Ready to start planning your care? Call us at 800-525-2225 to make an appointment.
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Memorial Sloan Kettering Cancer Center

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Stem Cell Harvesting

In autologous transplantation, doctors usually collect, or harvest, stem cells that circulate in the bloodstream. These cells are called peripheral blood stem cells (PBSCs).

PBSC harvesting is similar to giving blood. It is easier than taking cells from a person's bone marrow, which is sometimes done for allogeneic transplants. Also, it does not require an operation or general anesthesia.

A few days before the blood collection, you will be given a daily medication called G-CSF (filgrastim, Granix ®, Neupogen®, Zarxio®). It increases how many stem cells are being made. This medication may cause flu-like symptoms for a few days. You may also have aches and pain from the medication. Sometimes another drug may be used during the blood collection to help the stem cells move from your bone marrow into to your bloodstream, making them easier to collect. This drug is called plerixafor (Mozobil™).

At Memorial Sloan Kettering, stem cells are collected in the blood donor room using an apheresis machine. Over the course of one to five days, blood is taken out of a vein and put through the machine, which collects the stem cells. The other parts of the blood are then returned to your body.

Most people don't have side effects from blood collection and can go back to their regular activities. The stem cells are cryopreserved (frozen) until they are given back to you.

Preparing for a Transplant

Once your stem cells have been collected and you know the date of the transplant, you will go through a process called a preparative regimen. It is also sometimes called conditioning or cytotoxic treatment. In this step, doctors use chemotherapy with or without radiation to kill cancerous cells. Our doctors customize your treatment based on your disease and which therapy it is most likely to respond to.

The preparative regimen may be given over several days. People usually have the transplant a day or two after their last chemotherapy or radiation dose.

Transplantation and Recovery

Doctors usually add the collected stem cells into the patient's bloodstream in the same way they perform a blood transfusion. Over the following days and weeks, the transplanted stem cells move to the marrow space in the bones. There, they gradually begin to produce new blood cells.

Between two and three weeks after the transplant, doctors usually start to find newly formed blood cells in the patient's bloodstream. With time, a successful transplant graft will make red blood cells, white blood cells, and platelets.

In the days right after a transplant, you need a lot of medical support. You may get transfusions of irradiated blood products, such as platelets and red blood cells. You may also get antibiotics to prevent and treat bacterial, viral, and fungal infections. These infections are most likely to happen in the first three months after transplantation. People who have had stem cell transplants may also have complications because of the chemotherapy and radiation given before the transplant. Such complications may require more treatments.

Most people stay in the hospital for two to three weeks after a transplant. During this time, you will need special protection from infections. Everyone who comes into the room has to wear protective gloves and masks and to wash their hands with antiseptic soap. Sometimes people entering the room need to cover their clothing with clean, disposable gowns. Fresh fruit, plants, and cut flowers are not allowed, because they can carry disease-causing mold and bacteria.

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