent.

[Conclusions] Continuous bladder irrigation is an essential treatment for patients suffering from hemorrhagic cystitis after allogeneic hematopoietic stem cell transplantation, but the associated complications lead to an increase in the pain feelings of the patients, to maximize the minimization of the occurrence of complications, the nursing staff should select the appropriate type of urinary catheter according to the symptomatic grading of hemorrhagic cystitis, and observe closely the changes in the patient's condition to give timely and symptomatic treatment.

Abstract ID:
A-253

Bone Marrow Transplant in Relapsed Diffuse Large B-cell Lymphoma (DLBCL) at an Uncommon Site in a 50-Year-Old Woman

Dr Warigit Dri Atmoko, Department of Internal Medicine - Haematology Oncology Medicy, Dr Kariadi Hospital, Indonesia
Dr Eko Adhi Pangarsa, Sppd, Khom, Finasim, Department of haematology and oncology medic, Dr Kariadi Hospital, Indonesia
Dr Budi Setiawan SPPD, Khom, Finasim, Department of Haematology and Oncology Medic, Dr Kariadi Hospital, Indonesia
Dr Damai Santosa, SPPD.Khom, Finasim, Department of Haematology and Oncology Medic, Dr Kariadi Hospital, Indonesia
Prof Catharina Suharti, Phd, SPPD, Khom, Finasim, Department of Haematology and Oncology Medic, Dr Kariadi Hospital, Indonesia

Category: Lymphoma and Chronic Lymphocytic Leukemia

Abstract Content:

Background: Diffuse large B-cell lymphoma (DLBCL) is the most aggressive type of non-Hodgkin lymphoma, characterized by the rapid proliferation of large B cells in the lymph nodes, spleen, liver, bone marrow, or other organs. Although the combination of chemotherapy and immunotherapy, such as the R-CHOP regimen (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone), is effective in most patients, about 30-40% of patients relapse. Treatment options for these patients are very limited, and the prognosis is poor.

Case Illustration: A 50-year-old woman was diagnosed with stage IIIB Diffuse Large B-Cell Lymphoma (DLBCL) and underwent R-CHOP chemotherapy for 6 cycles from June to May 2022. A PET scan evaluation in January 2023 showed complete remission. In September 2023, the patient presented with several lumps at uncommon sites in the glutealand brachial regions. A PET scan revealed new hypermetabolic nodules in the gluteus minimus and biceps brachii (Deauville score 5). There was no nodal involvement in the supra or infra-diaphragmatic regions, extranodal, spleen, or bone marrow. A biopsy of the brachial region showed CD 20 (+), CD 3 (-), and Ki 67 (+>30%), consistent with DLBCL. This relapsed case was treated with second-line chemotherapy using the R-DHAP regimen (Rituximab, Cisplatin, Cytarabine, and Dexamethasone) for 6 cycles from October 2023 to March 2024, resulting in clinical improvement. A PET scan

evaluation in April 2024 showed no metabolic activity in the soft tissue, muscles, or new hypermetabolic nodules (Deauville score 1). After remission, an assessment for autologous bone marrow transplant was conducted. Harvesting has been done, and conditioning chemotherapy followed by stem cell infusion will be performed.

Conclusion: Autologous bone marrow transplant procedures can be performed on DLBCL patients who experience relapse or complete remission after relapse and eligible to reduce the likelihood of recurrence.

Abstract ID:
A-255

A 5-year Retrospective Analysis of the Use of Extracorporeal Photopheresis (ECP) via UVA-PIT in Treating Graft-versus-host Disease (GVHD) in Singapore General Hospital (SGH) Apheresis Unit

Ms Xie Gaoge, Department of Haematology Centre, Singapore General Hospital, Singapore
Zhu Yayun, Department of Haematology Centre, Singapore General Hospital, Singapore
Rohani Binte Salleh, Department of Haematology Centre, Singapore General Hospital, Singapore
Susila Perumal, Department of Haematology Centre, Singapore General Hospital, Singapore
Chen Juan, Department of Haematology Centre, Singapore General Hospital, Singapore
Dewi Hafifah Binte Bashri, Department of Haematology Centre, Singapore General Hospital, Singapore

Category: Graft-versus-host Disease

Abstract Content:

Background

Graft-versus-host disease (GVHD) is a systemic disorder in which donated stem cells recognize patients ‘own cells as foreign and attack them (Justiz Vaillant et al., 2022). It poses as one of the main significant courses of morbidity and mortality post-allogenic hematopoietic stem-cell transplantation (Drexler et al.,2020). First line therapy of GVHD includes systemic corticosteroids and/or original immunosuppressive agent (NCCN,2024). Extracorporeal photopheresis (ECP) is a treatment option when GVHD becomes refractory or dependent on first line steroids (Penack at al.,2020).

ECP procedure via UVA PIT was done using three main steps: first is collection phase where buffy coat (WBC + platelets) separated from whole blood using an apheresis device, second is irradiation which separated cells chemically treated with 8-methoxypsoralen exposed to ultraviolet light on UVA-PIT system, and the last is return phase which irradiated cells returned to the patient. The mononuclear cells (MNCs) treatment volume ranges from 120ml to 140mls which is below 15% of extracorporeal volumes as per apheresis guideline.

Aim

To provide a retrospective analysis with the use of Extracorporeal Photopheresis (ECP) via UVA-PIT in treating patients with acute and chronic Graft Versus Host Disease (GVHD) in the Singapore General Hospital (SGH) Apheresis Unit over 5 years.

Methods

This is a retrospective single-centre study. The medical records of all patients treated with ECP via UVA-PIT from June 2019 to June 2024 at SGH Apheresis Unit were reviewed. Referral for ECP treatment was at the discretion of the primary stem cell transplantation physician for both acute and chronic GVHD.

A total of eighteen patients who had ECP via UVA-PIT system were selected. However, one patient was excluded as the indication for ECP was lung transplant rejection.

The data extracted includes types of GVHD, the total sessions each patient received and the total treatment time for each ECP procedure. The descriptive statistics used in the study are in a form of numeric and categorial variables pertaining to types of GVHD, mean number of ECP sessions per patient, number of successful completions and time of each session.

Results

A total of 347 sessions of ECP via UVA Pit were performed by trained apheresis nurses for the seventeen patients age ranges between 22 to 67 years old. The mean number of sessions for each patient is 15.5. The mean time taken for each ECP procedure is 207.6 minutes from initiation of MNC collection till reinfusion. Among the seventeen patients, eight of them had chronic GVHD and nine had acute GVHD. Five patients had GVHD that involved multiple organs such as liver, gut, lung, and skin. Additionally, there was one case of GVHD which had neuromuscular system involvement.

Five out of the seventeen patients successfully completed ECP treatment. They had a mean total of 27.2 sessions with good response. Twelve patients were not able to complete their ECP sessions due to multifactorial factors such as infection, disease progression and respiratory failure.

Conclusion

From the analysis, ECP via UVA-PIT is one of the treatment options for patients with acute or chronic GVHD in SGH Apheresis unit by trained nurses.

Abstract ID:
A-256

TCRαβ-Depleted Haplo-HSCT Following CAR-T Therapy Improves GVHD-free/Relapse-free Survival in Pediatric R/R-ALL

Dr Huaying Liu, Department of Hematology, Nanfang-Chunfu Children's Institute of Hematology and Oncology/Tainxin Hosptial, China
Jing Wang, Department of Hematology, Dongguan Tainxin Hosptial, China
Dejun Chen, Department of Hematology, Dongguan Tainxin Hosptial, China
Simeng Lv, Department of Hematology, Dongguan Tainxin Hosptial, China
Yuelin He, Department of Hematology, Dongguan Tainxin Hosptial, China
Chunfu Li, Department of Hematology, Dongguan Tainxin Hosptial, China

Category: Pediatric Transplantation

Abstract Content:

Aims:
Allogeneic hematopoietic stem cell transplantation (HSCT) from an HLA-haploidentical relative (Haplo-HSCT) is a suitable option for children with R/R-ALL, but with high risks of GVHD and relapse. We developed a novel approach of using chimeric antigen receptor modified T (CAR-T) cells therapy followed by TCRαβ-depleted HLA-haploidentical stem cell transplantation(TCD Haplo-HSCT) to decrease the relapse and GVHD.
Methods:
Fifty-two R/R-ALL children, transplanted between December 2020 and December 2023 , were enrolled in the trial. The median patient age was 7 years (range,1-18 yeas). The male: female was 27:25. Forty-three patients received CAR-T therapy including twenty-seven single CD19-CAR-T infusion, thirteen CD19/CD22-CAR-T sequential infusion and three CD7-CAR-T treatment. Nine patients didn't receive the CAR-T infusion before TCD Haplo-HSCT. The median time from CAR-T treatment to haplo-HSCT was 43 days (range, 23-380 days). All children were given a fully myeloablative preparative regimen. The conditioning consisted of Cyclophosphamide (1 × 50 mg/kg, days -10, -3 to -2), Fludarabine (1 × 40 mg/m2, days -7 to -4), Thiotepa (2 × 5 mg/kg, day -4), Bu (total 90 mg/m2, days -7 to -5) , and Anti-human T lymphocyte immunoglobulin (ATG-F) (1 × 15 mg/kg, days -9 to -8) or Anti-thymocyte globulin (ATG) (5 mg/kg total, days -9 to -8). TCRαβ-depleted grafts contained a median of 28.6 (range, 11.8-114.3)×106 CD34+cells/kg, 110.4 (range, 30.7-391.1)×106 NK-

cells/kg, and 34.3 (range, 3.6-142.4)×106 TCRγδ+T-cells/kg. No patient received any post-HSCT GVHD prophylaxis.

