Research

Myeloma - A Beginner's Hope for Setting Up a New Transplant Centre in Tier-2 City in India

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Background

Most of the haemopoietic stem cell transplant (HSCT) centres are established in tier-1 cities (population of 1 million and above). Establishing a HSCT centre in a tier-2 city (0.5 to less than 1 million population) remains a challenge for a new transplant physician (immediately after qualifying a residency programme) who starts his clinical practice especially in a private sector hospital. In such a scenario, Myeloma remains the most common disorder to be taken up for a HSCT by a new transplant physician and a new HSCT team. Here we share our experience in establishing a new and the first HSCT in Tiruchirappalli (a tier-2 city in Tamil Nadu, South India). Myeloma was chosen as the first disorder to be transplanted here, bringing hope to the physician, new HSCT team as well as patients in this part of the country.

Methods

We have established a state of the art two-bedded HSCT unit at Kauvery Hospitals, Tiruchirappalli, South India. This unit was started after training nurses to manage cytopenic patients in a dedicated haematology unit offering services for both benign and malignant blood disorders across all ages. The HSCT unit has incorporated a HEPA filter (high efficiency particulate air filter) module which maintains positive pressure within the room and filters particles more than 0.3 micron thereby lowering the chances of invasive fungal infections. The unit also has a UV light cabin to disinfect objects coming into the HSCT unit and the patient's room. Humidity and temperature within the unit can be controlled by the engineering and maintenance department. Wash room, change rooms for staffs entering or leaving the unit, clean hatch and dirty hatch to take items into and out of patient's room are made available. Nurses trained in managing cytopenic patients in the haematology unit take care of transplant patients, in three shifts per

day. They are provided with a mobile to contact the transplant physician and other departments of the hospital round the clock.

Patients with myeloma were managed with standard regimens. First line regimen was VRD (Bortezomib, Lenalidomide, Dexamethasone), CyBorD (Cyclophosphamide, Bortezomib, Dexamethasone) or Thalidomide and Dexamethasone. Second-line regimens (VDT PACE or KPD) were used if the first-line regimen (minimum 4 cycles) failed to show at least a partial response as per IMWG criteria.

Patients with at least a partial response and up to 65 years, in good physical status, were counselled for an autologous stem cell transplantation. Stem cell mobilization was done with G-CSF and Plerixafor. Peripheral blood stem cell harvest was done using haemonetics MCS+ or Spectra optia apheresis systems through a Jugular venous HD catheter. Conditioning regimen used was Melphalan (200 mg/sq.m if normal renal function, 140 mg/sq.m if renal failure). Supportive care (antibiotics, mucositis care, irradiated blood products) was given until engraftment and recovery of mucositis or defervescence.

Results

At Trichy Kauvery hospitals we have started bone marrow transplant services since July 2020. Amongst transplant eligible patients especially during Covid-19 pandemic, 10 patients (6 males, 4 females) have undergone autologous BMT procedure over last 2 years. Median age was 51.7 years (range 25–61 years). Bone lesions were present in all 10, anemia was present in 9/10, renal failure in 4/10 and one had hypercalcemia at diagnosis. Two had diabetes mellitus, 3 had hypertension and 3 had peripheral neuropathy. Very good partial response was achieved in 5, complete response in 4 and one had only a partial response. Mean CD34 cell dose infused was 7.84 x 10^6/kg (ranged from 4.54 x 10^6/kg to 14.18 x 10^6/kg). Nine patients engrafted neutrophils and platelets successfully (90%). Two patients grew microbes in blood culture (*Pseudomonas aeruginosa* and *Acinetobacter baumanii*). One patient expired on day +18 before engraftment in view of *Acinetobacter sepsis*.

Two amongst above 10 patients also underwent a tandem transplant in view of complete refractoriness to first line therapy or presence of 17p deletion, at another centre subsequently.

Conclusion

The mission of the IMWG is to conduct collaborative basic, clinical, and translational research to improve outcomes for myeloma patients while providing scientifically validated, critically appraised consensus guidelines for the myeloma community globally.

Genomic landscape and therapeutic availability have seriously impacted the survival of myeloma patients. Myeloma still remains the most common disorder that a haematologist starting transplantation services at a new centre begins management with. It brings hope for

both the patient as well as the new stem cell transplantation team.

References

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