Sahlgrenska University Hospital
Section for Hematology and Coagulation

PATIENT INFORMATION & CONSENT

Allogeneic stem cell transplants

VÄSTRA
GÖTALANDSREGIONEN
SAHLGRENSKA UNIVERSITETSSJUKHUSET

Introduction

This brochure has been written to give you and your relatives information and guidance prior to an allogeneic stem cell transplant.
The decision to propose an allogeneic stem cell transplant as part of the treatment of your illness has been made after consultations between your doctor and the transplant doctors. It is important that you know what this decision is based on and what benefits and risks the transplant involves. You will be told about this by your doctor and a transplant doctor when you have a meeting with us.

If you have any other questions before the transplant, first ask your doctor or our transplant coordinator (phone 031-342 37 67). You can also get support from the Blodcancerföreningen i Västsverige. During your treatment, you will notice that the personnel here are specialized and very knowledgeable, so do not be afraid to ask any questions.

This brochure describes the general aspects of allogeneic stem cell transplants, but there are several different types of transplants and they can vary in important ways. The description below needs more detailed information added, which will be given to you by a doctor.

What is an allogeneic stem cell transplantation?

Stem cells are found in bone marrow and can develop into other kinds of cells, such as red and white blood cells and platelets. Allogeneic stem cell transplantation means that stem cells are transferred from a donor to a patient and the patient's bone marrow and blood will eventually contain only donor-type cells. Allogeneic stem cell transplantation is one part of the treatment for certain malignant illnesses and the procedure takes place in several steps:

1. *Pre-treatment.* You will first be given chemotherapy, which is sometimes combined with radiotherapy. The purpose of this pre-treatment is partly to destroy cancer cells and partly to prevent donor cells from being rejected. Pre-treatment is carried out in different ways and with different strengths.
2. *Collection of stem cells from the donor.* Stem cells are found in bone marrow but can also be collected from the blood.
3. *Transplant.* Stem cells are given intravenously and move to the bone marrow.

Medical examination prior to the transplant

In order to carry out the transplant safely, you must have blood tests including some for infections (e.g., HIV, hepatitis, syphilis). In addition, your teeth, lungs, heart and kidneys will be checked. Women are also given a gynaecological examination.

Examinations and samples take place either at your local hospital or at Sahlgrenska. The transplant coordinator will inform you about the planning. You can always access your test and examination results.

Donor investigation

Information and medical examination of sibling donor

If you have a sibling, or in some cases another relative who can be a potential donor, they will be asked to come in for information and a medical examination. Under the rules that apply, your donor is equal to a patient, meaning that the results of the examination and tests will only be communicated to them. You will be told if the transplant is possible or not.

Collection of stem cells from a related donor

To extract the stem cells from the donor's bone marrow in a process called stem cell apheresis, drugs are injected that mobilise the stem cells into the blood where they are collected using a specialised machine. The procedure is simple, harmless and rarely unpleasant
It is also possible to collect stem cells directly from the bone marrow via a process called "harvesting". This is carried out under general anaesthetic in the operating room by sucking just over a litre of bone marrow mixed with blood from the back of the hip bone (where bone marrow samples are usually taken). More information will be given directly to your donor

Medical examination of unrelated donor

If your donor is not a relative, they will be given information and a medical examination at their local hospital. For the donation to be possible, the results must be approved by the donor's doctor and by our transplant doctor.

Collection of stem cells from an unrelated donor from an international register

In some countries there are regulations that govern whether a donor can donate blood stem cells or bone marrow. Otherwise, this is decided after consultation between the donor and their doctor. The procedure takes place in the same way as described above for sibling donors. The stem cells are transported by courier to us

Anonymity regarding transplants from an unrelated donor

The unrelated donor is anonymous for us, and you will only be informed about their gender, age and blood type. The transplant coordinator can help you send a letter of thanks after the transplant. Of course, your identity is also anonymous for the donor. The mutual anonymity can be lifted later if both parties want to do that. However, the donor register(s) that are sent a request for donation will be notified of your name, date of birth and status of illness before and after the transplant.