Results:

With a median follow-up of 691 (range, 16-1315) days, the median time to neutrophil and platelet engraftment was 14 (range, 10–27) and 9 (range, 4–36) days, respectively. Four children experienced primary graft failure, Three children were rescued after re-conditioning and a secondary haplo-HSCT. Final engraftment was achieved in 53/54 patients. Five patients died, the causes of death were infections (2 cases died of bacterial infection, 1 case died of Adenovirus infection)、heart failure (1 case) and relapse(1 case), the cumulative incidence of non-relapse mortality being 7.7 %, whereas three relapsed (two still alive under treatment, one died), resulting in a 5.8 % cumulative incidence of relapse. The overall survival (OS) and leukemia-free survival (LFS) was 90.4% and 86.5%, respectively. For the forty-three patients following Haplo-HSCT with CAR-T , the cumulative incidence of OS, LFS, relapse at 24-months was 90.7% , 88.4% , and 2.3% , respectively. Three patients developed grade II-IV aGVHD (2 cases in grade II, 1 cases in grade IV skin-only). Four patients developed cGVHD. The cumulative incidence of II-IV aGVHD and cGVHD was 6.9% and 9.3%, respectively. The 2-year probability of cGVHD-free,/relapse-free survival (GRFS) is 76.8%.

Conclusions:

These data confirm that TCRαβ-depleted haplo-HSCT is a suitable therapeutic option for children with R/R-ALL. The approach combining TCD haplo-HSCT with CAR-T appeared to result in better GVHD-free/relapse-free survival.

Abstract ID:
A-257

GvHD Prophylaxis with PTCy after Matched Sibling Allogeneic Stem Cell Transplant, Case Series from Evercare Hospital Dhaka, Bangladesh

Dr Quazi Smita Haq, Department of Hematology and SCT, Evercare Hospital Dhaka, Bangladesh
Abu Jafar Mohammed Saleh, Department of Hematology and SCT, Evercare Hospital Dhaka, Bangladesh
Masba Uddin Chowdhury, Department of Hematology and SCT, Evercare Hospital Dhaka, Bangladesh

Category: Acute Leukemia

Abstract Content:

AIMS

The use of Post-Transplant Cyclophosphamide (PTCY) as GVHD prophylaxis was first studied in the haploidentical transplant setting, which resulted in high percentages of engraftment and reduced frequency of acute and mainly chronic GvHD as well as non-relapsed mortality. Since then PTCY is being increasingly used in HLA-partially and fully matched unrelated, as well as matched related donor transplants. The aim of this case series was to see the impact of PTCY on the incidence of GvHD, disease relapse and infections because of possible cellular immune impairment.

METHODS

We treated 3 adult patients, who underwent allogeneic hematopoietic stem cell transplant (HSCT) from a matched sibling donor. PTCY was administered on days +3 and +4 post-transplant at a dose of 50 mg/kg/day. Additional GvHD prophylaxis included CNI and mycophenolate mofetil. We evaluated the safety and efficacy of PTCY, focusing on toxicity, engraftment, GvHD frequency, relapse, and survival.

RESULTS

Three adult patients had matched sibling donor transplants with PTCY as GVHD backbone
from April 2023 to October 202. They aged 27, 40 and 58 years. The indication for transplant
was AML (n=2), and transformed ALL from Ph (+) CML (n=1). Disease risk index (DRI) was
intermediate for two patients and very high for one patient as per CIBMTR tool.
Conditioning regimens were myeloablative. All three patients received peripheral blood
stem cells with CD34+ cell dose ranging (6.2-8.3) x 10^6/kg. Frequent toxicities include
mucositis (n=3), vomit (n=3), and hepatic toxicities(n=1) which in all cases were grade I-II.
The incidence of BK virus hemorrhagic cystitis occurred in 2 patients which was grade II-III.
Engraftment, defined as neutrophils >500/µl, was achieved in (14-17) days.

One patient among three suffered grade II skin GvHD at 100 days. No grade III-IV GvHD till
now. One patient died due to relapse. Rest 2 patients after HSCT at the most recent follow
up (9 and 16 months), has no GvHD, no active infections, and remains in leukemia
remission.

CONCLUSION

In this case series, we showed that the use of PTCy in matched sibling donor transplants is
well tolerated, potentially safe, effective in preventing acute GVHD as well as cGVHD, and
does not impair engraftment.

Abstract ID:
A-260

Allogeneic Peripheral Blood Stem Cell Transplantation for Myeloid Sarcoma: A Single-center Experience

Dr Wenbin Cao, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Dewan Zhao, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College; The First Affiliated Hospital of Dalian Medical University, China
Gang Li, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Ying Zhang, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Xiaohui Zheng, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Xin Chen, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Weihua Zhai, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Qiaoling Ma, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Rongli Zhang, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases,

Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Jialin Wei, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Aiming Pang, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Yi He, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Donglin Yang, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Sizhou Feng, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Mingzhe Han, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Erlie Jiang, Department of Transplantation Center, State Key Laboratory of Experimental Haematology, National Clinical Research Center for Blood Diseases, Haihe Laboratory of Cell Ecosystem, Institute of Haematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China

Category: Acute Leukemia

Abstract Content:

Aims: Myeloid sarcoma (MS), an extramedullary manifestation of myeloid malignancies, presents significant treatment challenges, with suboptimal outcomes reported for conventional therapies. While recent advances in allogeneic hematopoietic stem cell transplantation (allo-HSCT) have shown promise, the specific role of allogeneic peripheral blood stem cell transplantation (allo-PBSCT), especially using haploidentical donors, remains underexplored. We aim to elucidate the efficacy and safety of this

approach, contributing to the sparse literature on haploidentical PBSCT for MS and highlighting potential advancements in treatment protocols and outcomes.

Methods: In this retrospective study, we analyzed 13 MS patients treated with allo-PBSCT at our center between January 2012 and November 2023. Diagnoses were confirmed through tissue biopsies, and informed consent was obtained in compliance with the Declaration of Helsinki. Conditioning regimens primarily comprised modified busulfan/cyclophosphamide (Bu/Cy), with two patients receiving total body irradiation (TBI). GVHD prophylaxis involved cyclosporine, mycophenolate mofetil, methotrexate, and anti-thymocyte globulin (ATG), with tailored treatments for acute and chronic GVHD. Treatment response and survival data were monitored through regular bone marrow assessments and imaging, analyzed using Kaplan-Meier curves in R software.

Results: Among the 13 patients (5 males, 8 females; median age 26 years), 84.62% had medullary infiltration, and 76.92% had single-site extramedullary involvement. Pre-transplant, 84.62% received chemotherapy alone, and 15.38% combined chemotherapy with radiotherapy; 46.15% underwent transplantation within six months of diagnosis. At transplantation, 84.62% were in first remission, and 15.38% had minimal residual disease (MRD). The 1-year overall survival (OS) was 83.9% (95% CI, 65.7-100%), and the 5-year OS was 67.1% (95% CI, 40.7-100%), with a 5-year disease-free survival (DFS) of 80.0% (95% CI, 51.6-100%). Grade I acute GVHD occurred in 53.85% of cases, Grades II-IV in 15.38%, with limited and extensive chronic GVHD observed in 23.08% and 7.69%, respectively. The haploidentical group showed a 30-month OS of 85.7% (95% CI 63.3-100%) versus 62.5% (95% CI 32.0-100%) in the fully matched group ($p = 0.64$), with a 30-month DFS of 100% compared to 75% (95% CI 42.6-100%, $p = 0.617$). Transplantation within six months correlated with a 48-month and 60-month OS of 100%, significantly higher than 34.3% (95% CI 7.7-100%, $p = 0.061$) for those over six months. Radiation therapy recipients had a 30-month OS of 40% (95% CI 9.3-100%) versus 87.5% (95% CI 67.3-100%, $p = 0.37$) for non-recipients. Patients with limited chronic GVHD had a 36-month and 60-month OS of 61.9% (95% CI 33.1-100%), while those with extensive chronic GVHD had a 36-month OS of 100% ($p = 0.51$).

Conclusions: This retrospective study underscores the effectiveness of allo-PBSCT, especially with haploidentical donors, for treating MS. The findings suggest that early transplantation might significantly impact survival outcomes favorably. Further research involving larger cohorts and

prospective data collection is necessary to confirm these findings and optimize treatment protocols.

Abstract ID:
A-262

Modified GIAC Strategy for Haploidentical BMT: A Preliminary Experience from IRCH, AIIMS

Dr Ranjit Kumar Sahoo, Department of Medical Oncology, AIIMS, New Delhi, India
Sravan Dubasi, Department of Medical Oncology, AIIMS, India
Chitikela Sindhu, Department of Medical Oncology, AIIMS, India
Akhil Santosh, Department of Medical Oncology, AIIMS, India
Aman Chaudhury, Department of Medical Oncology, AIIMS, India
Shuvadeep Ganguly, Department of Medical Oncology, AIIMS, India
Archana Sasi, Department of Medical Oncology, AIIMS, India
Aastha Goel, Department of Medical Oncology, AIIMS, India
Sabitha Paramasivam, Department of Medical Oncology, AIIMS, India
Mohini Mendiratta, Department of Medical Oncology, AIIMS, India

Category: Conditioning Regimens

Abstract Content:

Introduction:
Haploidentical stem cell transplantation using in-vivo T-cell depletion (haplo-SCT) using the GIAC strategy ("Beijing protocol") is only restricted to China. The immune tolerance is induced by a combination of G-CSF and ATG which is different from the "Baltimore protocol" which uses PTCY. Here we share our experience of haplo-SCTs conducted at our centre using GIAC strategy which we initiated in December 2020.

Aims:
To assess engraftment, GVHD and other complications, relapse and survival in patients who underwent HSCT using a modified-GIAC strategy at our centre.

Methodology:
This retrospective analysis includes 7 patients who were transplanted till January 2023 using modified-GIAC strategy. The conditioning regimen used was Ara-C(2-4g/m2)-Bu(9.6mg/kg)-Cy(3.6g/m2)-BCNU(250mg/m2) with rATG(10mg/kg) with a combination of CSA-MTX-MMF with low-dose methyl prednisolone. Peripheral blood graft was used instead of BM+PB graft with at a target of 3million cells/kg. Data was expressed in median and interquartile range.

