

Therapeutic Apheresis

About Blood

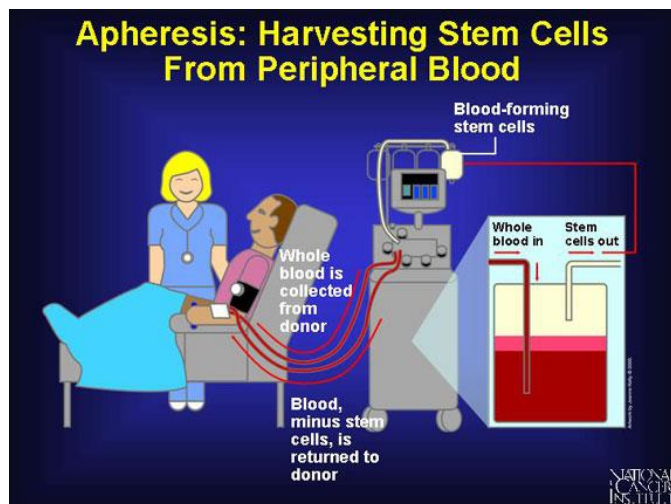
Blood has 4 main components – white blood cells (WBCs), red blood cells (RBCs), platelets, and plasma. Blood cells are made in the bone marrow. Therapeutic apheresis is a procedure that removes certain blood components to be used for treatment or stored for later use.

Mature blood cells have a certain life span so they must be continuously replaced. In your bone marrow, there are immature cells that will mature into WBCs, RBCs, or platelets. These immature cells are called stem cells (Peripheral Blood Stem Cells/PBSCs) or progenitor cells (Hematopoietic Progenitor Cells /HPCs). Only a small number of stem cells are released into your bloodstream – most of them stay in your bone marrow.

Blood Stem Cell Collection

To help prepare for the collection, we give a medication called G-CSF (growth colony stimulating factor). G-CSF does two things: it causes the bone marrow to make more stem cells and to release them into the blood.

- If you are having an autologous transplant, your stem cells are collected before the transplant and given back to you after you have high dose chemotherapy. The afternoon before each collection, you may be given a medication called Mozobil®, in addition to the G-CSF. Mozobil helps move stem cells out of the bone marrow and into the blood.
- If you are having an allogeneic transplant, the stem cells are collected from a healthy donor who has been tested and determined to be a 'match' to your tissue type.



To collect the stem cells, you will need either 2 separate IVs - one in each arm - or a central venous catheter that has 2 ports. Your IVs or ports will be attached to the 2 tubes of the apheresis machine so that one brings blood to the machine and the other returns the blood to your body. The apheresis machine collects stem cells and returns the other blood components to you.

The procedure takes about 3-4 hours and is usually repeated for 2-5 days until enough stem cells have been collected.

What you can do

To prepare for collection, eat a healthy diet and stay well hydrated. On collection days, wear comfortable clothes, such as a jogging suit. A family member or friend may stay with you during collection. The apheresis clinic has a TV for each patient. You can also bring a book, laptop, or some other quiet activity to do during the procedure.

Side effects

The anticoagulant that is used to keep your blood from forming clots in the tubing and apheresis machine may cause a mild numbness or tingling sensation. The sensation is harmless, not painful, and can be easily controlled by your apheresis nurse. Other possible side effects include:

- dizziness
- numbness in fingers and lips
- shortness of breath
- a decrease in blood pressure
- bleeding
- muscle cramping
- infection
- blood loss (minimal)
- hematoma where the IV entered your skin (a hematoma is a swelling due to a local buildup of blood under the skin)

We will watch you closely and monitor you for any side effects during the procedure. If you still have any of these symptoms after the procedure, call your doctor.

Therapeutic Leukapheresis (White Blood Cell Reduction)

This procedure removes extra immature white blood cells (WBCs) from your bloodstream. White blood cells are made in the bone marrow and are important to fight infections. In certain conditions, such as newly diagnosed leukemia, too many immature white blood cells are produced and they “crowd out” the normal cells of the blood. Therefore, it is often necessary to remove these excess immature cells.

To collect excess WBCs, you will need either 2 separate IVs - one in each arm - or a central venous catheter that has 2 ports. Your IVs or ports will be attached to the 2 tubes of the apheresis machine so that one brings blood to the machine and the other returns the blood to you. The apheresis machine collects the WBCs and returns the other blood components to you.

The procedure takes 2-4 hours and is usually done just once, but it may be repeated if needed.

Therapeutic Plasma Exchange

The therapeutic plasma exchange procedure is used to remove plasma that may be abnormal.

For the exchange, you will need 2 IVs - one in each arm - or a central venous catheter that has 2 ports. Your IVs or catheter ports will be attached to the apheresis machine so that blood is drawn into the machine. The apheresis machine collects only the abnormal plasma and replaces it with donor plasma, or albumin. Your blood, containing the new plasma, is returned to you. The procedure usually takes between 2-5 hours and may be repeated as needed.

You may have a reaction to the new plasma such as chills, fever, and/or rash. If you have a reaction, your doctor may order a medication to relieve the symptoms. You will be monitored closely for any reactions or side effects.

Side Effects

Possible side effects include:

- dizziness
- numbness in fingers and lips
- chills
- shortness of breath
- bleeding
- infection
- a drop in blood pressure

We will watch you closely and monitor you for any side effects during the procedure. If you still have any of these symptoms after the procedure, call your doctor.

Photopheresis (UV Treatment of Leukocytes)

Photopheresis is used to treat a variety of immune system disorders such as cutaneous T cell lymphoma (CTCL), and graft-versus-host-disease (GVHD). The procedure takes 1 - 3 hours. Photopheresis treatments for CTCL are usually scheduled for 2 days in a row, every 4 weeks. For GVHD, treatments are repeated once or twice every week. Photopheresis treatments can continue for as long as they benefit you.

This procedure involves collecting a small amount of leukocytes, a type of WBC, from your blood, adding medication to them, and then exposing them to ultraviolet A light (UVA). After the cells have been treated, they are reinfused back into your bloodstream.

The procedure requires a single IV in your arm, or a central venous catheter. A small amount of white blood cells are collected using the apheresis machine. A medication called methoxsalen/Uvadex® is

added to the collected cells and the sample is exposed to Ultraviolet A (UVA) light. The UVA light activates the Uvadex and your cells are treated.

The treated cells are returned to you (re-infused) through your central venous catheter or through an intravenous (IV) line in your arm.

After the procedure, you may be sensitive to sunlight, so take proper precautions.

- Avoid being in the sun for more than a few minutes for 24 hours after each treatment.
- When outside, wear sunglasses, sunscreen, and clothing that covers as much of your body as possible.

Additional Instructions

Questions to Ask Your Doctor or Nurse