Registration at the department

Your team includes doctors, nurses, assistant nurses, a dentist, physiotherapist, counsellor, occupational therapist and dietitian.

In order to make drips, medication and blood samples easier, you will have a *central venous catheter*, CVC. This is a thin plastic tube inserted into a large blood vessel near the collarbone under local anaesthetic in the operating room or X-ray department.

In the ward you normally stay in a single room with your own shower and toilet. You are welcome to make your room more personal with things from home such as photos etc. Do not take too many things, though, because the room needs to be cleaned daily. Flowers and potted plants are not allowed for hygienic reasons, but artificial flowers are permitted.

You can use your mobile phone in the department and in the reception. You are welcome to bring a computer or tablet and Wi-Fi is available.

A close person can stay over in the room if you wish. We do not have any special visiting hours, but the afternoon or evening are generally best and no more than two people are allowed at a time. Visitors, including children, must not have any infections such as a fever, cold or stomach flu. Please note that children are not allowed to wander around in the ward or in the day room. If you have any doubts, please ask the staff.

Chemotherapy

The purpose of chemotherapy is partly to kill cancer cells and partly to prepare the body for new stem cells. Unfortunately, it also affects healthy cells in the body and common side effects of the treatment include fatigue, poor appetite and nausea. You will be given medication to reduce the nausea as well as a fluid drip. With types of transplants for which the chemotherapy is milder, these side effects are less common, but you should inform us if you are suffering so that we can reduce the discomfort.

If radiation is necessary, you will be given an appointment with the Jubileumskliniken in advance for information, a study visits to the radiation clinic and a computer tomography (CT) scan as part of the treatment planning.

All blood cells, red (Hb), white (LPK) and platelets (TPK), drop in numbers within a week of the transplant, meaning that you will probably need transfusions of red blood cells and platelets. A low white blood cell count brings the risk of fever and infections as described below. Normally, white blood cells start to increase 12-21 days after the transplant and any fever usually disappears.

The transplant

The transplant takes between 20 minutes and two hours, depending on the volume given. The cells are given with a fluid drip through your CVC and they migrate to the bone marrow.

Ward routines

During the period of treatment, regular check-ups are made and blood samples taken. Nursing staff and doctors will ask you about your bowel function, inspect the CVC, your oral membranes, rectum and skin. Our dietitian, together with the doctors and nurses, will check your nutrition.

It is important for your recovery that you try to sit and walk as much as possible during the daytime to reduce the risk of pneumonia, among other things. It will also help to maintain your muscle strength. The physiotherapist will help you with various deep breathing techniques and adapted physical training

Complications during treatment and care

Chemotherapy targets cells that divide frequently, which include the cells in mucous membranes and hair follicles.

Gastrointestinal tract. After chemotherapy, when blood values are low, you may have a sore mouth and throat and find eating difficult. The risk of such symptoms depends on the strength of the chemotherapy dose given. Our dietitian can give advice on an adapted diet and nutritional supplements if required. You may experience nausea and diarrhoea and a nutritional drip is needed quite often. Loss of appetite and changes in taste may persist for a long time after the transplant.

Hair. One side effect of chemotherapy is that you lose hair within a couple of weeks, but it grows back after about 3 months. In the meantime, you can use a wig that you choose well in advance of the transplant.

Infections. Fever is common during treatment and has many different causes, most often the body's own bacteria which can penetrate the mucous membranes damaged by chemotherapy in the mouth and intestines, or sometimes through your CVC. You will be given preventive drugs against bacteria, fungi and viruses. If you have a fever or other signs of infection, cultures will be taken from your blood and your lungs may be X-rayed, combined with antibiotics. The risk of viral and fungal infections increases too, but there are effective treatments for these types of infections.

Other complications. Despite the strong chemotherapy drugs, serious permanent damage to the kidneys, liver, heart or lungs is rare. The risk of suffering life-threatening complications is small.

GVH (Graft-versus-Host) is the response of donor cells to the patient's healthy tissues. There are two types of GVH: acute and chronic. Chronic GVH is described in the section "Late complications" below.