Results:
Median age was 29 years (range: 16-38 years), 4 were males. 4 patients had AML, 1 (14.2%) each had MDS-EB2, BPDCN, HLH(Type-III). Five patients were transplanted after 1st and later relapses with 2 patients in active

disease. Median stem cell dose was 3.3 million (range: 3.1 to 3.6 million). All patients engrafted at 12 days (range:10-18) for neutrophils and 19 days (range:15-40) for platelets with engraftment syndrome in 2 patients. 1 patient had PGF which responded completely to eltrombopag. Grade-3 late-onset haemorrhagic cystitis is seen 2 (28.5%) patients. Steroid-refractory severe aGVHD was seen in 2 patients with concurrent TA-TMA in 1 patient with no GVHD-related mortality. Chronic GVHD was seen in 4 (57.14%) patients primarily involving oral cavity and skin and was responsive to steroids. CMV reactivation was seen in all patients except 1 and all recovered with ganciclovir. EBV reactivation was seen in 4 (57.14%) patients requiring treatment in 2 patients with no evidence of PTLD. The D100 TRM was nil and 1-yr TRM was in 1 patient (TA-TMA due to sirolimus). Only 1 patient had relapse which was salvaged by chemo-DLI. There was relapse in 1 (14.2%) patient and 1 (14.2%) patient had non relapse mortality.

Conclusions:

The modified-GIAC strategy appears feasible in our setting with manageable side effects and good tolerability similar to the Chinese-experience

Abstract ID:
A-263

Gut Microbiota Profiling in Allogenic Hematopoietic Stem Cell Transplantation and Prediction of Acute Gastrointestinal GVHD from a Tertiary Care Centre in North India

Dr Md. Rizwan Athar, Department of Hematology, SGPGI, India
Md. Rizwan Athar, Department of Hematology, SGPGI, India
Sanjeev, Department of Hematology, SGPGI, India
Shweta Maurya, Department of Hematology, SGPGI, India
Ashish M, Department of Hematology, SGPGI, India
Manoj Singh, Department of Hematology, SGPGI, India
Ruchi Gupta, Department of Hematology, SGPGI, India
Md. Khaliqur Rahman, Department of Hematology, SGPGI, India
Dinesh Chandra, Department of Hematology, SGPGI, India
Manish Singh, Department of Hematology, SGPGI, India
Rajesh Kashyap, Department of Hematology, SGPGI, India

Category: Infectious and Non-infectious complications

Abstract Content:

Background -The success of Allogenic hematopoietic stem cell transplant(allo-HSCT) remains limited by GVHD. Growing evidence suggest that gut microbiota interactions influence GVHD risk following allo-HSCT.Endogenous bowel microflora in HSCT patients get replaced by hospital multidrug resistant flora and pose risk of serious bacterial infection..However Little is known about the influence of gut microbiota on the incidence of acute GVHD.
Aim - To evaluate routine surveillance and post conditioning regimen stool culture for colonization, antibiotic sensitivity and prediction of acute gastrointestinal GVHD in patients undergoing allo –HSCT at SGPGI lucknow,India.
Method - Retrospective study was done from January 2021 to june 2024. A total of 50 patients underwent allogenic hematopoietic Stem cell transplantation. They were screened with baseline stool culture and antibiotic sensitivity as per institutional protocolat the time of admission for HSCT and after the conditioning regimen.Bacterial isolates were classified according to antibiotic sensitivity and studied for any link with the incidence of acute gastrointestinal GVHD.

Results-This study showed that 74% of HSCT recipients had gut colonized with antibiotic resistant microbiota which included ESBL, MDR, XDR, PDR, CaRB, CeRB .Ten(20%) out of 50 patients who underwent allo-HSCTwere detected with acute gastrointestinal GVHD and showed loss of of bacterial diversity before and after allo-HSCT. At the onset of acute GVHD an increase in the abundance of the members of the genus E.Coli, enterococcus and klebsiella has been observed which are multidrug resistant. Identification and monitoring of these pathogens in patients could help in the choice of antibiotics and avoid emergence of antibiotic resistant strains.

Conclusion -Human gut Microbiota homeostasis is important for preventing infection and GVHD. The microbiota regulates host immunity and plays a potential role in the onset and Severity of acute GVHD in patients undergoing allo-HSCT .However further investigation is warranted as to whether loss of gut microbiota diversity may predict incidence of acute GVHD.

Abstract ID:
A-265

Feasibility and Safety of Prophylactic CD45RA-Depleted Donor Lymphocyte Infusion in Recipients of TCRαβ+ Depleted Haploidentical Grafts

Dr Quek Kim Siang Jeffrey, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Ng, Department of Haematology, Singapore General Hospital, Singapore
Ang Chieh Hwee, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tansloan Tuy, Department of Haematology, Singapore General Hospital, Singapore
Gina Gan, Department of Haematology, Singapore General Hospital, Singapore
Heng Kee Khiang, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lim, Department of Haematology, Singapore General Hospital, Singapore
Goh Yeow Tee, Department of Haematology, Singapore General Hospital, Singapore
William Hwang Ying Khee, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore

Category: Cell and Gene Therapy

Abstract Content:

Aims

The experience with CD45RA-depleted memory enriched (TM) donor lymphocyte infusion (DLI) is limited and there are many uncertainties surrounding its clinical application. Since the majority of alloreactive T cells reside in the naïve subset (CD45RA+), TM DLI may provide disease control and effective transfer of virus-specific immune responses with decreased Graft-versus-Host disease (GvHD) risk. Our study aims to evaluate the safety and efficacy of incremental doses of CD45RA-depleted DLI in recipients of TCRαβ+ depleted peripheral blood stem cell (PBSC) grafts.

Methods

We performed a retrospective analysis on patients who were enrolled into a locally developed haploidentical haematopoietic stem cell transplant (Haplo-HCT) protocol that involves upfront add-back of TMtogether with TCRαβ+ depleted PBSC graft. The clinical courses of patients who received prophylactic CD45RA-depleted DLI (p-DLI) by physicians' decision and

their counterpart not given p-DLI were assessed for GvHD and survival outcomes. Patients who died in the first 100 days post-transplant were excluded.

Results

A total of 55 patients underwent Haplo-HCT for haematological malignancies in our unit between February 2017 and June 2023 (Table 1). All patients received tacrolimus or myfortic for GvHD prophylaxis for at least 30 days, tapering off by 60 days. Thirty one of 55 patients received p-DLI. The remaining 24 patients (non-p-DLI group) either did not receive DLI at all (n=19) or only at relapse (n=5). The 2 groups were comparable in baseline characteristics except that the p-DLI had significantly higher refined-disease risk index (R-DRI). The median interval from transplant to first p-DLI was 124 days (IQR 83-185). The starting dose was 1-2x105 CD45RO+ T cells/kg for majority of patients (70.9%). Dose escalation of ½ or 1 log was performed in successive p-DLI administrations in the absence of GvHD. The median interval between successive doses of p-DLI was 38 days (IQR 28-83). The median number of p-DLI per patient was 4 (IQR 3-5). Non-relapse mortality occurred in 2 patients and were attributed to sepsis. Twelve out of 31 patients who received p-DLI relapsed. The median time from first p-DLI to relapse was 88 days (IQR 47-204).

Compared to non-pDLI group, the cumulative incidence of p-DLI induced GvHD was 21.6% (95% CI, 8.7-38.2) vs 50% (95% CI, 29.1-67.8) at 1 year. The 2-year cumulative incidence of relapse (CIR) was 39.8% (95% CI 22.6-56.6) in DLI group and 25% (95% CI 10.2-43.1) in non-DLI group (Figure 1, p=0.38). There were no significant differences in terms of CIR, relapse-free survival and overall survival between the 2 groups. CMV reactivation rate was comparable between the two groups, as it occurred at a median of 46 days, before p-DLI could be given in most cases.

Conclusion

We have shown that successive incremental doses of CD45RA-depleted DLI were well tolerated and associated with low incidence of GvHD. Survival outcomes were comparable between the p-DLI and non-DLI group, despite the former having higher proportion of patients with higher R-DRI. We infer that p-DLI may reduce relapse in higher risk patients.

Abstract ID:
A-266

Procalcitonin is Superior to CRP in Predicting Bacteraemia and Mortality in Neutropenic Fever in Patients with Haematological Malignancies

Dr Naveenvairamoorthy Dakshinamoorthy, Department of Clinical Haematology, Sir Ganga Ram Hospital, India
Dr Saikat Mondal, Department of Clinical Haematology, Sir Ganga Ram Hospital, India
Dr Jyoti Kotwal, Department of Haematology, Sir Ganga Ram Hospital, India
Dr Nitin Gupta, Department of Clinical Haematology, Sir Ganga Ram Hospital, India

Category: Infectious and Non-infectious complications

Abstract Content:

Introduction:
Febrile neutropenia (FN) is a haematological emergency managed with empirical broad-spectrum antibiotics, pending culture reports. However, this risks antimicrobial overuse and resistance. CRP, and lately, procalcitonin have emerged as biomarkers of bacteraemia, but their utility in FN is not well established.

Methods:
In this prospective observational study, in adults with FN in haematological malignancies, predictive abilities of procalcitonin and CRP in bacteraemia and in-hospital mortality were assessed. Mann-Whitney U test was used and ROC curves were generated.

Results:
280 FN episodes occurred in 111 patients (M-70%, F-30%); median age 50-years (range 18-77). Underlying diseases included acute leukaemia (n=216, 77%), lymphomas (n=39, 14%) and plasma-cell dyscrasias (n=23, 8%). 162 episodes (58%) occurred with chemotherapy, and 80 (29%) in HSCT; 52 were allogeneic and 28 autologous.

Of 66 (24%) bacteraemic episodes, 44 (66%) were Gram-negative bacteraemia and 22 (34%) Gram-positive bacteraemia. Of all Gram-negative cultures, 27 (61%) were multidrug-resistant, 10 (22%) carbapenem-resistant. 31 (11%) patients died of sepsis.

Mean procalcitonin, but not CRP, was higher in Gram-negative bacteraemia (7.7 vs. 2.9ng/mL), with 85% specificity at cut-off of 2.61ng/mL (PPV-32%,

NPV-87%) and in MDR-bacteraemia (7.63 vs. 3.1ng/mL), with 85% specificity at 3.12ng/mL (PPV-24%, NPV-90%).

