HAPLOIDENTICAL DONOR TRANSPLANT FOR SEVERE APLASTIC ANEMIA

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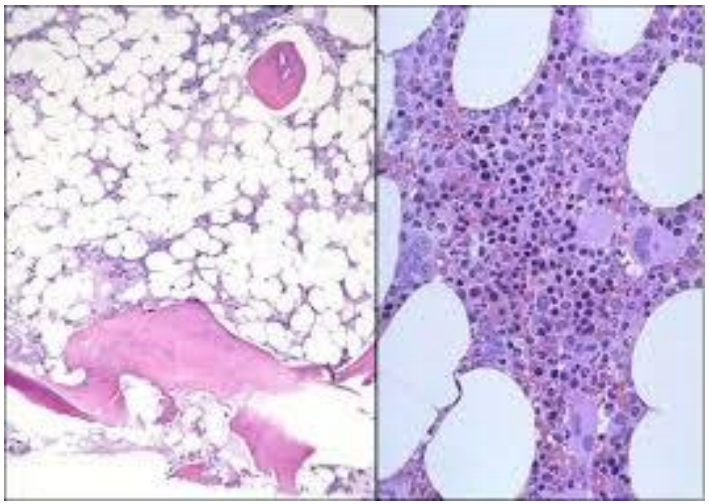
SUMMARY

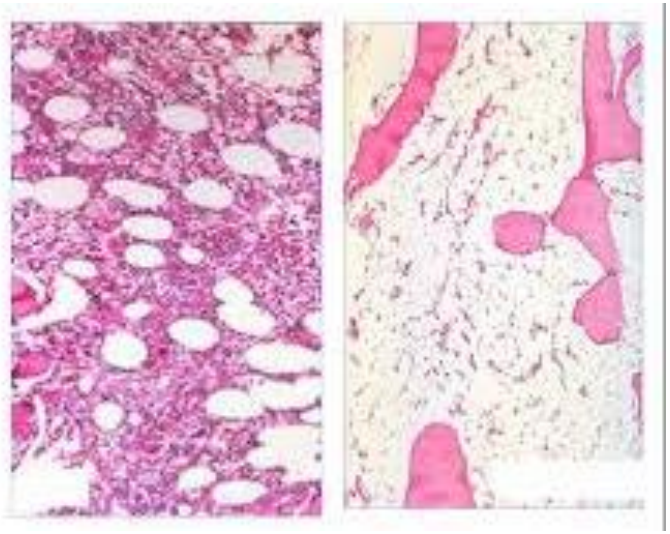
Hematopoietic stem cell (bone marrow) transplantation is the only curative treatment for severer aplastic anemia Haploidentical donor transplant for severe aplastic anemia. Haploidentical stem cell transplant is the treatment for patients with blood related cancers and certain blood disorders. Stem cell transplantation involves replacing a patient's unhealthy blood-forming cell with healthy ones. Severe aplastic anemia is a blood cell disorder disease in which the bone marrow does not make enough new blood cells. Bone marrow transplantation from a human leukocyte antigen –matched sibling donor is the standard of care for patients, immunosuppressive therapy is used for older patients or those lacking matched sibling donors. Patience with refractory or relapsed disease are increasingly treated with human leukocyte antigen haploidentical bone marrow transplantation. Aplastic anemia can range from mild to severe cases, transplantation is used for severe cases. Historically, haplodientical bone marrow transplantation led to high rates of graft rejection and graft versus-host disease. High –dose post transplant cyclophosphamide, which mitigates or reduce the risk of graft versus host disease, is a major advance.