Acute GVH is a complication that affects a minority of patients and usually occurs within 2-12 weeks of the transplant. Preventive treatment for acute GVH is given in the form of ciclosporin, a medicine given intravenously or in capsules that inhibits the donor cells' response. Acute GVH is when the donor's white blood cells attack the patient's skin (rashes, itching), liver (jaundice) or bowel (diarrhoea). The inflammation that occurs is treated with high doses of cortisone, which are gradually reduced. Acute GVH is usually mild but can in rare cases become severe and life-threatening.

Life at home after discharge

General

Return visits and monitoring are with the transplant doctors at the BMT clinic, where you can ask about any problems after you return home. You will go there at least once a week for the first few months.

Get back into your normal life as soon as you can, with walks and exercise to help you recover. Your period of sick leave will depend on how you feel and to some extent on what kind of work you do. Expect around 6-12 months of sick leave and a gradual return to work with a period of part-time work.

Infections

Your resistance to infections is lower after the transplant. You must

- avoid people who have colds and children with chickenpox
- do not walk near construction sites, since building dust may contain fungal spores
- not renovate your home in the first year after the transplant!
- do not touch rotting grass or leaves

Your resistance to polio, tetanus and diphtheria is much lower after the transplant, so you must take certain precautions.

Polio Infection is spread by bad water, so avoid this in Sweden and abroad. Check with your doctor before you travel abroad.

Tetanus: Infection is spread mainly by soil in cuts or cracks in the skin. Do not dig into soil with your hands!

Diphtheria: Severe throat infection; rare in Sweden. Check with your doctor before you travel abroad. You will be vaccinated against these diseases on a special schedule.

Food and drink

Before you leave the hospital, you will be given some information and advice about your diet at home, with more detailed advice by a dietitian if you want.

It is important that you get enough energy and liquids but avoid grapefruit juice as it can negatively affect your immune response. Contact the clinic if you have eating problems or lose weight.

Sex

You can start having sex again as soon as you feel the desire. There may be problems with dry mucous membranes after the transplant and women should visit a gynaecologist regularly to avoid genital GVH.

Condoms are useful to reduce the risk of infection.

Other

- Wash your hands after touching pets and do not keep animals in your bedroom
- Sunbathe carefully, especially during the first year after the transplant or if you have a GVH reaction; use a high UV protection factor
- Do not swim or bathe, in warm or cold water, as long as you have a CVC implanted. Do not go in a swimming pool during the first six months
- Take your medication regularly. Ask if you are not sure about anything

Emergency contact with the hospital after discharge

Contact your doctor or ward immediately if you have any of the following symptoms

- Temperature over 38 degrees
- Severe cough or shortness of breath
- Bleeding
- Diarrhoea or vomiting
- Pains
- Skin rash

Late complications

Chronic GVH reaction

Chronic GVH is the most common complication after allogeneic stem cell transplants, affecting more than half of patients, and is an inflammation caused by the donor's white blood cells.

The most common body parts affected are:
Mouth - dryness, taste changes, sometimes ulceration
Eyes - dryness. Eyesight is very rarely affected.
Genitals - burning sensation, pain, dryness. In severe cases: splits, adhesions.
Skin - pigment changes, roughness, sometimes thickening of subcutaneous tissue.
Chronic GVH can also affect other organs such as the *lungs* and *intestines*.

The condition is seldom life-threatening, but for many patients it reduces their quality of life, sometimes for years, and may require many different medications and doctors' appointments.
The treatment is both *local*: eye drops, cortisone ointment for mouth, skin and genitals, and *general*: cortisone (usually in low doses) and ciclosporin.

Chronic GVH is associated with a reduced risk of relapse because the new immune system from the donor is active. However, the treatment of chronic GVH, especially cortisone, increases the risk of side effects and fungal and virus infections.

Hormonal disorders

Chemotherapy affects the functioning of some hormone glands, such as the thyroid, men's testicles and women's ovaries. Thyroid hormones may need to be replaced with tablets. In women, menstruation usually stops and oestrogen treatment may be needed. Men's production of sex hormones can be affected and testosterone treatment is sometimes required.

