Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
How We Did Bone Marrow Transplants amidst the COVID19 Pandemic

Kishore Kumar, MDMBBS,DM,¹ Durai Prabhu, MBBS,*,² Dharani Devi, MBBS,*,³ Dilshada Pulikkal, MBBS,*,³ Joshua Daniel, MBBS, MD,*,³ Chezhian Subash, FRCPath*,¹

¹MIOT INSTITUTE OF HAEMATOLOGY, CHENNAI, India
²MIOT INTERNATIONAL HOSPITAL, CHENNAI, India
³MIOT INTERNATIONAL HOSPITAL, Chennai, India

Blood (2020) 136 (Supplement 1) : 40.
http://doi.org/10.1182/blood-2020-138677

Introduction

COVID19 is the most heard name for the last six months, and the situation seems to worsen now. This pandemic has created significant stress on the healthcare system. Most of the resources are being diverted to COVID care, and care of non-COVID patients is compromised. As haematologists dealing with frail immune-compromised patients, challenges we are facing are staff attrition, near-empty blood banks, less intensive care beds, the chance of our patients getting infected with COVID during the hospital stay, fear of donors being asymptomatic COVID carriers to mention a few. In this situation, we have tried to formulate a practical approach for doing bone marrow transplants, which we have been following for the last few months at our centre.

Our Transplant Protocol

Initially we tried to postpone transplants. But as the COVID situation was becoming a chronic one, we formulated our ways to start transplants. Amidst lockdown, we successfully completed Autografts in myeloma and Lymphoma. We also started Allogeneic transplants including haplo-identical transplant for acute leukemia.

In this hour of need, we had to strike a balance in transplant management. We tried to be practical in our decision-making skills at this hour of need. Being students of science, it was time to show practicality in ordering tests, therapy, and transfusions to the patient. Due to lockdown and general panic, the stocks in Blood Banks were at an all-time low. So transfusions and donor arrangements were be dealt judiciously.
The hospital was divided into COVID and NON-COVID zones. All patients with fever and respiratory symptoms go directly to the COVID zone and get examined and tested by physicians with proper PPE as per WHO protocol. Even there are no symptoms of COVID like dry cough, fever, and throat pain, the patients entering NON-COVID also will be screened by a general physician at the single point of entry with proper protection and then patient with one attendee was allowed to come to transplant outpatient department. This helped us reduce risk to the medical professional and other patients waiting in a specialty department like ours.

We had a detailed discussion about the pros and cons with patient and attendee. We admitted them in a separate block and got tested for COVID19 RTPCR. The patient had HRCT thorax to check for early radiological signs of COVID19. The blood parameters which serve as prognostic markers for COVID were checked alongside to double confirm false negativity of tests. The donor was made to stay as attendee for the patient. We shifted them inside transplant unit and observed for a week to rule out COVID symptoms. Radiological investigations were done before starting procedure. Minimal physical interaction was established and in Myeloma and Lymphoma autograft, we did around 20% dose reduction of conditioning regimen drugs. For allograft, no drug dose modification was done. The threshold for antibiotic stewardship was kept very low and high end antibiotics like Colistin / Fosfomycin were initiated early. We collected single donor platelets and kept stocks ready to avoid exposure to multiple random donors. The blood bank also was very careful in selecting donors after a thorough screening for symptoms of COVID19. Once engrafted, they were discharged early and kept on follow-up mostly by tele-consultation. The personal visits were kept to a minimum of once in four weeks. From first lockdown to date of submission, we completed nine bone marrow transplants at our centre which included three AML haplo-identical transplants.

**Conclusion**

Postponing transplant is not feasible in all situations, as few of our refractory diseases will ultimately relapse and transplant becomes the only live saving procedure. As we wait for the situation to better, the normal functioning of hospitals may take some more time. These above are the methods we are following in our MIOT hospital at Chennai, India the city which has got around 100,000 COVID19 cases during submission. Our advice is where ever feasible, we should try to stick to time tested conventional protocols. The above protocols may be useful temporarily till the COVID crisis is over.

Reference Willian J. Care of hematology patients in a COVID#19 epidemic. British Journal of Hematology, 2020. Dholaria, Savani B.N. How do we plan hematopoietic cell transplant and cellular therapy with the looming COVID#19 threat? British Journal of Haematology, 2020.https://doi.org/10.1111/bjh.16597
Disclosures
No relevant conflicts of interest to declare.

Author notes
* Asterisk with author names denotes non-ASH members.