Hematopoietic Progenitor Cells Apheresis Collection (HPC-A) (Stem Cell Apheresis)

Hematopoietic Progenitor Cells Apheresis (Hee-ma-ta-po-e-tik Pro-gen-i-tor Cells A-fer-E-sis) is a procedure used to collect stem cells. Stem cells normally live in the bone marrow. They can be stimulated so they move into the bloodstream where they can be collected. These cells are then used for a stem cell transplant.

Types of Stem Cell Transplants

There are two types of transplants done with stem cells:

- **Autologous** means that a patient’s own stem cells are collected. These are frozen and stored until needed for the transplant.

- **Allogeneic** means that a donor gives stem cells. Blood work called **tissue typing** is done to identify a related or unrelated donor. The patient receives the donor’s peripheral blood stem cells during the transplant.

Stem Cell Mobilization

Stem cell mobilization is when stem cells move out of the bone marrow and into your bloodstream.

There are two ways to mobilize stem cells:

- Chemotherapy, plus the use of medicines called **colony stimulating factors (CSF's)**. These are also known as growth factors. These medicines may include Neupogen (GCSF) or Mozobil (Plerixafor). This method is used for autologous stem cell collection.
The use of colony stimulating factor medicines only (also known as growth factors). These medicines may include Neupogen or Leukine.

### Stem Cell Collection

The stem cells are collected by a procedure called “apheresis” which means to take away. To do this procedure, two IV sites are needed. One IV is used to withdraw blood and the other IV is used to return blood. This can be done by placing an IV needle into each arm or by using a vascular access device that has two lumens or ports. This kind of IV access is also called a double lumen central venous catheter (CVC). Both methods provide a way for blood to be circulated through the apheresis machine.

During the outpatient appointment for pre-transplant evaluation, an apheresis nurse will assess the veins in the donor’s arm. The nurse will determine if the donor’s veins are okay to use for the stem cell collection procedure or if a double lumen (CVC) is needed. During this process, the blood will flow out from one IV site, through the tubing, into the machine. The machine separates the stem cells from the blood. Only a small amount of blood is inside the machine at any time. The stem cells are collected into an IV bag. The blood flows back into your body through the other IV site. This is a continuous process that takes about 4 to 6 hours to complete. An anticoagulant (or
blood thinner) is slowly added to your blood during the procedure. This is given to prevent the blood from clotting. Side effects from the anti-coagulant may include slight tingling around your mouth, chest vibrations and a cold sensation. Calcium is given to help with these symptoms. Side effects from stem cell collection rarely happen. Possible side effects from this procedure may include dizziness, fainting, nausea, and seizures. If you have any side effects, tell the nurse or doctor right away so your symptoms can be treated.

After Stem Cell Collection

- Most people feel tired after an apheresis procedure. Plan on little or no activity for the next 12 hours.
- Drink plenty of fluids.
- If you get dizzy, lie down with your feet elevated above your head, if possible.
- If you had IVs in your arms, leave your bandages on and keep them dry for at least 5 hours. Do not do any heavy lifting or exercise during this time.
- Procedures can temporarily lower your body’s ability to clot your blood. You will be at risk for bruising or bleeding. Do not shave for 12 hours after your treatment. Avoid activities which would put you at risk for bruising or bleeding.
- If you have any redness or pain where the needle was in your arm or if you have any questions or concerns, please call the following number:

  The Ohio State University Medical Center Apheresis Unit
  (614) 293-8672. Call this number between 7:00 am and 5:00 pm.

  After hours call (614) 293-8000 and ask the operator to page the pathology resident on call.