Sterility

After an allogeneic stem cell transplant, there is a high risk of permanent sterility since the patient has received high doses of chemotherapy and/or radiation. This important issue is discussed in talks before the transplant. For men, semen can be frozen before the transplant. For women, eggs can be frozen for later use in some cases.

Cataracts

If you have had radiation in connection with the transplant, the risk of cataracts is higher for 1-5 years after the transplant. This can be remedied through surgery.

Relapse

Sometimes the primary illness returns, despite all the treatment given, and it may be necessary to give you additional cells from the donor. Your primary illness, as well as other conditions, are crucial for decisions on treatment. More chemotherapy may also be needed. You and your doctor will discuss what is best for you.
If more donor cells are to be given after a stem cell transplant, frozen cells from the first donation are generally used. If there are none, a new request to harvest new cells from the same donor may be made.

Donor Lymphocyte Infusion - DLI

An alternative treatment may be an infusion of lymphocytes, a type of white blood cell, from the donor. The donor's immune system then fights the illness, but it is important that there is no GVH. You will always be given information from a doctor about the possible effects before a DLI.
Donor lymphocyte infusions are usually carried out at the outpatient BMT clinic. The cells are given with a fluid drip through your CVC in much the same way as the transplant of stem cells, but the volume infused is less. After a DLI you will be monitored at the BMT clinic.

Informed consent

Your consent is required

It is important that every patient who may undergo an allogeneic stem cell transplant is well informed about the various steps of the procedure and about the benefits and risks of a stem cell transplant. The rules state that this information must be given orally and in writing. You must then confirm with your signature that you have been given enough information and had any questions answered. In addition, your written consent is required for the procedures used for harvesting and subsequent transplant.
Signatures are also required for the registration of transplant patients in our own and international registers. We have our own registers for planning, monitoring, evaluation and improvement of the care we provide.
Data are also reported to Swedish and international registers, such as EBMT, a central register of the European Society for Blood and Marrow Transplantation, and CIBMTR, the Center for International Blood and Marrow Transplant Research.

Processing your personal data under GDPR

Sahlgrenska University Hospital is responsible for your personal data. In accordance with the EU General Data Protection Regulation, you have the right to access any information about you regarding the transplant and correct any errors, if necessary. You can also request that information about you is deleted and the processing of your personal details is limited.

If you have questions about personal data processing, you can contact the data protection officer. Dataskyddsombud, Sahlgrenska Universitetssjukhuset, 413 45 Göteborg.
Phone 031-343 27 15. E-mail: sahlgrenska.universitetssjukhuset.dso@vgregion.se

If you are not satisfied about how your personal details are processed, you have the right to make a complaint to the Swedish Data Protection Authority, which is the supervisory authority.

Contact

Sektionen för Hematologi och Koagulation
Bruna stråket 5, plan 5
413 46 Göteborg

Transplant coordinator	031-342 37 67
BMT clinic	031-342 73 64
Apheresis clinic	031-342 73 70
Dept. 141	031-342 11 41

Informed consent prior to allogeneic stem cell transplantation

In order for us to carry out the planned allogeneic stem cell transplant, it is necessary that you confirm with your signature that you approve the information you have been given and accept the measures described in this information which have also been given orally. This is called *informed consent*, which you can of course withdraw at any time without stating any reason.

1. I have understood the written and oral information on stem cell transplants.
2. I have been informed about tests and examinations in connection with allogeneic stem cell transplantation and about the benefits and possible risks for me.
3. I have been informed that I can access test results and examination results.
4. I consent to the planned allogeneic stem cell transplant with cells from the selected donor. If a search for a register donor is necessary, I am aware that my name, date of birth and illness status will be entered in international donor registers.
5. I consent to information about my stem cell transplant being entered in the journal and reported to local, Swedish and foreign registers.
6. I consent to information about my medical examination and test results being communicated by fax.
7. I have been informed that my personal data will be processed in accordance with the EU General Data Protection Regulation, GDPR.

I have understood this information and give my consent to the conditions specified above:

Date Signature

Name in capitals

Personal identity number

Oral information given by:

This form is to be handed in to the BMT coordinator at the Haematology Section at Sahlgrenska Hospital and will be scanned into the patient's journal.