



Breaking Boundaries: Advancements in Stem Cell Therapy for Lymphoma

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Stem cell transplantation (SCT) has broken significant boundaries, marking a pivotal advancement in oncology. Healthcare professionals use stem cell transplantation methods to treat blood disorders or various kinds of cancer or autoimmune diseases. SCT may be used if other treatments aren't effective or if blood cancer comes back (recurs). Lymphoma is a type of cancer that affects the immune system. It refers to a collection of cancers originating from lymphocytes, a type of white blood cell found in the lymphatic system. The lymphatic system is a network of body germs and a disease-fighting immune system. Hematopoietic stem cells are found in bone marrow. They are immature cells that are capable of dividing and producing more blood-forming stem cells or mature blood cells that circulate in the bloodstream.

Patients undergoing stem cell transplants go through intensive chemotherapy before treatment. For individuals with lymphoma, a combination of radiation and chemotherapy frequently eradicates the cancerous white blood cells within the body. Regrettably, these treatments also eliminate some healthy cells, including the patient's stem cells.

High-dose chemotherapy can effectively eliminate cancer cells, but it is not generally administered alone, because the body requires a sufficient number of stem cells to regenerate blood. Healthcare professionals will evaluate whether a person will manage stem cell transplantation side effects or not. There are two primary types of SCT: autologous (uses the patient's stem cells, which lower the risk of graft-versus-host-disease) and allogeneic (the donor is genetically similar to the patient but with a higher risk of graft-versus-host-disease).

When donated cells successfully engraft in the patient, they become part of the patient's immune system and target the remaining cancerous cells. It is one of the benefits of allogeneic stem cell transplantation. This condition is known as the graft-versus-lymphoma effect (GVLE). However, in certain instances, the donor's stem cells may erroneously attack the patient's healthy cells and tissues, resulting in graft-versus-host disease (GVHD).

Ongoing research focuses on strategies to mitigate GVHD while preserving its beneficial graft versus tumor effects by enhancing the new conditioning regimens and transplant protocols. SCT represents a transformative leap forward in lymphoma treatment and offers new avenues of hope for patients facing a challenging diagnosis. As medical technology and research continue to advance, SCT in lymphoma treatment remains promising, with enhancing efficacy, minimizing complications, and improving quality of life.