

## Collecting Blood Stem Cells or Lymphocytes from a Donor for Transplant

Apheresis is a process that uses a machine to separate out certain types of cells from your blood. These cells can then be used to treat patients with certain types of blood cancer.

### Stem Cells

Bone marrow is a liquid that contains stem cells. Most healthy people have millions of 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 to your blood with a medicine called growth factor. Once the stem cells are in the blood, some can be collected and used for a blood stem cell transplant.

### Lymphocytes

Lymphocytes are a type of white blood cell found in blood. Lymphocytes can be collected by apheresis and used to treat a patient who previously had a stem cell transplant. This type of treatment is called a donor lymphocyte infusion. Before collection, you will have blood drawn to be sure there are plenty of lymphocytes in your blood. Your lymphocyte count may decrease for a short time, but this will not harm you.

### Growth Factor

White cell growth factor (filgrastim or G-CSF) makes the bone marrow produce new stem cells quickly and release them to the blood (also called “mobilization”). Growth factor is given as an injection just beneath the skin once or twice per day. Most people give it to themselves after they are taught how to do it.

Healthy donors for a relative or NMDP/Be The Match<sup>®</sup> will receive filgrastim. They will inject it for 4-5 days. Prior to the scheduled collection, a tube of blood will be drawn and tested. It is to see if your white blood cell count is high enough for collection.

Growth factor is not needed for lymphocyte collection since a large number of these cells are found in your blood.

### Apheresis

Apheresis is the process of removing blood from a person, separating out what is needed and return the rest of the blood back into the person. An apheresis machine separates stem cells, or lymphocytes, from the other blood parts. The stem cells or lymphocytes are collected into a bag. 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. If veins cannot be used for some reason, a central catheter will be inserted, most often in the neck or groin.

An anticoagulant, or blood thinning medicine, is needed during the collection. This drug may cause tingling in the fingers, toes, and lips. Some people also have body chills. You will be given medicine before the collection to help prevent some of these symptoms. You should tell the nurse or doctor if you are having any of these symptoms during the collection. These symptoms go away within 30 minutes after collection.

You will be connected to the apheresis machine for 3 to 4 hours. It may take 1 to 2 days in a row to collect enough stem cells to be used for a stem cell transplant.

Lymphocyte donors most often finish collection in one day. 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, dizziness, light headedness, sore arms/bruising at needle site, and nausea. It is best to have someone drive you home.

### **When Cells are Collected**

After each day, the collected bag of stem cells or lymphocytes is removed from the apheresis machine and taken to the Stem Cell Lab. The cells will be counted and either infused into the recipient same day it was collected or frozen until they are needed for transplant. Any unused cells will be stored for at least 10 years.

### **Who to Call**

Cancer Clinic Triage

Monday – Friday, 8 am – 5 pm

**608-265-1700 or 1-800-323-8942**

An answering service covers this line after hours and weekends/holidays. Ask to speak with the Stem Cell Transplant and Cellular Therapy doctor on call. Leave your name and phone number (including area code). The doctor will call you back.

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person's health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 4/2024. University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Department of Nursing. HF#8145.