



Stem Cell Transplantation: An Overview of the Procedure, Benefits, and Risks

Lina Elsalem*

Department of Clinical Pharmacy, University of South Australia, South Australia, Australia

*Corresponding author: Elias Teklie, Department of Clinical Pharmacy, Jordan University of Science and Technology, Irbid, Jordan; E-mail: elsalem56@gmail.com

Received date: 17 February, 2023, Manuscript No. AT-23-96350;

Editor assigned date: 20 February, 2023, PreQC No. AT-23-96350 (PQ);

Reviewed date: 06 March, 2023, QC No. AT-23-96350;

Revised date: 13 March, 2023, Manuscript No. AT-23-96350 (R);

Published date: 20 March, 2023, DOI: 10.4172/AT.1000132

Description

Stem cell transplantation, also known as bone marrow transplantation, is a medical procedure that involves the replacement of damaged or diseased stem cells with healthy ones. Stem cells are the building blocks of the body, and they have the unique ability to develop into different types of cells, such as red blood cells, white blood cells, and platelets.

The transplantation process involves the use of high doses of chemotherapy and/or radiation therapy to kill the cancer cells or diseased cells. This process also destroys the healthy stem cells in the bone marrow, which is where the body produces new blood cells. To replace these cells, healthy stem cells are transplanted into the patient's body.

Types of stem cell transplantation

There are two types of stem cell transplantation: autologous and allogeneic.

Autologous transplantation involves the use of a patient's own stem cells. These cells are harvested before the high-dose chemotherapy or radiation therapy and are frozen until they are needed. After the patient has undergone the chemotherapy or radiation therapy, the healthy stem cells are transplanted back into their body.

Allogeneic transplantation involves the use of stem cells from a donor. The donor may be a family member or an unrelated person who is a close genetic match. In some cases, the donor may be a cord blood bank.

Benefits of stem cell transplantation

Stem cell transplantation can be used to treat a variety of diseases, including leukemia, lymphoma, multiple myeloma, and other blood disorders. It can also be used to treat some non-cancerous conditions, such as sickle cell anemia and autoimmune disorders.

One of the benefits of stem cell transplantation is that it can provide a cure for some diseases. For example, some patients with leukemia who receive a stem cell transplant go into remission and remain disease-free for many years.

Stem cell transplantation can also help to restore the patient's immune system. After the high-dose chemotherapy or radiation therapy, the patient's immune system is weakened, and they are at risk of developing infections. The transplanted stem cells can help to rebuild the patient's immune system and reduce the risk of infection.

Risks of stem cell transplantation

Stem cell transplantation is a complex and potentially risky procedure. Some of the risks associated with the procedure include:

Graft-Versus-Host Disease (GVHD): This is a condition in which the transplanted stem cells attack the patient's own tissues. GVHD can cause a variety of symptoms, including skin rash, diarrhea, and liver damage.

Infection: Patients who undergo stem cell transplantation are at risk of developing infections. This is because the high-dose chemotherapy and/or radiation therapy destroys the patient's immune system, making them more susceptible to infection.

Bleeding: Patients who undergo stem cell transplantation may experience bleeding due to the destruction of their blood cells during the high-dose chemotherapy and/or radiation therapy.

Other complications: Other complications of stem cell transplantation may include organ damage, infertility, and the development of new cancers.

Conclusion

Stem cell transplantation is a complex and potentially risky procedure, but it can provide a cure for some diseases and help to restore the patient's immune system. Patients who are considering stem cell transplantation should discuss the risks and benefits of the procedure with their healthcare provider. It is important to carefully weigh the risks and benefits before undergoing stem cell transplantation.

Citation: Elsalem L (2023) Stem Cell Transplantation: An Overview of the Procedure, Benefits, and Risks. Arch Transplant 7:1.