

AUTOLOGOUS STEM CELL TRANSPLANT

Introduction for Patients Getting an Autologous Stem Cell Transplant at WRHN Cancer Centre

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**Waterloo Wellington
Regional Cancer Program**

Ontario Health (Cancer Care Ontario)

What is an Autologous Stem Cell Transplant?

Stem cells play an important role in your body. They develop into different types of blood cells (like red blood cells, white blood cells, or platelets), and are found in bone marrow.


You require high dose chemotherapy to treat your cancer; this is toxic to your bone marrow. Stem cells are used to help the bone marrow recover and make new blood cells.

An Autologous Stem Cell Transplant (ASCT) is when your healthy stem cells are taken out of your blood and safely stored until you need them. After your high dose chemotherapy your stem cells are given back to you through an infusion into a vein.

Autologous Stem Cell Transplants can be used to treat:

- Multiple Myeloma
- Lymphoma

Overview of an ASCT

Step 1 Prepare for Transplant	You will meet your transplant team members. Some tests and procedures will be ordered for you (like blood work or imaging)
Step 2 Collect and Store Stem Cells	Your stem cells are taken from your bloodstream. This process is sometimes called “apheresis”. Your stem cells are frozen and stored until needed.
Step 3 Conditioning Chemotherapy	You will get high-dose chemotherapy to treat your disease. This is called “conditioning chemotherapy”. It works by destroying both cancer cells, and your normal blood cells.
Step 4 Transplant Day 	Your frozen stem cells are thawed and given back to you.
Step 5 Recovery	Your infused stem cells return to your bone marrow. They will start making new blood cells again.

Step 1: Prepare for Transplant

Before your transplant you will meet the transplant team. They will arrange outpatient tests and procedures.

Consult

You will meet your transplant doctor and they will review your medical history and determine if an ASCT is the right treatment for you.

Work-up

If you are eligible to have an Auto Stem Cell Transplant your team will coordinate tests such as bloodwork and an echocardiogram.

Education and Consent Visit

You will be booked for an education and consent visit with your Nurse Navigator to give you more detail about each step of your transplant. You will also meet with your transplant doctor to discuss the transplant plans and have you sign a consent form.

Apheresis Catheter Insertion

You will need a special IV called an apheresis catheter to collect your stem cells. This is a soft, flexible tube that is placed into a large vein in your chest. One end of the catheter stays inside your vein, while the other end stays outside your body. The outside end has two access points (double lumen), which allow us to draw blood and return it at the same time. The apheresis catheter will stay in place until your blood counts recover after your transplant.

This catheter will be used to:

- Collect your stem cells
- Give you chemotherapy
- Re-infuse your stem cells afterwards.

Princess Margaret Cancer Classes

Princess Margaret Cancer Centre has created a series of free, patient learning modules for Autologous Stem Cell Transplant. Sign up to learn more, from the comfort of your home: www.pmcancerclasses.ca



Step 2: Collect and Preserve Stem Cells

Mobilizing Your Stem Cells

Injections of G-CSF (colony stimulating factor)

- You will get a daily needle (injection) of G-CSF, a growth factor, that will increase the number of stem cells in your blood stream. G-CSF may be called *grastofil*, *filgrastim* or *neupogen*.
- Some people may also need chemotherapy for stem cell mobilization. Your transplant doctor will talk to you about this if needed.

Stem Cell Collection

Your stem cell collection is booked as an outpatient appointment. This means that you will go home after it is done. You will have to return to the hospital each day for 1-3 days.

The day before your stem cells are collected, you will be booked for bloodwork at the hospital. This checks to make sure there are enough stem cells in your bloodstream for collection the next day. Sometimes a medicine called Plerixafor is needed. It is an injection that helps your bone marrow release more stem cells into your bloodstream. This injection is given to you in the hospital.

Once all your cells are collected, they are frozen so they can be given back to you on your transplant day. A preservative called “DMSO” is added to your cells to prevent damage during freezing and thawing.

