Collecting Blood Stem Cells for Autologous Transplant

You have been diagnosed with a blood cancer that can be treated with an autologous stem cell transplant (a type of transplant where your previously collected cells are put back into your system, similar to a blood transfusion). Prior to this type of transplant, your doctor will perform a pre-transplant evaluation. You will then be given a drug to "mobilize" your blood forming stem cells from your bone marrow to your bloodstream. These stem cells are then collected by a process called apheresis. The stem cells are then processed in a laboratory, frozen, and stored until needed for transplant. Prior to transplant you will receive chemotherapy to kill your cancer cells. Once the chemotherapy drugs have cleared from your system, your frozen stem cells will be thawed and given back to you.

Stem Cells

Stem cells for your blood are found in the marrow space of your bones. Most people have millions of blood making stem cells. Stem cells are 'parent' cells that produce red blood cells, white blood cells, and platelets. When these cells mature, they leave the bone marrow space and enter the blood. Stem cells mostly stay inside the bone marrow. They can be moved from the bone marrow (called stem cell mobilization). with a medicine called growth factor, and sometimes, by giving chemotherapy Once the stem cells are in the blood, some of them can be collected and used for a blood stem cell transplant.

Stem Cell Mobilization

Before your collection, your doctor will pick one of two plans for you to mobilize your stem cells.

- Chemotherapy plus white blood cell growth factor.
- White cell growth factor alone.

Chemotherapy

Chemotherapy, using the drug cyclophosphamide or other combination of chemotherapy drugs, makes your bone marrow more ready to move stem cells into the blood. It will also treat your cancer. About 7-8 days after the chemotherapy drug is given, your white blood cell count will be very low. The goal is that your body will move stem cells into your blood as your white cell count recovers. A nurse will place an IV in your hand or arm. You will receive lots of fluids through your vein before and after the cyclophosphamide. There are special orders for you to follow.

- Drink 12 cups of fluid on the day of treatment and for the next 2 days.
- Call your doctor right away if you have blood in your urine or painful urination.
- Call if you have nausea and vomiting that will not stop.

Growth Factor

White cell growth factor (filgrastim or G-CSF or the generic forms of it) helps new white cells grow and develop quickly. This can cause stem cells to be moved into the blood. Growth factor is given as an injection just beneath the skin twice per day, for 4-5 days. Most people can give it to themselves after they are taught how to do it. If you receive chemotherapy, it may take up to 12 days of injections to get a high enough white blood cell count to start the

stem cell collection. You will be given a schedule for when to have blood work drawn. Your lab work will be checked, and you will receive a call to let you know when your stem cells are ready to be collected.

Apheresis
An apheresis machine separates stem cells from the other blood parts. Two arm veins or a catheter are used. One vein is needed to draw blood into the machine to separate out cells. A second vein is needed to return the rest of the blood back to you from the machine. The stem cells are collected into a bag. If veins cannot be used for some reason, a central catheter will be inserted, most often in the neck or groin.

An anti-clotting drug is needed during the collection. This drug may cause tingling in the fingers, toes, and lips. Some people also have body chills. You should tell the nurse or doctor if you are having any of these symptoms. These symptoms go away within 30 minutes after the collection.

On the day of stem cell collection, you will have blood drawn for a white blood cell count and a stem cell count. If your stem cell count is high enough, we will begin to collect stem cells the same day. If your stem cell count is low, you may be given another drug to help to mobilize your stem cells mor efficiently.

You will be connected to the apheresis machine for 2 – 4 hours. If we are not able to collect enough stem cells, you will be asked to return for another session until we are able to collect enough cells. Most patients have enough cells after one or two sessions. Most patients lie in a bed and sometimes sleep or watch TV during the collection process. Apheresis is done on an outpatient basis. A nurse or a doctor will be present throughout the process. Vital signs will be checked often. Some side effects from apheresis can be: fatigue, weakness or dizziness, sore arms, and nausea. It is best to have someone drive you home.

After each day, the collected bag of stem cells is removed from the apheresis machine and taken to the Stem Cell Lab. The stem cells will be counted and frozen until they are needed for transplant.

Who to Call
UW Cancer Clinic Triage
Monday – Friday, 8:00 am – 5:00 pm
(608) 265-1700
Toll Free: 1-800-323-8942 (ask for 5-1700).

After hours and weekends, this number will be answered by the paging operator. Ask to speak with the BMT doctor on call. Leave your name and phone number with the area code. The doctor will call you back.

If you are a patient receiving care at UnityPoint – Meriter, Swedish American or a health system outside of UW Health, please use the phone numbers provided in your discharge instructions for any questions or concerns.