

Frequently asked Questions about Bone Marrow Transplant: Autologous

Bone marrow transplant is a very complex process that includes many steps. This handout provides answers to common questions patients and caregivers have. We hope it will help you better understand the process and learn the medical terms we often use. Please do not hesitate to ask us more questions as they come up.

How are stem cells collected?

There are several ways to collect stem cells for future re-infusion.

Cord Blood is collected from the umbilical blood vessels in the placenta at time of the delivery and then frozen.

Bone Marrow is collected by multiple needle aspirations from the bone marrow space in the hips or chest.

Peripheral Blood – it is possible to collect stem cells directly from the patient’s bloodstream. In

order to have enough stem cells in the bloodstream, the patient receives growth-factor drugs (Granix)[®] and/or Mozobil[®]) with or without chemotherapy. The drugs stimulate the movement of stem cells out of the bone marrow space into the bloodstream.

Aspiration- procedure that removes something from an area of the body
--

This process is called **mobilization of stem cells**. After the stem cells mobilized into the bloodstream the blood is collected through an IV connected to a special machine called an apheresis machine. The machine separates the stem cells and returns the remaining blood back to the donor.

How are stem cells stored?

Autologous stem cells are frozen and mixed a preservative called DMSO, and frozen in liquid nitrogen at a temperature below 50° celcius. Cells can be stored indefinitely. Extra cells are sometimes stored in case the patient needs more cells.

How many cells are needed for transplant?

The number of cells necessary for transplant has not been established and varies from center to center. At the Michigan Medicine we want 2-5 million cells.

What are conditioning regimens?

Conditioning regimens are treatment plans that include a combination of chemotherapy and/or radiation before transplant. The purpose is to:

- Kill off any existing cancer cells
- Make room in the bone marrow for new cells
- Suppress your immune system to allow the transplanted stem cells to start growing and maturing.

How will the new stem cells grow in my body?

You will receive the stem cells through your central line. Stem cells have a “homing” (from the word “home”) ability that allows them to migrate to the bone marrow where they will grow and mature. You will receive Granix® several days after transplant to help increase your blood counts.

How do I know transplant is successful?

Transplant is successful when the new cells begin to grow and mature in the bone marrow. This is called **engraftment**. White blood cells are the first to engraft; platelets will engraft second and red blood cells third. When the new stem cells have engrafted you will see a gradual but steady increase in blood