Mean procalcitonin was higher in bacteremic episodes (8.72 vs. 2.09 at onset, and 8.2 vs. 3.65 at 48-hours) with 85% specificity at 2.16 (PPV-47%, NPV-83%) at onset, and 3.05 (PPV-41%, NPV-81%) at 48-hours. Mean CRP was also higher in bacteraemia (106.8 and 86.7 mg/L at onset, and 120.9 and 91.3 mg/L at-48 hours) with 85% specificity at 183 (PPV-27%, NPV-77%). With higher AUC procalcitonin performed better.

Mean procalcitonin levels were higher in patients succumbing to sepsis than those survived (8.63 vs 3.04 at onset, 6.83 vs. 4.46 at 48-hours) with 85% specificity at 3.89 ng/mL (PPV-14%, NPV-90%). CRP couldn't predict mortality.

Conclusion:
Procalcitonin is a better predictor of bacteraemia compared to CRP.

Abstract ID:
A-267

A Single Centre Experience on Clinical Outcomes of Hematopoietic Stem Cell Transplant in Acute Myeloid Leukemia Patients

Dr Santhosh Subramanian, Department of Clinical Hematology, Manipal Hospitals, India
Ashish Dixit, Department of Clinical Hematology, Manipal Hospitals, Bangalore, India
Mallikarjun Kalashetty, Department of Clinical Hematology, Manipal Hospitals, Bangalore, India
Amit Rauthan, Department of Medical Oncology, Manipal Hospitals, Bangalore, India
Poonam Patil, Department of Medical Oncology, Manipal Hospitals, Bangalore, India
Nitin Yashas Murthy, Department of Medical Oncology, Manipal Hospitals, Bangalore, India
Padmini, Department of Medical Oncology, Manipal Hospitals, Bangalore, India
Jhansi, Department of Clinical Hematology, Manipal Hospitals, Bangalore, India
Giripunja, Department of Clinical Hematology, Manipal Hospitals, Bangalore, India
Harshitha Punja, Department of Clinical Hematology, Manipal Hospitals, Bangalore, India

Category: Acute Leukemia

Abstract Content:

Introduction

Hematopoietic stem cell transplantation (HSCT) is widely employed as effective consolidation therapy in Acute myeloid leukemia (AML). HSCT can offer potential cure but carries significant risks like Graft-versus-Host-Disease (GVHD), infections & Transplant-Related-Mortality (TRM) or morbidity. Chemotherapy based consolidation is favoured in good-risk AML whereas allogeneic HSCT remains themainstream treatment for poor risk and some intermediate-risk AML patients post chemotherapy. Autologous HSCT is still opted in certain scenarios which has advantage of low TRM.

Aims & Objectives

Primary objective is to assess the clinical outcomes post-HSCT in AML patients such as Relapse Free Survival (RFS), Overall survival (OS), incidence of acute & chronic GVHD, relapse rates, mortality rates including day 100 TRM. Secondary objectives are to analyse the transplant related factors that can possibly contribute to these outcomes such as pre-transplant status, conditioning regimens used, donor typeand type of

GVHD prophylaxis employed & other baseline characteristics associated with them.

Methodology

This is a retrospective observational study of AML patients who had undergone HSCT between January 2004 and June 2024 at our tertiary care institute. The disease status at the time of HSCT, conditioning regime and GVHD prophylaxis administered were reviewed. The incidence of acute & chronic GVHD, relapse rates, mortality rates including day 100 TRM were analysed. The Kaplan-Meier estimates for Overall survival (OS) and Relapse Free Survival (RFS) computed using SPSS version 23.0.

Results

A total of 46 patients were included, 21 (46%) were males and 25 (54%) were females, the median age was 36.5 years (range: 1.5 -66). Among the allogenic HSCT, Haploidenticaltransplants were 48% (22/46), MSD in 30% (14/46) and MUDin 13% (6/46) transplant. Autologous transplant in 4 (4/46).Peripheral blood stem cell was the predominant graft source used (87%). The conditioning regimes in allogeneictransplants were Fludarabine (Flu)-Total Body Irradiation(TBI), Cy-TBI, Busulfan(Bu)-Cyclophosphamide(Cy), Flu-Bu, Flu-Melphalan (Mel),Thiotepa-Treosulfan-Flu-Anti Thymocyte Globulin (ATG), Flu-Cy-TBI (John Hopkins's protocol) or Flu-Bu-ATG. Bu-Cy conditioning was used in autologous HSCT. The GVHD prophylaxis included Cyclosporine+methotrexate in MSD and MUD transplants. Cyclophosphamide + tacrolimus + mycophenolate was used in haploidentical post-transplant.The overall incidence of acute GVHD was 26% (12/46) and chronic GVHD was 15% (7/46). There were 13 deaths out of 46 transplants (28%), and 9 out of 13 deaths (69%) were within Day 100 (TRM). Graft rejection was seen in 1 patient who underwent second HSCT. Relapses were seen in 15% (7/46). The median RFS & OS was not reached in overall study population. The OS rates at 2 years & 5 years was 72.3% & 67.5% respectively and RFS rate at 3 years was 53.5%.

Figures attached shows OS curves of MSD, Haplo-identical & MUD transplants (log rank p=0.308) & RFS curves.

Conclusion

Our study depicts single centre experience of outcomes of HSCT in AML patients and factors associated with it. A thorough knowledge of these factors and outcomes can guide in choosing appropriate type of therapy to

be adopted & for decision-making based on risks & benefits of HSCT in AML patients post chemotherapy.

Abstract ID:
A-268

Optimization of Pre-transplant Conditioning for Haploidentical Donor Transplantation in Adult Acute Lymphoblastic Leukemia: Interim Phase 2 Results of TBI-augmented Reduced Toxicity Regimen Incorporating ATG/PTCy

Mr Jaehyun Ahn, College of Medicine, The Catholic University of Korea, South Korea
Jae-Ho Yoon, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Daehun Kwag, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Gi June Min, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Sung-Soo Park, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Silvia Park, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Sung-Eun Lee, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Byung-Sik Cho, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Ki-Seong Eom, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Yoo-Jin Kim, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Hee-Je Kim, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Chang-Ki Min, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea

Seok-Goo Cho, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea
Seok Lee, Department of Hematology, Catholic Hematology Hospital and Leukemia Research Institute, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, South Korea

Category: Acute Leukemia

Abstract Content:

AIMS:
Reduced-toxicity conditioning (RTC) regimens and haploidentical donor transplantation (HIDT) have expanded the availability of allogeneic hematopoietic cell transplantation (allo-HCT) by facilitating the use of less compatible donors and applications for comorbid or elderly recipients. Despite the critical need for effective conditioning regimens and graft-versus-host disease (GVHD) prophylaxis, the optimal conditioning regimen especially for HIDT in acute lymphoblastic leukemia (ALL) remains uncertain. Previously, we demonstrated a lower relapse rate and superior disease-free survival (DFS) with RTC using fludarabine/melphalan (FM) compared to fludarabine/busulfan (FB), and several favorable results of total body irradiation (TBI) have been reported in ALL. Consequently, we initiated a phase 2 trial optimizing FM with TBI and refined GVHD prophylaxis to prevent relapse and improve survival outcomes.

METHODS:
Our prospective observational phase 2 study includes adult ALL patients undergoing HIDT since 2023 following an RTC regimen of FMTBI (fludarabine 150 mg/m^2 + melphalan 100 mg/m^2 + TBI 400 or 800 cGy). This interim analysis enrolled 26 patients treated with FMTBI and compared outcomes with 52 historical controls treated with FB (fludarabine 150 mg/m^2 + busulfan 9.6 mg/kg) from 2017 to 2022. GVHD prophylaxis included anti-thymocyte globulin (ATG) 6 mg/kg for FB regimen and a further optimized combination of ATG 4.5 mg/kg with 2 days of post-transplantation cyclophosphamide (PTCy) 30mg/kg for FMTBI regimen.

RESULTS:
The FMTBI regimen exhibited significantly lower relapse rates (7.7% vs. 32.7%, p=0.034) with superior 1-year GVHD-free, relapse-free survival (GRFS) (84.0% vs. 51.9%, p=0.034), DFS (84.0% vs. 51.9%, p=0.016), and overall survival (87.9% vs. 78.8%, p=0.276). The incidence of acute GVHD grades II-IV (50.0% vs. 46.3%, p=0.433), III-IV (15.4% vs. 15.4%, p=0.937),

and non-relapse mortality rates (8.2% vs. 15.4%, *p*=0.354) were similar between the two regimens. However, FMTBI showed a lower incidence of all grades (13.3% vs. 32.9%, *p*=0.058) and moderate-to-severe (0.0% vs. 11.5%, *p*=0.074) chronic GVHD compared to historical FB. Slightly delayed neutrophil (12 vs. 13 days, p=0.025) and platelet (13 vs. 14 days, p=0.515) recovery were observed in the FMTBI group, though comparable. The final multivariate analysis indicated poorer 1-year DFS in patients with HCT-CI score ≥3 (HR 2.81; 95%CI 1.39-5.72, *p*=0.004) and superior DFS in the FMTBI group (HR 0.27; 95%CI 0.09-0.78, *p*=0.015).

CONCLUSIONS:

The newly implemented FMTBI regimen demonstrated lower relapse rates with longer 1-year DFS and GRFS compared to historical FB in HIDT of adult ALL. Reduced chronic GVHD and comparable acute GVHD incidences suggest the effectiveness of ATG/PTCy for GVHD prevention. These findings underscore the necessity of refining conditioning regimens and GVHD prophylaxis to improve transplantation outcomes within tolerable adverse events for HIDT in ALL, holding significant implications for enhancing HCT strategies in this challenging patient population.

