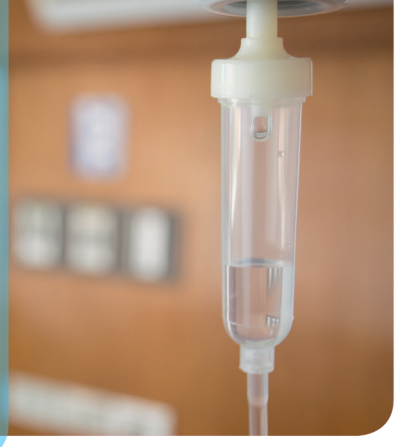
Autologous stem cell transplant



What is an autologous stem cell transplant?

You may also hear this procedure called

- High-dose treatment with stem cell support
- Peripheral blood stem cell transplant
- Autologous bone marrow transplant
- Autograft

An autologous stem cell transplant (or auto transplant) involves collecting your own stem cells which are stored and given back to you through a drip in your vein after you have been given high doses of chemotherapy. This provides some patients with a better chance of cure or long term control of their disease. A collection will take approximately four to five hours and the procedure does not involve an operation or surgery. Most people have a single autologous stem cell return. Others, particularly those with myeloma or some solid tumours, may have two or more sequential (one after the other) stem cell returns, over a period of a few months.

If an auto transplant is the right treatment option for you, your haematologist will refer you to a transplant centre while you are having your first anti-cancer treatment (which is called the induction phase).

For adults, auto transplants are carried out in bone marrow transplant centres located in Auckland City Hospital, Waikato Hospital, Palmerston North Hospital, Wellington Hospital and Christchurch Hospital. Auto transplants for children are carried out in Starship Children's Hospital in Auckland.

If you are accepted for an auto transplant you will need to begin planning and preparing as the transplant is likely to have an impact on your family, work/school life, finances and general health. It is important to be prepared emotionally, physically and medically.

How are stem cells collected?

Stem cells are collected in a process called mobilisation and harvest where drugs are given to you to increase the number of stem cells in your bone marrow and move them from the bone marrow into the blood. The term 'harvest' refers to the process of the stem cell collection. A line is put into a vein in your arm and blood is slowly taken out and put through a machine which separates the stem cells from the rest of your blood. The blood is then returned to you through a line in your other arm. This takes a few hours, is painless, and you are awake. The stem cells are then frozen until you are ready to have your high dose treatment and stem cell return.

What is high dose treatment and stem cell return?

This phase is commonly referred to as 'the transplant' which you will be admitted to hospital for. Firstly, you will undergo conditioning treatment which is a high dose chemotherapy. The treatment kills any remaining cancer cells in preparation for your stem cells to return and make new healthy bone marrow cells. This will be given over a period of one to eight days.

Occasionally, chemotherapy is given with radiation therapy, in the form of total body irradiation (TBI). The kind of conditioning therapy chosen for you will depend on several factors including the type of disease you have, your age and general health and the type of transplant you are having.

Around 24 hours after your final high dose treatment, your frozen stem cells are defrosted and returned to you through a drip into a line in your arm.

What is bone marrow recovery?

Your stem cells will start to travel to the bone marrow and develop into new blood cells. This is called engraftment and usually takes about 10-14 days. During this time, your doctors and nurses will monitor you very closely.

What happens afterwards?

Once your bone marrow has recovered and your health has improved from any other side effects of the high dose treatment, you will be discharged from hospital. In the early weeks after your transplant, you will need to visit the hospital regularly so your doctors and nurses can continue to monitor your recovery.

It can take a few months for your immune system to recover however the amount of time can vary depending on the person. You may feel fatigued and will still be at risk of infection so it is important to take some sensible precautions to prevent infections during this time.

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An overview of the high-dose treatment and autologous stem cell support process

Induction treatment
Treatment to remove as many cancer cells as possible

3 - 6 months

Referral
During induction treatment you will be referred for your high-dose treatment with stem cell support

Planning & preparing
Ensuring you are medically, physically and practically prepared for the process

Outpatient
You will go to the day clinic/ day ward for your treatment, tests or appointments

2-4 weeks later

Mobilisation and harvest

Mobilisation chemotherapy
Chemotherapy to temporarily reduce the amount of stem cells in the bone marrow and encourage stem cell production 'over drive'

1-3 days

Mobilisation
Daily injections to help increase the number of stem cells

1-10 days

Harvest
Collection of healthy stem cells which are then stored until needed

1-3 days

Outpatient
You will go to the day clinic/day ward for your treatment, tests or appointments. This may not be at your local hospital depending on where you are located

4-6 weeks later

High-dose treatment and stem cell return

Conditioning treatment
High-dose chemotherapy to kill remaining cancer cells

1-8 days

Stem cell return
Healthy stem cells which have been stored are returned via a line in your vein

15 mins – 3 hours (occasionally over 2 days)

Bone marrow recovery
Stem cells start to make healthy blood cells

2-4 weeks

Inpatient/Outpatient
Depending on the hospital, you may either stay in the hospital or visit as required for treatment, stem cell return and bone marrow recovery

Recovery
Your body recovers from the side effects of high-dose treatment

1-4 months

Outpatient
You will go to the day clinic/ day ward for your treatment, tests or appointments

For more information please contact Support Services on supportservices@leukaemia.org.nz or 0800 15 10 15

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NB: Timings given here are approximate. Your doctors and nurses will be able to confirm your timings which will be on an individual basis.

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