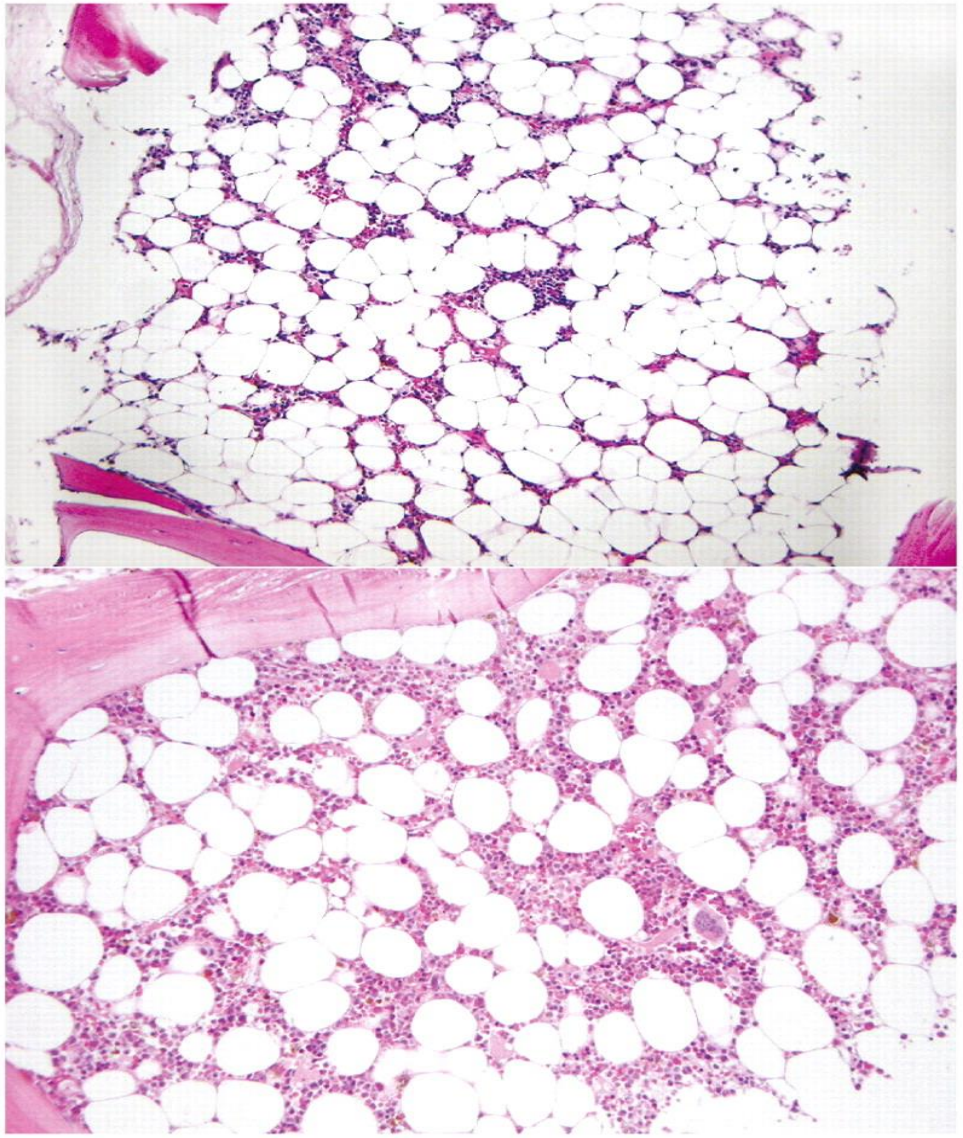
INTRODUCTION

Haploidentical stem cell transplantation is a treatment for patients with blood related cancers and certain blood disorders, stem cell transplantation involves replacing a patient's unhealthy blood-forming cells with healthy ones. Severe aplastic anemia is a rare multi-linage bone marrow failure and life threatening disorder. Patients are first treated with chemotherapy and sometimes radiation therapy to wipe out the or diminish the bone marrow haploidentical donor transplant for severe anemia is the only curative treatment of severe aplastic. Tissue type is determined by human leukocyte Antigen (HLA), proteins on the surface of the body's cells. They inform the immune system whether the cells are to be left alone, are foreign or disease and should be eliminated. To reduce the risk that the transplant will result in an attack on normal, healthy tissue doctors seek donors whose human leukocyte antigen (HLA) type is as close as possible to the recipient's hematopoietic stem cell (HSCT) from a human leukocyte antigen (HLA) matched sibling donor has become the first line and gold standard initial treatment option for patients in other to minimize the chance of rejection and other complications. When a matched sibling donor is unavailable, intensive immune suppressive therapy with horse anti-thymocyte globulin and cyclosporine is indicated. However intensive immune-suppressive therapy (IST) has a high failure rate due to lack of response relapse and clonal evolution, treating patients with severe aplastic anaemia (SAA) who lack suitable matched sibling donor (MSD) or matched unrelated donor is challenging, particular those with heavy transfusion and refractory or relapse of immunosuppressive therapy. Transplant is the only potential care for severe aplastic anemia.

An alleogenic transplant is used for severe aplastic anemia. This type of transplant uses healthy blood forming cells donated by someone else, either from a family member, unrelated donor or umbilical cord blood. First you get chemotherapy with or without radiation to kill the unhealthy marrow, then the healthy cells are given to the patient through an intravenous catheter. The new cells travel to the inside of the patients bones and begin to make healthy blood cells. The entire transplant process from when the patient starts of chemotherapy or radiation until hospital discharge can last for weeks to months.







CRITERIA FOR TRANSPLANTATION

Bone marrow cellularity less than 25%

Neutrophil count less than 0.5x $10^9/_L$

Reticulocyte count less than 1% or less than $20X10^9/_L$ (corrected for hematocrit)

Untranfused platetel count less than $20X10^9/_L$

TESTS FOR DONORS

Donors will have blood and tissue tests, then injections to boost stem cells for 5 to 7 days.

They will have blood collected from a tube in an arm or leg vein, a machine will separate stem cells and maybe white blood cell. While the rest of the blood will be returned into the other arm or leg.

RISK FACTORS

Although transplant can cure some diseases and treat others it has risks. No two people are exactly the same, a patient may respond differently to a transplant and someone else. These risks involve:

The risk for complications: Is highest during the first 100days after a transplant. This is because your immune system is new and needs time to grow stronger. Though there can still be risks during your recovery months and years after transplant.

Some common risk like temporary hair loss and infections

Body rejecting the new cell and possible death.

BENEFITS

It is the only curative approach to the treatment of severe aplastic anemia

It restores the function of the bone marrow.

It is used to replace the bone marrow that has been destroyed/ surpressed by severe aplastic anemia.

Reduce the risks of transplant complication from unmatched donor

It saves the life of the patient

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