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LEAM conditioning for autologous transplant (inpatient)

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This leaflet explains about LEAM (lomustine, etoposide, ara-C and melphalan) conditioning. You may find it useful to refer to the booklet ‘Chemotherapy, a guide’ which gives general information on chemotherapy and side effects. Before you can receive your transplant, your existing bone marrow and immune system need to be prepared to make way for the new cells. This is called conditioning. Your new cells will be scheduled for re-infusion into you the day after the conditioning therapy has finished. Your treatment will be fully explained to you in clinic by your doctor or nurse from the transplant team who will be happy to answer any questions. If you do not already have a central venous catheter (tube in vein) you will need one inserting before starting the conditioning regimen, this will usually be performed on the day of your admission.

Your treatment

Your doctor has prescribed a treatment called **LEAM conditioning.** This involves giving the chemotherapy into the vein (through a central venous catheter), and also taking oral tablets.

Day -6	Admission to the Palatine ward and central line insertion Commence oral lomustine
Day -5 to Day -2	Etoposide via a drip over 2 hours Cytarabine via a drip over 30 minutes twice a day
Day -1	Melphalan via a drip and IV fluids
Day 0	Harvested stem cells thawed and infused via a drip over 30 minutes
Day +6	Commence G-CSF (white blood cell growth factor) given by injection under the skin in the abdomen or leg. This will continue until your blood counts begin to recover
Day +28	Commence co-trimoxazole tablets Monday/Wednesday/Friday Continue aciclovir tablets for at least 6 months after transplant. This will help to protect you from infections while your immune system recovers
Day +100	Re-vaccination with your GP

This treatment can have serious or possibly life-threatening side effects. It is very important that you report side effects straight away. Don’t delay, if you feel unwell, please ring The Christie Hotline on **0161 446 3658**. The lines are open 24 hours a day.

Increased risk of serious infection

You are vulnerable to infection. When you have been discharged your immunity will be reduced and you will still be at risk of infection. Minor infections can become life-threatening in a matter of hours if left untreated. Symptoms of infection include fever, shivering, sweats, sore throat, diarrhoea, discomfort when you pass urine, cough or breathlessness. We recommend that you use a digital thermometer so you can check your temperature. You can buy one from your local chemist.

If you feel unwell, you have symptoms of an infection or your temperature is 37.5ºC or above, or below 36ºC contact The Christie Hotline straight away.

Lomustine is given as an oral tablet on the evening of your admission.

Etoposide is given intravenously. It can alter your bowel habit. You may also experience skin changes such as a rash/itching/pigmentation, loss of appetite, a sore mouth, lethargy and hair loss.

Cytarabine can sometimes cause symptoms that can result in some or all of the following: fever, weakness and aching in your muscles and bones, a rash and pain in the chest. This will not affect everyone and will disappear soon after the Cytarabine infusions stop. This is given twice a day.

Melphalan can make you feel nauseous and cause vomiting. This should improve 24 hours after the infusion has stopped. However, you may still continue to experience some degree of nausea.

GCSF is a type of protein called a growth factor. This growth factor is given after chemotherapy to stimulate your bone marrow to make white blood cells to help fight infection.

Possible side effects

Chemotherapy can cause many different side effects. Some are more likely to occur than others. Everyone is different and not everyone gets all the side effects. Most side effects are usually temporary, but in some rare cases they can be life-threatening. It is important to tell your hospital doctor or nurse about any side effects so they can be monitored and, where possible, treated.

Common side effects (more than 1 in 10)

• Anaemia is a low number of red blood cells

While having this treatment you will become anaemic. This may make you feel tired and breathless. Let the doctor or nurse know if you experience these symptoms. You will have regular blood tests to monitor this. You may need a blood transfusion.

• Bruising or bleeding

This treatment can reduce the production of platelets which help the blood clot. Let the doctor or nurse know if you have any unexplained bruising or bleeding, such as nosebleeds, bloodspots or rashes on the skin, and bleeding gums. You will have regular blood tests and daily visual checks by the nurses to monitor this. You may need a platelet transfusion.