Abstract ID:
A-271

Outcome Analysis of High-risk Neuroblastoma Post Autologous Stem Cell Transplant in a Newly Set Pediatric Transplant Centre, Bengaluru, South India

Dr Vasundhara Kailasnath, Department of Pediatric BMT, Kidwai Memorial Institute of Oncology, India
Sathya Murugasamy, Department of Pediatric Oncology, Kidwai Memorial Institute of Oncology, India
K Siddhanth, Department of Pediatric BMT, Kidwai Memorial Institute of Oncology, India
Lokesh Rajole, Department of Pediatric BMT, Kidwai Memorial Institute of Oncology, India
Gayathri A M, Department of Transfusion Medicine, Kidwai Memorial Institute of Oncology, India

Category: Pediatric Transplantation

Abstract Content:

Introduction:
Neuroblastoma is the most common extracranial solid tumor of childhood. It constitutes 8%–10% of all childhood malignancies. Approximately half of the patients diagnosed with this disease are classified as having high-risk disease. The care paradigm and the outcomes for children with high-risk neuroblastoma is still very poor and the survival in this group accounts for less than 40 %. Despite intensive multimodal management with high dose chemotherapy with autologous stem cell rescue, radiation therapy and maintenance chemotherapy, the majority of the patients relapse or have refractory disease. In this abstract, we highlight recently completed management of newly diagnosed high-risk patients and efforts to improve the quality of cure in this vulnerable population. Most of the government run cancer hospitals in India does not have Transplant units and the subset of population who come to these hospitals cannot afford the high cost of transplants offered in private sector hospitals. Kidwai Memorial Institute of Oncology (KMIO), Bangalore, India is a state government run autonomous tertiary cancer hospital with a newly established Bone Marrow Transplant (BMT) Unit in the year 2022.

Methods:
This is a retrospective observational study of outcome of autologous transplant in high-risk neuroblastoma children (≤15 years) from April 2022

to March 2024 at KMIO, BMT unit. The outcome analysis of eleven children who underwent autologous stem cell transplantation was evaluated.

Results:
There were a total of 11 patients with high risk neuroblastoma, with male to female ratio 1.2:1 with a mean age of 3.4 years. First patient had a follow-up period of 18 months and the last child had a follow-up of 6 months. N Myc was positive in 7 cases, indeterminate in 3 and negative in 1. As per the ICMR guidelines, Pediatric Oncology Group (POG) 9341 high risk protocol was used to treat these patients. Stem cell collection was done post second or third cycle of chemotherapy. Surgery was done post 4th or 5th cycle of induction chemotherapy. 10 out 11 children had complete remission of the disease and 1 child had minimal disease which was deemed unresectable prior to transplant. Pretransplant conditioning was done using intravenous Busulfan and Melphalan. Neutrophil Engraftment occurred in an average of 12-14 days. There were no veno occlusive disease and transplant related mortality. All children received post-transplant radiotherapy to the tumor bed. 6 out of 11 children (54 %) are disease free currently. Maintenance therapy was started with maturation agent cis retinoic acid. The average duration for relapse was 4 months.

Conclusion:
Multi-disciplinary care is critical for improvement in survival in pediatric patients with high-risk neuroblastoma. Though the data from our transplantation center is very small and follow up period is short, the initial data looks very promising in terms of overall survival, when compared to treatment with chemotherapy and radiation therapy alone which was offered previously.

Abstract ID:
A-273

Comparison between Thiotepa-Treosulfan and Thiotepa-Busulfan Based Conditioning Regimes Prior to Allogeneic Haematopoetic Stem Cell Transplant in Adults with Haematological Malignancies

Dr Wong Kye Ling, Department of Haematology, Singapore General Hospital, Singapore
Chan Tze Wei, Department of Haematology, Singapore General Hospital, Singapore
Tertius Tuy, Department of Haematology, Singapore General Hospital, Singapore
Ang Chieh Hwee, Department of Haematology, Singapore General Hospital, Singapore
Melinda Tan Si Yun, Department of Haematology, Singapore General Hospital, Singapore
Lawrence Ng Cheng Kiat, Department of Haematology, Singapore General Hospital, Singapore
Ong Shin Yeu, Department of Haematology, Singapore General Hospital, Singapore
Than Hein, Department of Haematology, Singapore General Hospital, Singapore
Chen Yunxin, Department of Haematology, Singapore General Hospital, Singapore
Francesca Lorraine Lim Wei Inng, Department of Haematology, Singapore General Hospital, Singapore
Chandramouli Nagarajan, Department of Haematology, Singapore General Hospital, Singapore
William Hwang Ying Khee, Department of Haematology, Singapore General Hospital, Singapore
Goh Yeow Tee, Department of Haematology, Singapore General Hospital, Singapore
Linn Yeh Ching, Department of Haematology, Singapore General Hospital, Singapore
Aloysius Ho Yew Leng, Department of Haematology, Singapore General Hospital, Singapore
Jeffrey Quek Kim Siang, Department of Haematology, Singapore General Hospital, Singapore

Category: Conditioning Regimens

Abstract Content:

Aims

The choice of conditioning chemotherapy is crucial in the allogeneic haematopoietic stem cell transplant (HSCT) process. Studies have demonstrated lower GVHD, decreased toxicity, and improved non-relapse mortality when comparing treosulfan- to busulfan-based reduced intensity conditioning (RIC). Likewise, the addition of the alkylator thiotepa to fludarabine and busulfan was shown to be safe and effective. In this retrospective study, we sought to compare adverse events and transplant outcomes in patients undergoing HSCT with either thiotepa-treosulfan-

fludarabine (TTF)/thiotepa-etoposide-cyclophosphamide (TEC) fludarabine-treosulfan (TEC-FT) or thiotepa-busulfan-fludarabine (TBF)/TEC busulfan-fludarabine (TEC-BF) conditioning at a tertiary medical centre in Singapore.

Methods

Adult patients with haematological malignancies receiving allogeneic HSCT between January 2020 to January 2024 that were conditioned using thiotepa with treosulfan- or busulfan-based regimes were compared. The treosulfan-based group consisted of TTF or TEC-FT. The busulfan-based cohort entailed TBF and TEC-BF. Patient demographics, disease status, donor source were extracted. Onset of engraftment, adverse events, graft-versus-host disease (GVHD), relapse and death were collected. Kaplan-meier curves were calculated and logistic regressions were performed for OS, progression free survival (PFS), GVHD-free, relapse-free survival (GRFS).

Results

Forty-three patients were analyzed. Patient characteristics are found in table 1. Patients in the treosulfan cohort were more likely to be male (64 vs 46%), older (58 vs 54.6 years old). They had lower median HCT-CI (1 vs 2) with similar median ECOG (1 vs 1). The treosulfan-group had lower overall responses (CR and PR) at time of transplant (45 vs 61%). There was an increased in sequential RIC using TEC-FT compared to TEC-BF (45 vs 4% respectively, p-value <0.05). Both arms had similar neutrophil and platelet engraftment. The rates of relapse and death were similar in both the treosulfan and busulfan groups, however this was not statistically significant (both 40 vs 31%). GVHD rates were decreased in the treosulfan arm (40 vs 47%). The 1-year OS, PFS, and GRFS were not statistically different between the two cohorts (table 2). Lastly, adverse events (infections, mucositis, bleeding, and liver complications) between the two groups were not statistically different.

Conclusion

The addition of thiotepa to treosulfan-based RIC did not show any added benefits compared to thiotepa combined with busulfan-based RIC. There were similar rates of OS, PFS, and GRFS with similar rates of adverse events. Even VOD rates in the treosulfan group were not less compared to the busulfan group. However, this is a retrospective analysis and comparisons were limited by small sample size, predisposing it to sampling bias. Furthermore, there was a higher proportion of sequential

transplants in the treosulfan group owing to the proportion of active disease at the time of transplant. Thus, larger investigations are needed to truly elucidate whether the double alkylator combination of thiotepa-treosulfan lacks benefit over thiotepa-busulfan for adults undergoing RIC HSCT for haematological malignancies.

Abstract ID:
A-275

Flumatinib Maintenance after Hematopoietic Stem Cell Transplantation for Patients with Philadelphia Chromosome-Positive Acute Lymphoblastic Leukemia

Dr Chen Liang, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Donglin Yang, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Yi He, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Aiming Pang, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Rongli Zhang, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Weihua Zhai, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Qiaoling Ma, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital,

Chinese Academy of Medical Sciences and Peking Union Medical College, China
Sizhou Feng, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Mingzhe Han, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China
Erlie Jiang, Department of Stem Cell Transplantation Center, State Key Laboratory of Experimental Hematology, National Clinical Research Center for Blood Diseases, Institute of Hematology and Blood Diseases Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, China

Category: Acute Leukemia

Abstract Content:

Aims
To investigate the efficacy and tolerability of flumatinib maintenance therapy post-transplantation in patients with Philadelphia chromosome-positive (Ph-positive) acute lymphoblastic leukemia.
Methods
Patients with Ph-positive acute lymphoblastic leukemia underwent hematopoietic stem cell transplantation (HSCT) were enrolled. All patients received flumatinib as maintenance therapy, from 3 months until 1-2 years post-transplantation. The therapeutic process and clinical outcomes were retrospectively analyzed.
Results
A total of 23 adult patients allografted between June 2019 and January 2023 were enrolled in this study. Median age was 32 (range 19.0-56.0) years. At the time of diagnosis, the median WBC counts were 35.3（range 5.5 ~ 139.6）×10^9/L. Seventeen patients (73.9%) received allogeneic HSCT (5 with a HLA matched sibling donor and 12 with a HLA-haploidentical donor). The remaining 6 (26.1%) patients with negative MRD after three chemotherapy cycles received autologous HSCT. Patients received myeloablative conditioning with a modified TBI/Cy/Flu/Ara-c (TBI/cyclophosphamide/fludarabine/cytarabine), TBI/VP-16/Cy

(TBI/etoposide/ cyclophosphamide) or TBI/Mel/Cy (TBI/melphalan/cyclophosphamide) regimen. Hematopoietic stem cells were derived from mobilized peripheral blood (PB) and all patients engrafted successfully.

Among patients who underwent allogeneic HSCT, there were 14 males and 3 females. Fourteen (82.4%) patients were detected with BCR/ABL p190 transcript and 3 (17.6%) with BCR/ABL p210 transcript. One (5.9%) patient was transplanted in CR2, and 6 (35.3%) patients were found to be MRD-positive at the time of transplantation. At the time of this analysis, 16 (94.1%) patients were alive. 2-year OS and RFS were 94.1% (95%CI 82.9%-100.0%) and 75.5% (95%CI 54.5%-96.5%), respectively. Four (23.5%) patients experienced disease recurrence, including one with extramedullary disease relapse (central nervous system involvement).

