

# Therapeutic Apheresis Services

## Donor Information Granulocyte Collection

### Introduction

This leaflet has been prepared to give you some information about granulocyte collections. If you would like more information or if you have any questions, please ask the doctors and nurses involved in your collection at the NHS Blood and Transplant (NHSBT) Therapeutic Apheresis Services Unit.

When you have considered the information given in this leaflet, and after we have discussed the procedure and its possible risks with you, we will ask you to sign a consent form to indicate that you are happy for the procedure to go ahead. Before any further procedures we will again check that you are happy to proceed.

When you have considered the information given in this leaflet, and after we have discussed the procedure and its possible risks with you, we will ask you to sign a consent form to indicate that you are happy for the collection to go ahead. Before any further collections we will again check that you are still happy to proceed.

### What are white blood cells?

Blood is made up of a number of different kinds of cells; red cells, white cells and platelets which are carried round your body in fluid called plasma. There are a number of different types of white blood cells which are produced in the bone marrow and are needed to protect the body from infection. The white cells dealt with in this leaflet are called granulocytes.

### What is the function of granulocytes?

Granulocytes are the white cells which attack and break down bacteria and viruses when you are suffering from an infection. Some patients can become dangerously short of neutrophils (a type of granulocyte) either as a result of their illness or because of the treatment they are receiving. When this happens even the slightest infection can rapidly overwhelm the body's natural defences and in some extreme cases can cause death.

The types of patient in whom this can occur are:

- patients suffering from leukaemia, who may have very few neutrophils, because of the disease itself or as a side effect of chemotherapy/treatment
- patients having treatment similar to those with leukaemia



- very sick newborn babies
- certain other patients with disorders which adversely affect neutrophils.

## When are granulocyte donations required?

Granulocyte donations are not required very often. The need for these cells is usually urgent and once they have been donated they must be given to the patient within twenty-four hours. This means that there may not be much warning before a donation is required and it may be necessary to call on a donor at short notice.

## How do we perform granulocyte collections?

Granulocytes are collected using a machine called a Blood Cell Separator which removes the granulocytes from your blood.

Before the collection the nurses at the Therapeutic Apheresis Services Unit will check your blood pressure, pulse and temperature and make sure you are generally fit enough to have the procedure.

You will have had a number of blood tests done before the collection date, including tests to check if you have been exposed to HIV, Hepatitis B, Hepatitis C, HTLV (Human T-Lymphotropic Virus) or syphilis. These tests are routine and essential for everyone donating blood. We take

more blood samples on the day of the granulocyte collection to again check your exposure to these viruses. You and your doctor will be informed of any abnormal results.

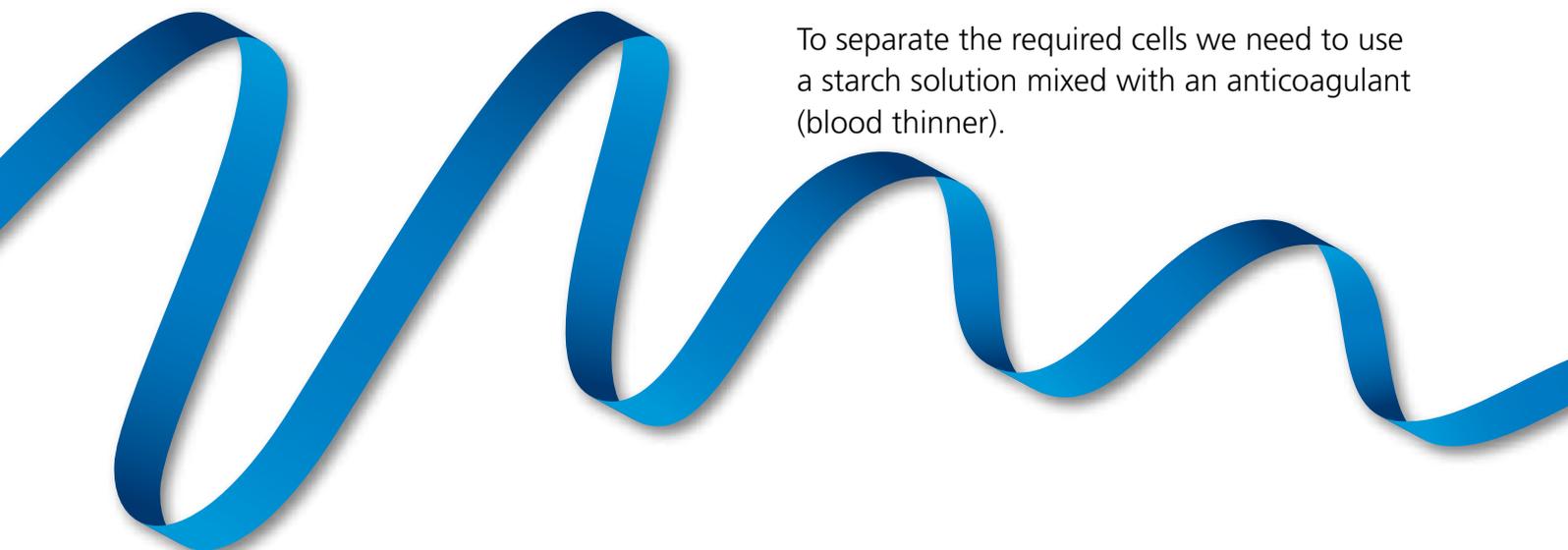
In order for us to do a granulocyte collection, a needle will be put into a large vein in each arm. If you wish you may have a small injection of anaesthetic before we insert the needles. The machine will then draw blood from one arm and collect granulocytes before returning the rest of your blood through the needle in your other arm. Only a small amount of your blood passes through the machine at one time (about the same amount as is in a mug of coffee). It is essential that there is a steady flow of blood, and to ensure this we need to use healthy, good sized veins.

