

A GUIDE FOR STEM CELL DONORS

Welcome

You have been referred to the Stem Cell Transplant Clinic as a donor for the collection of Peripheral Blood Stem Cells.

This booklet has been prepared to answer some common questions and provide you with the general information about the collection of peripheral blood stem cells.

We at the Stem Cell Transplant Clinic want this to be a successful and pleasant experience for you! Although there is a need for a great deal of care to be devoted to the patient for whom you will be donating stem cells, we are concerned about your health and needs as well.

If you have any questions or concerns regarding this procedure, please don't hesitate to contact a member of the Clinic team:

Stem Cell Collection-A Guide for Donors

Stem Cell Collection Process

1. Donor Evaluation and Consent

Once you have been identified as a suitable donor, you will come to the BMT Clinic and undergo blood tests, chest x-ray and a heart test called electrocardiogram. When these have been completed an appointment will be made to see the physician who will take a health history from you and do a physical examination. This is done to ensure that the process of stem cell collection will not jeopardize your health, nor will the infusion of your blood cells be harmful in any way to your relative. Female donors must not be pregnant and avoid becoming pregnant during the time of donation. Please tell the nurse if you think you may be pregnant.

You will be asked to read and sign consent forms for the stem cell collection. It is important to ask any questions you may have or discuss any worries with the BMT staff.

2. Assessment of your veins

The collection of blood stem cells by Apheresis requires the circulation of large volumes of blood through the Apheresis machine. An assessment will be made by the Apheresis staff to see if your veins are suitable. In most cases it is possible to use a large vein in each arm. A needle with tubing is placed in each arm. The blood moves from the vein in one arm, through the Apheresis machine and is returned to the vein in the other arm. When the stem cell collection is completed, the needles are removed.

In some cases, a donor's veins are not large enough or accessible enough to use for this procedure. Then it may be necessary to have a catheter or tube placed in to a large vein in your neck. This would be done the day before the stem cell collection and removed as soon as the procedure is completed.

3. Mobilization of Stem Cells

To collect the stem cells, it is necessary to stimulate the bone marrow to produce larger than normal numbers of stem cells and release them into the blood stream. The process is "mobilization". Generally, growth factor therapy is used to stimulate the marrow to produce large numbers of stem cells.

4. What are growth factors and what do they do?

Growth factors are naturally occurring proteins that stimulate the production of stem cells in the body. With growth factor mobilization, the white blood cell count will increase dramatically. The number of stem cells in the blood stream will also increase, making it possible to collect these cells by Apheresis.

How are growth factors given?

Growth factors are given by injections just under the skin twice a day.

When will the growth factor injections be given?

Twice a day in the morning and evening. We will give you appointments to come either to the BMT Nurse Clinic or the Medical Day Unit. If you wish you may take the evening dose at an outside clinic. Usually, you will take the injections for four to five days.

What are the side effects of growth factors?

The most common side effects of growth factor therapy are bone and muscle pain, and headache. For some people these symptoms may be mild, while others may experience more discomfort. The side effects will go away once you stop the injections, and the stem cell collection is completed.

Medications can be prescribed to alleviate these symptoms.

5. Stem Cell Collection by Apheresis

Apheresis is a Greek word meaning “taking away”. Your blood is processed to remove the stem cells. This happens by pumping your blood through a machine called an automated cell separator.

How does the cell separator work?

A cell separator is used to collect the specific cells we want to collect. The blood enters the machine and circulates through a centrifuge. This causes the blood to separate into layers. The stem cells are collected while the remaining blood cells and plasma are returned to you.

What are the side effects during Apheresis?

The Apheresis procedure is painless. Some donors experience mild side effects like chills, a tingling sensation of the face and body and lightheadedness. Extreme reactions are very rare.

What will I feel like when the procedure is over?

You may feel tired and lightheaded after the procedure. It is a good idea to go home and rest for the next 12-24 hours. If you have any bone or muscle pain it will ease over this time.

How many Apheresis procedures will I need?

Most donors are only required for one stem cell collection. Occasionally a second collection may be needed, but the BMT staff will inform you if this is required.

What do I need to do to achieve a successful stem cell collection?

You must follow the instructions given to you by the BMT staff. Always come to your appointments on time. The growth factor must be kept in the fridge, and you need only to bring one injection with you at a time. On the days you need a blood test, do not let the lab staff take the blood from your arms, always from the back of your hand. We need to preserve the veins in your arms for the stem cell collection.

If you need a job or school excuse for you or your sitter, we can provide you with this.

On the day of your harvest you must eat a good breakfast, with calcium-rich foods (milk, yoghurt, cheese). You can take a snack and a drink with you to the Apheresis department. Having a good breakfast will help prevent any lightheadedness and tingling you may feel during the collection.

If you feel any unusual sensations during the procedure, tell the staff straight away. We want to make this a safe and comfortable experience for you.

6. Stem Cell Analysis and Transfusion.

Immediately following the procedure, samples of the stem cells collected are analyzed; the types and numbers of different blood cells are calculated. As soon as they are cleared, they will be sent to the unit and transfused into your relative. If we have collected more than the required amount the excess will be frozen if it is needed later.

7. Follow-up Care

An appointment will be given to you for one month after the stem cell collection, with blood tests. If before that time you are unwell you can call your BMT coordinator or your physician, and you will be advised what to do.

If you have any further questions regarding the collection of stem cells, please feel welcome to ask any member of the BMT staff. We are committed to providing you with the best care.

Acknowledgements

Information in this document is reproduced with kind permission of the Bone Marrow Transplant Unit, King Faisal Hospital & Research Centre-Riyadh, Saudi Arabia. The sources below were referenced during the writing of this document:

National Marrow donor Program (NMDP)
World Marrow Donor Association (WMDA)
European Bone Marrow Transplant (EBMT) textbook for nurses