Among patients who underwent autologous HSCT, there were 2 males and 4 females. Four (66.7%) patients were detected with BCR/ABL p190 transcript and 2 (33.3%) with BCR/ABL p210 transcript. At the time of this analysis, 5 (83.3%) patients were alive. 2-year OS and RFS were 83.3% (95%CI 53.5%-100.0%) and 62.5% (95%CI 40.8%-97.6%), respectively. Two (33.3%) patients experienced disease recurrence, including one with extramedullary disease relapse (central nervous system involvement).

Flumatinib maintenance therapy was well tolerated in patients after HSCT. No grade III-IV non hematological toxicity was observed.

Conclusions

In conclusion, flumatinib treatment was well tolerated and potentially effective in patients with Ph-positive acute lymphoblastic leukemia after transplantation. Further well-designed studies are required to validate the efficacy and the optimal duration of the maintenance therapy.

Abstract ID:
A-276

Unraveling Thrombocytopenia after Autologus Stem Cell Transplantation in Multiple Myeloma: A Case Report

Dr Ika Kartiyani, Department of Hematology Medical Oncology, Kariadi Hospital/FK UNDIP, Indonesia

Category: Multiple Myeloma

Abstract Content:

Introduction
Multiple myeloma (MM) is a malignant clonal plasma cell dyscrasia characterized by the clinical constellation of anaemia, nephropathy, and bone disease. Multiple myeloma is not curable with currently available therapies; however, overall survival and quality of life have dramatically improved by autologous stem cell transplant (ASCT) for eligible patient. Autologous stem cell transplant can provide significant remission that is both long and deep, extending survival.
Case Presentation
A 58-year-old woman presented with a 3-month history of refractory anaemia. Complete blood test revealed anemia, thrombocytopenia, and azotemia. Punched-out lesions in multiple bones were observed in the bone survey examination. Serum protein electrophoresis showed M-spike of the gamma globulin. Hypercellular bone marrow with 32% plasmocytes were found in the bone marrow puncture. The patient had anemia, renal insufficiency, and bone lesions as the myeloma-defining events. The International Myeloma Working Group (IMWG) criteria was fulfilled, hence the diagnosis of multiple myeloma was established. The patient received chemotherapy with CyBorD (Cyclophosphamide, Bortezomib, and Dexamethasone) regimen. Bone marrow evaluation results showed less than 5% plasmocytes with good clinical improvement. Subsequently, the patient underwent autologous bone marrow transplantation with high dose mephalan conditioning
The patient experienced engraftment after 13 days of infusion. Some of the symptoms that appeared during treatment were nausea, vomiting and diarrhea which were finally handled properly. On the 14th day the patient comes out of the isolation room and returns home in good condition and visit the doctor every month. She had been grappling with mild thrombocytopenia for a span of 6 months following the infusion which was

treated well with daily eltrombopag. No indications of anemia were present, and there were no discernible signs or symptoms of relapse.

Conclusions

Autologous Stem Cell Transplantation (ASCT) has emerged as a significant therapeutic intervention for patient with multiple myeloma. The procedure offers promising outcomes by combining high-dose chemotherapy with stem cell support, effectively targeting malignant plasma cell. This approach often leads to deep and durable remissions, improving overall survival and quality of life. However, despite its advantages, ASCT is not without risks and requires careful patient selection and management of potential complications. Continued research is essential to refine patient selection criteria, optimizing conditioning regiments, and explore novel adjunctive therapies to further enhance the efficacy and safety of ASCT in the treatment of multiple myeloma.

Abstract ID:
A-278

Twenty-Year Outcome Study on Hematopoietic Stem Cell Transplantation in Childhood Acute Lymphoblastic Leukemia: A Single-centre Study from India

Dr Anupama Nair, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Vijayshree Kumar, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Nithya Seshadri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Minakshi Lalchand Balwani, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Aarthi N, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Anuraag Reddy Nalla, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Ramya Uppuluri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Revathi Raj, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India

Category: Pediatric Transplantation

Abstract Content:

Aim

We present twenty-year outcome data on the impact of hematopoietic stem cell transplantation (HSCT) for children with acute lymphoblastic leukemia (ALL) and the variables affecting relapse-free survival.

Patients and methods

A retrospective cross-sectional study was performed where children up to 18 years of age, who underwent HSCT for ALL from January 2002 to December 2022 were included. HSCT was performed with the best available donor, with haplo-donors screened for presence of anti-HLA antibodies. We documented the impact of Measurable Residual Disease (MRD) before HSCT, relapse and non-relapse mortality including infection and graft versus host disease on an excel sheet and analyzed the data on SPSS software. The study has been approved by our Institutional Ethics Committee.

Results

We included 141 children, with a male: female ratio of 2.4:1 with a diagnosis of relapsed ALL in 110(78%) (isolated medullary relapse in 82, isolated CNS and combined in 14 each), refractory ALL in 22(15%) and high-risk cytogenetics in 9(6%). 11(84%) were diagnosed with B-ALL, 20 (14%) with T-ALL. We performed the HSCT in 31 children in CR1 (21%), e 109(77%) in CR2 and one in CR3 (0.7%). MRD was negative in all except 5(3.5%) children. We performed a matched family donor HSCT in 56(39%), matched unrelated donor in 34(24%) and haploidentical HSCT in 51(36%). The predominant source of stem cells were peripheral blood stem cells in 129(91%), bone marrow in 5(3.5%), cord in 7(5%). The conditioning was total body irradiation based in 136(96%), with thiotepa/treosulfan/fludarabine in 5(4%). We documented engraftment in 140 children(99.2%). The overall incidence of acute GVHD was documented in 100(71%), and chronic GVHD in 81(57%) children. The overall survival in the cohort was 85/141(60%) with a follow up range of 2 years to 20 years. We documented relapse after HSCT in 44 (31%), with relapse-free survival of 68%. Non-relapse mortality was noted in 20/141(14%), with GVHD in 10 children(7%), infections in 5(3.5%) children and regimen related mortality in 5(3.5%) children. In MUD HSCT, GVHD was the main cause of mortality resulting in 7/34(20%) whilst infection related mortality was higher in haploidentical HSCT in 4/51(8%). On analysing the variables associated with relapse, relapse was 41% in MUD, 27% in haplo-HSCT, 28% in MFD; while relapse was similar between sibling and father donors HSCTs. Relapse rates were 29% in B-ALL, and 40% in T-ALL; while relapse was 22% in CR1, 33% in CR2, 100% in CR3. In our cohort, GVHD did not impact on relapse-free survival but significantly reduced survival. Children with MRD positive status had a higher risk of relapse at 3/5(60%).

Conclusion

The study reports twenty-year data on HSCT in childhood ALL with 99.5% engraftment with a TBI-based conditioning with a relapse-free survival of 59%. In our cohort children who had a MUD HSCT, T-ALL, MRD positive status and in CR3 had a higher risk of relapse. The non- relapse mortality in MUD HSCT was predominantly due to GVHD and in haploidentical HSCT due to infections. Relapses occurred 44/141(31%) and we need better strategies to reduce this risk.

Abstract ID:
A-280

Twenty-Year Outcome Study on Hematopoietic Stem Cell Transplantation in Childhood Acute Myeloid Leukemia: A Single-Center Study from India

Dr Aarthi N, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Anupama Nair, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Vijayshree Muthukumar, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Nithya Seshadri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Minakshi L B, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Anuraag Reddy Nalla, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Ramya Uppuluri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Revathi Raj, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India

Category: Pediatric Transplantation

Abstract Content:

Aims:
Hematopoietic stem cell transplant (HSCT) offers hope for long term survival in children with high risk, relapsed or refractory acute myeloid leukemia. The aim of this study was to analyze the profile and outcomes of children with AML who underwent HSCT in the last 20 years at our center.

Patients and methods:
This is a retrospective cross-sectional analysis of children between 0-18 years of age with AML who underwent HSCT at our center between January 2003 and December 2022, with a minimum follow up period of 2 years. The demographics, disease and HSCT related data was collected from patient's medical records and electronic database. The outcomes were analyzed using IBM SPSS software v.26. Institutional ethics committee approval has been obtained.

Results

A total of 55 children underwent HSCT for AML at our center in 20 years. The indication for HSCT was high risk AML in 26 (48%), relapsed AML in CR2 in 16 (28.5%) and refractory AML in 13 (23.2%). Measurable residual disease (MRD) was negative in 53(96.3%) and positive in 2 (3.7%) children. The source of stem cells was peripheral blood in 51 (92.7%), cord blood in 2 (3.6%) and bone marrow in 2 (3.6%). The conditioning regimen was myeloablative in 48 (87.2%) and reduced toxicity in 7 (12.7%). Fifty (90.9%) children engrafted. The overall survival was 67% (37/55) at the time of analysis. We did not find any significant difference in survival between the matched sibling donor (MSD) HSCT (8/13; 61%), matched unrelated donor (MUD) (13/20; 65%) and haploidentical donor HSCT (16/22; 73%) (p=0.76). The overall relapse 10/55 (18.1%) of which, the relapse in haploidentical donor HSCT was 4/22 (18%), MUD 3/20 (15%) and MSD 3/13 (23%). Among those who died, relapse was the cause in 10/18. In the non-relapse mortality (8/55; 14.5%) 7 deaths were due to infection and one was due to graft versus host disease (GVHD). Out of the 7 infection related deaths, 4 were prior to engraftment.
Acute GVHD was found in 17/50 (34%) and chronic GVHD was seen in 21/50 (42%). Two out of seventeen (11.7%) children with acute GVHD relapsed as compared to 8/30 (26.6%). Among those with chronic GVHD 2/21 (9.5%) relapsed in comparison to 8/26 (30.7%) without chronic GVHD.

Conclusion

The outcomes are promising in high risk, relapsed and refractory AML with an overall survival of 67%. Relapse occurred in 10/55 (18%) and was the main cause of mortality followed by infection in 7/55(12.5%) and GVHD in 1/55(1.8%). We need novel strategies to help reduce relapse and improve survival in these children. With advances in supportive care, the outcomes in alternate donor HSCT match the survival in the sibling donor cohort.

