



Short Note on Bone Marrow Transplantation

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DESCRIPTION

Bone marrow transplantation (BMT) is a special treatment for patients with certain types of cancer and other illness. In a bone marrow transplant, cells (stem cells) normally found in the bone marrow are collected, filtered, and returned to the donor or someone else. The goal of Bone marrow transplantation is to transfuse healthy bone marrow cells into a person after their diseased bone marrow has been treated to kill the abnormal cells. Bone marrow transplants have been used since 1968 to treat diseases such as leukaemia, lymphoma, aplastic anaemia, immunodeficiency, and some solid cancers. Bone marrow transplantation is a treatment that replaces the bone marrow with healthy cells. Substituted cells can come from your own body or donor. Bone marrow transplantation is also known as stem cell transplantation, more specifically hematopoietic stem cell transplantation. Transplantation can be used to treat certain cancers such as leukaemia, myeloma, and lymphoma, as well as other blood and immune system disorders that affect the bone marrow. Stem cells are special cells that can dedifferentiate and increase their number. These stem cells transform into the different types of cells in the body. There are different types of stem cells, which can be found in different parts of the body at different times. Cancer and cancer treatment can damage hematopoietic stem cells. Hematopoietic stem cells are stem cells that replace blood cells. Bone marrow is a soft, spongy tissue in the body that contains hematopoietic stem cells. It is in the centre of most bones. Hematopoietic stem cells are also found in the blood that travels through the body. When hematopoietic stem cells are damaged, they may not develop into red blood cells, white blood cells, or platelets.

Stem cells used for auto transplantation produce in their own body. Sometimes cancer is treated with intensive chemotherapy or radiation therapy treatment. Treatment of this type may damage their stem cells and their immune systems. Therefore, after cancer treatment starts removal of stem cells from blood or bone marrow has to be done. After chemotherapy, stem cells are returned to your

body, producing your immune system and blood cells to restore your body's ability to fight infections. This process is also known as autologous transplantation or stem cell rescue. Allogeneic transplanted stem cells come from another person, called a donor. Donor stem cells are given to the patient after chemotherapy and/or radiation therapy, this is also known as an Allo transplant. Many people experience a "graft-versus-cancer cell effect" during Allo transplantation. At this point, the new stem cells recognize and destroy the cancer cells that are still in the body. Thus, Allo transplants work primarily to treat cancer. For allogeneic transplants, the appropriate donor (matching tissue type) must be available. Finding a matching donor can be a difficult and time-consuming process, especially if no matching siblings are available. Bone marrow volunteers are registered in several national and international registries. Bone marrow search registries for donors contains, whose blood is most similar or matching to the person in need of a transplant. Recovery from bone marrow/stem cell transplants takes a long time. Recovery is often gradual and begins with intensive post-transplant medical oversight. As long-term recovery progresses, that person will eventually move to a regular health check-up schedule over the coming months and years. It is important to be aware of signs of infection during the initial recovery period. Intensive chemotherapy received before the transplant also damages the immune system. This allows the body to accept the transplant without damaging the stem cells. After a transplant, it takes time for the immune system to function again. This means that person is more likely to get infected immediately after the transplant. Antibiotics and other medicines are given to reduce the risk of infection. Immediately after transplantation, follow medical team recommendations to prevent infection. Even with the utmost care, it is common to develop an infection after a bone marrow transplant. Your doctor will carefully monitor for signs of infection. Perform regular blood tests and other tests to see how your body and immune system respond to donor cells. You can also get a blood transfusion through a catheter.

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