OPEN ACCESS Freely available online

ISSN: 2157-7633
Journal of
Stem Cell Research
& Therapy

Commentary

Infections After Bone Marrow Transplantation

Luminito Lambrascu*

Department of Pediatric Bone Marrow Transplantation, Fundeni Hospital, Bucharest, Romania

DESCRIPTION

Granulocytopenia, weakening of barrier defences, and impairment of Cell Mediated Immunity (CMI) and humoral immunity are all risks associated with Bone Marrow Transplantation (BMT). This deficiency causes immunocompromisation, making it easier for bacteria to cause infection. Patients undergoing BMT have their host defences suppressed in stages, allowing for diverse infectious processes at various stages of the transplantation.

The terms bone marrow transplantation and peripheral blood stem cell transplantation are now interchangeably referred to as BMT. The process entails extracting hematopoietic stem cells from a donor and infusing them into a recipient who has had chemotherapy, either with or without irradiation, and has had the cells in his or her bone marrow destroyed. Harvested peripheral blood cells must be treated with hematopoietic colony-stimulating agents before being infused into the recipient. Peripheral blood is becoming the standard method of extracting stem cells since it is considerably easier to obtain than bone marrow.

Patients with hematologic malignancies (e.g., leukaemia, lymphoma, multiple myeloma), solid tumours (e.g., sarcomas, neuroblastoma, breast cancer, testicular cancer), and nonmalignant diseases are currently treated with BMT (eg, aplastic anemia, autoimmune disorders, myelodysplastic syndrome, immunodeficiency syndromes, congenital disorders of metabolism). BMT is currently conventional therapy for some of these illnesses, while it is utilised as a last resort when standard therapy fails.

BMTs are classified as either autologous or allogeneic, based on the source of the hematopoietic stem cells.

In allogeneic transplants, stem cells are taken from a donor other than the BMT recipient. Patients with severe aplastic anaemia, Chronic Myelogenous Leukaemia (CML), and Acute Myelogenous Leukaemia get allogeneic transplants (AML). Donors for these transplants might be related or unrelated; nevertheless, transplants from a Human Leukocyte Antigen (HLA) matched sibling are linked to a lower risk of Graft Versus Host Disease (GVHD) and a faster immune system recovery in the recipient.

T lymphocytes, which are the main effectors of GVHD, may be depleted in the donor graft; however, higher rates of graft rejection, Cytomegalovirus (CMV) infection, invasive fungal infection, and Epstein Barr Virus (EBV) associated posttransplantation lymphoproliferative disease have been observed with these new techniques.

Stem cells from the recipient are collected for autologous transplantation. Syngeneic transplants use stem cells from an identical twin with the same HLA. Autologous transplants are performed on patients who have healthy, disease free bone marrow. The most common cancers treated with these transplants are Hodgkin lymphoma, non Hodgkin lymphoma, and breast cancer. Patients who receive autologous transplants regain their immune systems more quickly than those who receive allogeneic transplants. Patients undergoing autologous or syngeneic transplantation do not develop GVHD.

CONCLUSION

Placental or umbilical cord blood collected shortly after delivery has been utilized to harvest stem cells for transplantation, mainly in allogeneic pediatric transplants. The ethical question of whether parents should develop their own stem cell donor in order to treat another of their children is now being debated. Although outcomes after allogeneic BMT have improved significantly since the 1990s, possibly due to a reduction in the intensity of conditioning regimens, infection continues to be a significant source of morbidity and is the leading cause of nonrecurrence related mortality, with a 30 year cumulative incidence of 10.7%.

Correspondence to: Luminito Lambrascu, Department of Pediatric Bone Marrow Transplantation, Fundeni Hospital, Bucharest, Romania, E-mail: lambrascu_luminito@gmail.com

Received: 29-Apr-2022, Manuscript No. JSCRT-22-16823; **Editor Assigned:** 03-May-2022, PreQC No. JSCRT-22-16823 (PQ); **Reviewed:** 17-May-2022, QC No. JSCRT-22-16823; **Revised:** 26-May-2022, Manuscript No. JSCRT-22-16823 (R); **Published:** 02-Jun-2022, DOI: 10.35248/2157-7633.22.12.534

Citation: Lambrascu L (2022) Infections After Bone Marrow Transplantation. J Stem Cell Res Ther. 12:534.