Abstract ID:
A-283

Treosulfan Associated Knock Knees in Children Post Hematopoietic Stem Cell Transplantation – Report from a 15 Year Follow Up Study

Dr Anupama Nair, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Vijayshree M, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Nithya Seshadri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Minakshi L B, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Anuraag Reddy Nalla, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Ramya Uppuluri, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India
Revathi Raj, Department of Paediatric Blood and Marrow Transplantation, Apollo Cancer Centres, India

Category: Quality of Life / Survivorship

Abstract Content:

Aims

Treosulfan is a chemotherapeutic agent used in hematopoietic stem cell transplantation (HSCT) which has revolutionized the treatment outcomes and hence is used increasingly as a part of conditioning in pediatric HSCT, especially for benign conditions. Treosulfan exposure has been reported to cause damage to the growth cartilage and subsequent bone deformities in animal models. Our study aimed to investigate the incidence and the characteristics of treosulfan–induced bone damage in growing children post HSCT.

Patients and methods

We conducted a retrospective review of children below 18 years who underwent HSCT from January 2009 to June 2024 with a treosulfan-based conditioning regimen. Orthopedic evaluations, radiographic assessment, and growth charts were analyzed to identify the genu valgum or varum – knock knees or bow legs. Institutional ethics committee approval was obtained.

Results

A total of 1244 children underwent HSCT from Jan 2009 to June 2024 and 575 (46.22%) underwent HSCT with treosulfan based regimen. Genu valgum was seen in 20 patients (3.5%), while 1 patient presented with genu varum. The male-to-female ratio was 4.2:1. The mean age of transplantation was 5 years. The most common diagnosis was thalassemia major (52.3%), followed by inborn errors of metabolism (23.8%), inborn errors of immunity (19%), and malignant conditions in 4.7%. The mean duration of presentation post HSCT was 3.5 years ranging from 8 months to 8 years . Six (28.5%) of the patients required surgical intervention (growth plate modulation) while the other patients were treated with non- surgical approaches like bracing, orthotics and physiotherapy. The most significant association was the use of steroids in 20/21 children who had at least 4 weeks steroid use for graft versus host disease.

Conclusion

Treosulfan–induced bone damage, manifesting as knock knees, represents a previously unrecognized complication in pediatric HSCT survivors. Our findings suggest an age related (occurring in less than 10 years of age) and the use of steroids post HSCT, highlighting the need for vigilant monitoring of early intervention and novel strategies to mitigate this toxicity. The most common affected groups were children with thalassemia and inborn errors of metabolism and immunity. Further research is warranted to elucidate the underlying mechanism and explore potential preventive measures to optimize long-term outcomes for these vulnerable patients.

Abstract ID:
A-284

Second Primary Malignancies Post Autologous Stem-Cell Transplant in Multiple Myeloma from India – Knowing the Unknown

Dr Gourav Bain, Department of BMT, Tata Memorial Centre, India
Gourav Gopal Bain, BMT Unit, Department of Medical Oncology, Tata Memorial Centre, India
Sumeet Mirgh, BMT Unit, Department of Medical Oncology, Tata Memorial Centre, India
Athira Surendran, Department of Medical Oncology, Tata Memorial Centre, India
Sachin Punatar, BMT Unit, Department of Medical Oncology, Tata Memorial Centre, ACTREC, Kharghar, Navi Mumbai 410210, India
Anant Gokarn, BMT Unit, Department of Medical Oncology, Tata Memorial Centre, ACTREC, India
Nishant Jindal, Department of Medical Oncology, Tata Memorial Centre, ACTREC, India
Akanksha Chichra, Department of Medical Oncology, Tata Memorial Centre, ACTREC, India
Lingaraj Nayak, Department of Medical Oncology, Tata Memorial Centre, India
Prashant Tembhare, Department of Hematopathology, Tata Memorial Centre, ACTREC, India
Nikhil Patkar, Department of Hematopathology, Tata Memorial Centre, ACTREC, India
Sweta Rajpal, Department of Hematopathology, Tata Memorial Centre, India
Gaurav Chatterjee, Department of Hematopathology, Tata Memorial Centre, India
Libin Mathew, BMT Unit, Department of Medical Oncology, Tata Memorial Centre, India
Papagudi Subramanian, Department of Hematopathology, Tata Memorial Centre, India
Bhausaheb Bagal, Department of Medical Oncology, Tata Memorial Centre, India
Navin Khattry, Department of Medical Oncology, Tata Memorial Centre, India

Category: Multiple Myeloma

Abstract Content:

Aims

One of the long-term complications of autologous stem-cell transplant (ASCT) in Multiple Myeloma (MM) includes second primary malignancy (SPM). As survival in MM has improved, the incidence of second primary malignancy (SPM) has also increased. Our aim was to evaluate the incidence, clinical characteristics and outcomes of second primary malignancies (SPM) in Multiple myeloma patients post autologous stem-cell transplant (ASCT).

Methods

This is a retrospective single-centre analysis of multiple myeloma patients (n=178) who underwent ASCT between 1st March, 2007 to 31st December,

2022. The patients with SPM were identified from a prospectively maintained database. Patients with a diagnosis of another malignancy prior to or along with a diagnosis of multiple myeloma were excluded. SPM was defined as an event, whenever a patient was diagnosed as a second malignancy (except a plasma cell dyscrasia), which was proven histologically or by flow-cytometry.

Results

Between March 2007 – December 2022, a total of 178 patients underwent 192 ASCTs in MM (14 patients underwent two ASCTs). Of these 178 patients, six patients (3.3%) developed SPM [3 solid (1.6%) and 3 haematological (1.6%)] at a median follow-up post ASCT of 8.7 years. Median follow-up of the entire cohort (n=178) post ASCT was 4.3 years. Median age of patients with and without SPM was 41.5 years and 51 years (p=0.72), respectively. Median duration of lenalidomide exposure from diagnosis of myeloma to second malignancy in these six patients was 25.8 months (15-40 months). Median follow-up from time of ASCT was 107 months vs 52 months in patients with and without SPM (p=0.009), respectively. Median time from diagnosis of MM to diagnosis of SPM was 8.1 years (5.8 – 13.1 years) vs 10.4 years (Range 8.9 – 13.2 years) for hematological vs solid SPMs, respectively. Median time from diagnosis of myeloma to second malignancy was 9.0 years (5.4-13.5 years). Median time from transplant to diagnosis of second malignancy was 8.2 years (4.0-12.3 years). Median time from transplant to diagnosis of hematological SPMs was 7.2 years (4.3-12.1 years).

Amongst haematological malignancies, two patients developed AML (one with complex karyotype and one with monosomal karyotype) and the third patient developed therapy related B-ALL at 4 years post ASCT with hyperdiploid karyotype. Three patients developed solid tumors at a median duration of 9.5 years (Range 6-12.5 years) post ASCT, one patient each developing papillary carcinoma of thyroid (PTC), periampullary pancreatic cancer, and gastric carcinoma each (Table 1). Numerically, deaths were higher in patients with SPM (50%), vs those without SPM (30%) (p=0.56). Cumulative incidence of SPM in our entire cohort (n=178) at 5 years and 10 years post ASCT was 0.8% (95% CI – 0.07%-4%) and 5.6% (95% CI – 1.6%-13%), respectively.

Conclusion: The incidence of SPM in myeloma patients post ASCT was 3.3% in our cohort, at a median of 8.2 years post ASCT. This highlights the need for life-long surveillance for SPM in myeloma patients undergoing HSCT. To our knowledge, this is the first data from India about SPM post ASCT in Myeloma.

Abstract ID:
A-286

SingHealth Hematopoietic Stem Cell Transplant Course for Nurses

Mr Hwang Chung Cheng, Nursing Division, Singapore General Hospital, Singapore
Lim Yan Yin, Nursing Division, Kk Women's and Children Hospital, Singapore
Ho Yew Leng Aloysius, Department of Haematology, Singapore General Hospital, Singapore

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

Aims:
The SingHealth Haematopoietic Stem Cell Transplant (HSCT) course for registered nurses was curated in 2016 to harmonise the theoretical training curriculum for nurses caring for patients undergoing stem cell transplantation in SingHealth's adult and paediatric HSCT programmes.

Methods:
The 32 hours face to face Haematopoietic Stem Cell Transplant course was taught over a 5-day period by staff members from the multidisciplinary treatment team that consists of tranpslant physicians, transplant nurses and advanced practice nurse, tranplant pharmacists, dieticians, medical social workers, transplant coordinators as well as physical therapists from Singapore General Hospital and KK Women's and Children Hospital. The course curriculum conforms to the Joint Accreditation Committee ISCT-Europe & EBMT (JACIE) standards, covers the board categories of stem cell transplant principles; transplant pharmacology; transplant nursing, allied health services in transplantation, and supportive and end of life care. To assess participants learning, application and reasoning, pre and post course tests, case-based discussions and presentations, and reflective journal were utilised.

Results:
Between year 2016 to 2022, 5 SingHealth Haematopoietic Stem Cell Transplant course were conducted. A total of 81 registered nurses (67 SingHealth nurses and 14 non SingHealth nurses) successfully completed this course. The pre and post course test results found improvement in the participants knowledge between the ranges of 40-60%. Qualitative accounts from participants reported general satisfaction with this course

curriculum that provided them with a start in their journey as a stem cell transplant nurse. Experienced participants working in the stem cell transplant units reported better clarity related to the principles of stem cell transplantation and being able to apply what they learn and translating it to meaning when performing their day-to-day work routines.

Conclusions:

The SingHealth Haematopoietic Stem Cell Transplant (HSCT) course for registered nurses continues to be the main HSCT preparation programme for nurses working within SingHealth cluster, as well as nurses working at the private stem cell transplant programmes in Singapore. The course curriculum was revised in year 2020 and now covers topic related to chimeric antigen receptor T cell therapy.

Abstract ID:
A-288

Study on Comprehensive Medical Evaluation of Unrelated Blood Stem Cell Donors Prior to Donation

Mr Chandrashekar R, Department of Donor Request Management, DKMS BMST Foundation India, India

Category: Allied Health including Nursing, Pharmacology, and Laboratory Aspects

Abstract Content:

About DKMS

- DKMS is a global NGO founded by Mr. Peter Harf in 1991
- Mission: To provide as many blood cancer and blood disorder patients as possible with a second chance at life.
- Global Presence: US, Poland, UK, Chile, India, and South Africa
- Donor Registry: More than 12 million registered donors and over 115,000 blood stem cell donations

Journey of DKMS BMST Foundation India

- Officially launched on May 28, 2019, as a joint venture between DKMS and the Bangalore Medical Services Trust (BMST).
- Registered over 130,000 potential blood stem cell donors in India to date
- Completed over 130 successful donations

The safety and well-being of both blood stem cell donors and recipients are paramount in the transplantation process. Effective medical assessment is essential to identify any risk to the donor's health as well as the safety of the recipient. This process is particularly important given the complexities involved in matching and the potential risks associated with donation.