The donation usually takes between one and a half and two hours.

## What happens during the collection procedure?

Your safety and comfort are of the utmost importance to us and a trained nurse will look after you throughout the procedure. The granulocytes will be collected while you rest on a reclining chair or bed. We will try to make you as comfortable as possible and you should not hesitate to ask for anything you need during the collection. For your comfort it is best to wear loose fitting clothing.

To separate the required cells we need to use a starch solution mixed with an anticoagulant (blood thinner).





The purpose of the starch solution is to help separate the granulocytes from the other cells in your blood, and the anticoagulant prevents the blood from clotting while it is in the machine.

A number of different side-effects may be experienced with the use of the starch:

- the starch solution (hydroxy ethyl starch) can cause slight fluid retention (water in the tissues) causing swelling in the legs and feet although this is not usual with infrequent use
- the starch can sometimes cause allergic reactions, which may be severe.

These are infrequent but they are not predictable. Our staff are trained to recognise and treat these side-effects, should they occur. Please let us know if you have a history of allergies.

The anticoagulant can cause any of the following symptoms:

- tingling in your lips, nose or fingers
- a metallic taste in your mouth
- nausea and/or a 'shaky' vibrating sensation that may or may not be unpleasant (caused by the solution temporarily lowering the body's calcium levels).

Other potential side-effects associated with this procedure are similar to those which occur during blood donation, and include light-headedness, fainting, and bruising. Some people have a 'heavy' feeling in the arm as their blood is being removed. You may also feel some vibrations around the site of the needle. These will stop once the procedure is finished.

If any of these symptoms occur or if you feel anything unusual, let the nurse know as soon as they occur so that we can deal with them at once.

The procedure may have to be interrupted, in which case we may not be able to return the blood in the machine to you. The machine only holds a relatively small amount and this loss should not cause you any problems. If you have any other questions about this or any other aspect of the procedure, please do not hesitate to ask.

## How should I prepare for the procedure?

It is important to have something to eat and drink before the procedure and you can eat and drink normally during and after a granulocyte collection. Please bring some food with you as the day can be very long. Food such as sandwiches and rolls are easiest to eat when attached to the machine.

We can offer a limited range of hot and cold drinks and savoury and sweet snacks such as crisps or biscuits. We have no facilities for preparing hot food, however there are catering outlets in the hospitals near most of our units which you may like to visit before or after the procedure.

Once you are connected to the machine you will be unable to visit the toilet so please go immediately before your treatment starts. Assistance will be provided if you do need to use the toilet once you are attached to the machine. Commodes, urinals and bed pans are available for use.

You are welcome to bring a friend or relative to sit with you during the granulocyte collection. Try to avoid bringing children as you will be attached to a machine and therefore will be unable to attend fully to their needs. If you do have to bring children with you it is preferable that another adult accompanies you to take care of them.

## How will I feel after the procedure?

Some people feel tired after the procedure, so it is advisable that a friend or relative takes you home afterwards. If this is a problem it may be possible for transport to be arranged.

**You should not drive yourself home.**

You should not do any hard physical exercise for the rest of the day.



Occasionally we cannot return the blood that is in the machine back to you which means you lose some red cells as a result. The machine only holds a relatively small amount of blood and this loss should not cause you any problems. We will however routinely check your blood levels to ensure they remain at a safe level.

Please Note: It is important to arrive on time for your appointment as another patient or donor may be booked for a procedure after you.

Please do not hesitate to phone us if you have any questions or concerns. We are here to help you.

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### NHS Blood and Transplant

NHS Blood and Transplant (NHSBT) saves and improves lives by providing a safe, reliable and efficient supply of blood and associated services to the NHS in England and North Wales. We are the organ donor organisation for the UK and are responsible for matching and allocating donated organs. We rely on thousands of members of the public who voluntarily donate their blood, organs, tissues and stem cells.

#### For more information

Visit [nhsbt.nhs.uk](https://nhsbt.nhs.uk)

Email [enquiries@nhsbt.nhs.uk](mailto:enquiries@nhsbt.nhs.uk)

Call **0300 123 23 23**