



PATIENT & CAREGIVER EDUCATION

Autologous Peripheral Blood Stem Cell Harvesting

This information explains autologous peripheral (aw-TAH-luh-gus peh-RIH-feh-rul) blood stem cell harvesting at Memorial Sloan Kettering (MSK).

About Autologous Peripheral Blood Stem Cell Harvesting

Peripheral blood stem cell harvesting is a procedure to harvest (collect) some of the stem cells in your blood. Stem cells are immature cells that make all of the blood cells in your body—the white blood cells that fight infection, red blood cells that carry oxygen, and platelets that stop you from bleeding. Autologous means your own stem cells will be harvested, stored, and given back to you later. Peripheral blood is the blood that circulates in your blood vessels.

After your stem cells are harvested, you will get a very high dose of chemotherapy to kill any remaining cancer cells in your body. This chemotherapy will also destroy most of the blood cells in your bone marrow and bloodstream.

Harvesting your stem cells before you get chemotherapy lets us give you this high dose of chemotherapy. Once your

chemotherapy is finished, you will get an autologous stem cell transplant. This means we will put your stem cells back into your body. Once they're back in your body, the stem cells will slowly start to grow, mature, and replace the destroyed cells.

Before Your Procedure

Stem cell mobilization and granulocyte colony-stimulating factor (GCSF) injections

There are only a small number of stem cells naturally circulating in your blood. To increase the number of stem cells in your bloodstream, you will get injections (shots) of a medication called granulocyte colony-stimulating factor (GCSF). GCSF makes your body make more stem cells than usual. It also helps make the stem cells move into your bloodstream, where they can be collected more easily. This process is called mobilization. Examples of GCSF medications include filgrastim (Neupogen®), pegfilgrastim (Neulasta®), and plerixafor (Mozobil®). Your nurse will talk with you about which injection(s) you need.

The injections will be every day for about 5 to 6 days. You can be taught to do the injections yourself, or you can talk with your nurse about making other arrangements (such as coming into the clinic or having a nurse visit you at home). If you're doing the injections yourself, your nurse will give you the resource *Giving Yourself an Injection of Filgrastim (Neupogen®) or Pegfilgrastim (Neulasta®) With a Prefilled Syringe* (www.mskcc.org/pe/injection_neupogen_neulasta).

Common side effects of GCSF include bone pain in your sternum (breastbone), arms, legs, and lower back. They can also cause headaches and flu-like symptoms. Either regular or extra-strength acetaminophen (Tylenol®) can help relieve these side effects. If acetaminophen doesn't help, tell your doctor. They will prescribe something stronger.

Tunneled catheter placement

A tunneled catheter is a type of central venous catheter (CVC). Before we collect your stem cells, a nurse or doctor will check your veins to see if they're healthy enough for the procedure. If your veins aren't healthy enough, you will have a tunneled catheter put into a large vein near your collarbone. The tunneled catheter has 2 access ports that will be used during your harvesting procedure. It will stay in place for several weeks or months. This is so it can be used to take samples of your blood and to give you intravenous (IV) fluids and medications.

After your tunneled catheter is placed, your nurse will teach you how to care for it and will give you written information.

What to eat

As your stem cells are collected, your blood calcium levels may drop. The day before and the day of your harvesting procedure, we recommend that you eat dairy products and other foods that are rich in calcium. Examples include Greek yogurt, almonds, dark leafy vegetables, and tofu. This will help raise the calcium levels in your blood.

The Day of Your Procedure

Where to go

Your harvesting procedure will be done in the Blood Donor Room. The Blood Donor Room is located at:

MSK Schwartz Building Lobby

1250 First Avenue (between East 67th and East 68th Streets)

New York, NY 10065

212-639-7643

You will have 2 to 3 appointments for harvesting sessions. Each session will last 4 to 5 hours.

The exact number of sessions you have depends on the number of stem cells that are collected in each session. You will be told each day if you need to come back for another harvesting session.

What to expect

You will lie on a bed or sit in a recliner chair during each harvesting session. A nurse who works in the Blood Donor Room will connect you to a machine either by an IV tube in each of your arms or by your tunneled catheter. Blood will be drawn through one of your IV lines or tunneled catheter ports. The blood will circulate through the machine and the machine will separate and collect your stem cells. The rest of your blood will be returned to you through your other IV line or tunneled catheter port.

If you want to, you can watch TV or read during your procedure. A family member or friend can sit with you. You might feel cold during the procedure, so blankets will be available to make you comfortable.

As your stem cells are collected, you may have muscle cramps, twitching, or a tingling sensation around your lips and fingertips. These are signs that your blood calcium level is low. If you have any of these things, tell a Donor Room nurse. They will give you Tums[®], which are a quick and easy source of calcium. They may also give you a medication that has calcium through your IV line or tunneled catheter.

After Your Procedure

After your procedure, if IV lines were placed in your arms, you will have a bandage on your arms to prevent bleeding. Leave the bandage in place for at least 3 hours, but not more than 5 hours. If there's bleeding when you the bandages off, apply gentle but firm pressure on the sites for 3 to 5 minutes. Call your doctor if the bleeding doesn't stop.

If your tunneled catheter was used, it will be flushed and recapped.

Your stem cells will be brought to our stem cell laboratory, where they'll be frozen and stored safely until your transplant day.

After a harvesting session, you may have bruising where the

needle was inserted. You may also feel tired. Most people can go back to doing their regular activities.

Call Your Doctor if You:

- Develop a temperature of 100.4 °F (38 °C) or higher.
- Develop flu-like symptoms.
- Have any redness, bleeding, drainage, or pain at your catheter or needle insertion site.
- Have numbness or tingling in your lips, hands, or feet.
- Have significant pain on the left side of your body.

GCSF Injection Schedule		
Medication: _____ Dose: _____ _____		
Date	Time	Donor Room Appointment

GCSF Injection Schedule		
Medication: _____ Dose: _____ _____		
Date	Time	Donor Room Appointment

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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