Aims & Objective: This study aims to evaluate the effectiveness of medical assessments conducted on unrelated blood stem cell donors before donation. The objective is to determine how well these assessments identify potential risks and ensure the safety of both donors and recipients.

Materials & Methods A comprehensive review of medical assessment at protocols for different potentially matched unrelated donors was performed. Data were collected on the types of medical evaluations conducted at the CT and WU. The study also involved a retrospective analysis of donor outcomes based on the thoroughness of the pre-

donation assessments, donor health outcomes, patient complications, and the quality of stem cell products.

Medical Assessments at Confirmatory Typing:

- Donor medical history assessment during counselling
- Reconfirming donor's HLA type via blood sample
- Testing basic infectious markers

Medical Assessments at Workup - PBSC Donation:

- Donor Physical Exam – Vein assessment, medical history evaluation, blood tests to assess donor health and infectious markers and diagnostic studies
- Day of donation – Repeat IDM tests

Results:

- **Total potentially Matched Donors – 1752**
- **Totally Medically Deferred Donors from the matched donors – 76**

1. *At Confirmatory Typing Stage – (67) 88%*
2. *At Workup Stage - Physical exam during vein assessment – (3) 4%*
3. *At Workup Stage - Health issues after physical exam based on lab results - (6) 8%*
4. *At Workup Stage - Positive infectious marker result after physical exam – (1) 1%*

Conclusion: The findings indicate that thorough medical assessments is crucial for donor and patient safety. Comprehensive evaluation protocols that include detailed medical history, physical exam, and laboratory tests are essential. Enhancing these assessment practices can improve donor safety by minimizing invasive procedures; preventing any adverse events during or post donation; boost donor trust and confidence; maintain the integrity of donor registries. This also has helped the transplant recipients in optimizing outcomes; reducing patient complications and avoid any unnecessary cost.

- *No discrepancies in HLA matching between donors and patients*
- *No incidents of donor health issue or adverse events during or post-donation.*
- *No patient complications or any concerns with the blood stem cell product quality*

Abstract ID:
A-290

Impact of Children Stress Level towards Quality of Life of Children with Acute Lymphoblastic Leukemia (ALL)

Dr Priscilla Diah Pratami, Department of Pediatric, Sayang General Hospital, Cianjur, Indonesia
Muhammad Rizki Ramadhan, Department of Pediatric, Sayang General Hospital, Cianjur, Indonesia

Category: Quality of Life / Survivorship

Abstract Content:

Background: Children with Acute Lymphoblastic Leukemia (ALL) prone to perceive stress. Stress for a long time leads to mental illness and impacts the quality of life. While survival rates of ALL have improved, the impact of the disease and its treatment on the quality of life (QoL) remains a significant concern. This study aims to identify the correlation between children stress level with the quality of life of children undergoing treatment for ALL.
Methods: We conducted a cross-sectional study involving children diagnosed with ALL at least a month prior to this study, aged 10-17 years, no sensory impairments or neurological deficits, and undergoing treatment at Sayang Hospital, Cianjur. Stress level in children were assessed by The Perceived Stress Scale (PSS) and the children QoL was assessed by pediatric quality of life inventory (PedsQL™) questionnaire. Chi-square was performed for the statistical analysis.
Results: Forty children with ALL were enrolled and showed 55% are female, 32% had already having treatment for more than a year, and 87.5% had support system. There is positive correlation between children stress level with the quality of life of children ($p > 0.05$).
Conclusions: Children stress level affects the quality of life of children undergoing treatment for Acute Lymphoblastic Leukemia (ALL).

Abstract ID:
A-291

Partially Replacing the Post Transplant Cyclophsophamide with Bendamustin in Haploidentical Stem Cell Transplantation – in Children - Tertiary Care Experience

Dr Ranjit Kumar C.S, Department of Department of Hematology and Stem Cell Transplantation, Sindhu Hospitals, India
Dr.Anil Aribandi, Department of hematology and Stem Cell Transplantation, Sindhu Hospitals, India
Dr Chaitanya G B, Department of hematology and Stem Cell Transplantation, Sindhu Hospitals, India

Category: Pediatric Transplantation

Abstract Content:

Aims:
Post-transplant cyclophsophamide (PT-CY) is the most widely applied graft-versus-host disease (GVHD) prophylaxis regimen in T cell replete haploidentical stem cell transplantation (haplo-SCT). Although PT-CY has met with great success in the haplo-SCT arena by suppressing GVHD, patient without acute GVHD have high relapse rates. Partially replacing the PT-CY with post transplant bendamustin has shown betted Graft versus leukemia effect in preclinical model. We have taken a different approach in evaluating whether partially replacing PT-CY with post-transplantation bendamustine (PT-BEN) would be advantageous in lowering the cardiac toxicity, hemorrhagic cystitis in pediatric haploidentical stem cell transplantation.
Methods:
This is the retrospective study conducted from a single tertiary cancer center in India over 2 years 4months (Jan 2022- April 2024). Patient data was retrieved and analyzed. 25 patients were analyzed all were children between 0-18yrs age. All patients received Myeloablative conditioning chemotherapy and peripheral blood stem cells (PBSC). GVHD prophylaxis with cyclophosphamide(50mg/kg) on Day +3 and Bendamustine(90mg/m2)on day +4. Immunosupression with a Calcineurin inhibitor form day -2 and Mycophenolate mofetil from Day+5 was used. Statistical analysis done using SPSS 2020.
Results:
Median age of the study children was 5yrs (Range: 3-21years) with 56% (n=14) females and 44%(n=11) males. Indications of haplo- SCT include

Thalassemia major 68% (n=17),Refractory AML 16%(n=4), Relapsed B ALL 4%(n=1),4% each Severe aplastic anemia (n=1),Neimanpick disease (n=1) and Juvenile myelomonocytic leukemia (JMML) (n=1). Donor specific antibodies (DSA) were present in 8% (n=2) of the study population and were desensitized before transplant. Transplant related mortality (TRM) was 12% (n=3)(2-Thalassemia major;1-Neimanpick disease-progressive Neurodegenration). Veno-occlusive disease (VOD) was 16% (n=4 all Thalassemia) mild disease, managed conservatively. Grade III GVHD seen in 1 patient and diet at day+112 post transplant. Cytokine release syndrome (CRS) was observed in 68% (n=17) all were grade I/II. Hemorrhagic cystitis was seen in 8% (n=2).One child had graft failure, the underlying diagnosis was JMML. Overall mortality was 16% (n=2 Thalassemia [gram negative sepsis]; n=1 Neimanpick disease [disease progression];n=1 Thalassemia major due to Gut GVHD at day+112).At the time of last follow up as on April 2024, 84% (n=21) children were alive. Day+30 chimerism was full donor chimerism in 88%. One graft failure was noted.

Conslusions:

PT-Benda is an alternative GVHD prophylaxis strategy with manageable CRS toxicity and side effect profile specially in this very high risk cohort. Its use show impressive gains reducing the rates of VOD and hemorrhagic cystitis with insignificant improvement in TRM and OS, in our study population. However this needs to be evaluated in large trails. In the literature this is probably largest data on PT-BEN GVHD protocol in pediatric age group.

Abstract ID:
A-293

Outcomes after Allogeneic Hematopoietic Stem Cell Transplantation In FLT3-ITD Mutated Acute Myeloid Leukemia Patients Treated with Gilteritinib

Dr Daehun Kwak, Department of Hematology, Seoul St.Mary's Hospital, South Korea
Byung-Sik Cho, Department of Hematology, Seoul St.Mary's Hospital, South Korea
Hee-Je Kim, Department of Hematology, Seoul St.Mary's Hospital, South Korea

Category: Acute Leukemia

Abstract Content:

FLT3-ITD-mutated acute myeloid leukemia (AML) is present in about one-third of adult AML patients and is known for its aggressive nature and resistance to treatment, leading to a poor prognosis. Recently, targeted therapies such as gilteritinib have been introduced. However, there is limited data comparing the outcomes of patients who received gilteritinib after failing initial induction therapy versus those who underwent conventional intensive salvage chemotherapy before undergoing allogeneic hematopoietic stem cell transplantation (allo-HSCT). In this background, we present our single-center experience.

We studied adult patients with FLT3-ITD-mutated AML, from 2007 to 2023, who did not achieve remission with first-line chemotherapy and subsequently underwent salvage therapy, followed by allo-HSCT . Patients were divided into two groups: those who received salvage therapy with gilteritinib and those who received conventional intensive chemotherapy (cytarabine ± anthracycline ± fludarabine or etoposide). We analyzed the differences in survival rates after HSCT between these two groups.

We included 115 patients in the study, with 40 receiving gilteritinib. Remission at the time of HSCT was achieved in 89.3% of the gilteritinib group compared to 80.0% in the conventional group. Pre-HSCT *FLT3*-ITD fragment negativity, as determined by capillary electrophoresis, was observed in 77.3% of the gilteritinib group and 55.0% of the conventional group. In survival outcomes, no significant differences in overall survival or relapse-free survival were found between the two groups (Figure A). In patients who achieved remission at HSCT, pre-HSCT FLT3-ITD fragment negativity emerged as a significant predictor of survival, particularly in

those who received conventional salvage therapy. Although this trend was also observed in the gilteritinib group, its statistical significance was less clear due to smaller sample size and shorter follow-up period (Figure B).

Overall, the post-HSCT survival outcomes for patients treated with gilteritinib were comparable to those who received conventional intensive salvage chemotherapy. The persistence of the *FLT3*-ITD clone before HSCT was a significant predictor of survival after HSCT, underscoring the importance of ongoing surveillance and maintenance therapy following transplantation.