Step 3: Conditioning Chemotherapy

The next part of your stem cell transplant is the treatment with conditioning chemotherapy. Before starting, you will follow-up with your transplant doctor to make sure you are ready to start. When ready, you will be admitted to the hospital.

The type of chemotherapy you get depends on the type of cancer you have. In ASCTs, a higher than normal dose of chemotherapy is given to destroy the cancer. High-dose chemotherapy is much stronger than any of your past chemotherapies. Side effects may be more intense than before and last days to months.

Your conditioning chemotherapy will cause your blood counts (red blood cells, white blood cells, and platelets) to fall to very low levels for about 14 to 21 days. **This is the time when you are at high risk for infection and bleeding.**

You may have some or all of these side effects:

- Mouth sores
- Constipation
- Infection
- Loss of hair
- Changes in the taste of food
- Diarrhea
- Bleeding easily
- Lack of energy
- Loss of appetite
- Nausea and vomiting

Step 4: Transplant Day (Stem Cell Reinfusion)

Your stored stem cells will be used to help your bone marrow recover from the high dose chemotherapy.

The day that your stored stem cells are given back to you is called your **Transplant Day**. Your stem cell transplant will be done in your hospital room. The reinfusion of your stem cells will take place in the afternoon.

Before the reinfusion:

- Your frozen stem cells are thawed in warm water at your bedside.
- Once thawed, the stem cells are put back into your bloodstream using your apheresis catheter.

A care partner is welcome to be with you in your room during the reinfusion of your stem cells.

Step 5: Recovery

Early Recovery

You will stay in the hospital until your blood cells recover (approximately 14 days). The medical term for when your blood cells recover is called “engraftment”. Engraftment is when your stem cells go back to your bone marrow and begin to make new blood cells. Engraftment usually starts 10-12 days after your stem cell reinfusion.

After Discharge (Outpatient Follow-Up)

Once you are feeling well enough and your blood cells have recovered, you will be discharged home. You will have appointments with an Outpatient Transplant Nurse Practitioner (NP) at the WRHN Cancer Centre 1-2 times per week. Your Nurse Navigator and NP will help manage any ongoing side effects. You may get infusions like fluids, electrolyte replacements, or blood products. The Transplant NP will decide when you are able to return to follow up with your Hematologist

Long-term Recovery

- Your Primary Hematologist will continue to assess and manage any side effects or symptoms from your transplant process. They will monitor the status of your transplant and your disease.
- You will also have several follow ups with your transplant doctor during the first year.

What to Expect

After your stem cells have engrafted (blood counts have recovered), most of the severe side effects from your conditioning chemotherapy will have passed.

Some side effects can last up to 12 months after your chemotherapy:






- Fatigue
- Hair loss
- Shortness of breath with physical activity
- Loss of appetite
- Nausea and vomiting
- Diarrhea or constipation
- Risk of infection
- Brain fog
- Infertility
- Hormone changes
- Higher risk for getting other cancers

Returning to Your Normal Activities

After your transplant is completed, you will likely want things to return to normal quickly. Recovery time is different for each person and can be anywhere between 3 months and 1 year before you feel “normal” again.

You will get vaccines starting 3 months after your auto transplant to build up your immune system. This will help protect you as you start returning to normal activities.

Resources

Resource & Link	QR Code
<p>HopeSpring Cancer Support Centre Offer free wellness programs to support you through your cancer journey. www.hopespring.ca</p>	
<p>Look Good Feel Better Free workshops about skincare, wigs, prosthetics, and more. www.lgfb.ca/workshops-top-page/</p>	
<p>Leukemia & Lymphoma Society of Canada Information and support specific to leukemia and lymphoma. www.bloodcancers.ca</p>	
<p>Lymphoma Canada Search through “Patient Resources” for Information about the different types of lymphoma. www.lymphoma.ca</p>	
<p>Myeloma Canada Information and support specific to myeloma. myeloma.ca</p>	

Use this resource for your information only. It does not replace medical advice from your doctor or other healthcare professionals.



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