• Nausea and vomiting (sickness) (Warning!)

The severity of this varies from person to person. Anti-sickness medication will be given to you through your line or as a tablet. If you continue to feel or be sick, let the doctor or nurse know and alternative medications can be prescribed.

• Upset bowels

You may experience an altered bowel habit. If you develop diarrhoea you will be asked to provide a sample to check this for any infection. You will need to take extra fluids to stop you becoming dehydrated if you have diarrhoea. The fluids can be given either by drinking or if you are feeling too sick then by an intravenous infusion. We will give you antibiotics if the diarrhoea is proven to be infective in origin. If you have constipation we may give you a laxative. If you experience any of these symptoms it is important to tell your doctor or nurse

• Hair loss

Hair loss is usually total. The hair falls out gradually approximately 10 to 14 days following your chemotherapy. The time scale varies from person to person. This is a temporary side effect and your hair will grow back following your transplant. However the colour and texture may alter. Very rarely, hair loss can be permanent.

The cancer information centre offers a coping with hair loss service to all patients where support, information and advice will be given. Drop in, phone **0161 446 8100** or email **the-christie.informationcentre@nhs.net.** Information about the wig service can also be found here and vouchers for wigs can also be obtained for eligible patients. The wig room also provides a drop in service, please see The Christie leaflet 'The wig fitting service' for further information.

The Maggie's Centre can support you with hair loss by helping you consider the practicalities as well as the emotional impact. Maggie's provides expert care and support to everyone with cancer and those who love them. You can call into Maggie's Monday to Friday, 9am to 5pm to speak with their professional team, their address is Maggie's Manchester at The Robert Parfett Building, 15 Kinnaird Road, Manchester, M20 4QL or you can call them on **0161 641 4848** or email **manchester@maggies.org**.

• Lethargy

You will feel tired and lacking in energy. It can be frustrating when you feel unable to cope with routine tasks. Gentle exercise can be beneficial. The nurse will advise and provide information to support you during your stay in hospital. This may last for several weeks after your transplant.

• Altered taste and smell

Chemotherapy can alter your taste and smell. Sometimes altered taste can be described as metallic or bitter. Your sense of taste and smell will normally return but can take some time.

• Mouth care/mucositis

When you begin your conditioning therapy we will give you some products to use that will help to prevent infections in your mouth. Your mouth may become sore or dry and you may notice mouth ulcers. It is important to maintain good oral hygiene, drinking regular fluids and regular teeth brushing with a soft toothbrush. If you have difficulty with you mouth care let your nurse know. You may develop mucositis. This occurs when the mucous membrane lining of your mouth and throat become inflamed and ulcerated. This can be painful and you may need strong painkillers.

• Diet

It is important to try to eat well while you are in hospital and having treatment. Eating well helps to ensure that your body has the energy and nutrients needed to rebuild damaged tissue, fight infection and cope with any treatment side effects. Your treatment will increase your risk of infection, and certain foods can carry germs which may be harmful to you at this time. As a precaution you will be advised to avoid certain higher risk foods.
It is usual to experience weight loss during your transplant as your appetite can be reduced. Eating little and often can help. Food supplements are available and a dietitian may come to see you.

• Sexuality

The effects of chemotherapy and your transplant can cause sexual problems and may affect your fertility. Loss of sexual desire, changes in hormone levels and for women vaginal dryness, painful intercourse and early menopause are possible. The treatment can change the way we feel about ourselves and others, therefore please discuss any of your concerns with one of the team.

Further information is in the booklets – 'Welcome to the Palatine ward' and The Lymphoma Association 'Autologous transplant' booklet.

Rare side effects (less than 1 in 100)

• Serious and potentially life threatening side effects

In a small proportion of patients chemotherapy can result in very severe side effects which may rarely result in death. The team caring for you will discuss the risk of these side effects with you.

Sex, contraception and fertility

Protecting your partner and contraception: We recommend that you or your partner use a barrier form of contraception during sexual intercourse while you are having the course of chemotherapy. Chemotherapy is dangerous to unborn babies and this will also protect you and your partner from any chemotherapy drugs that may be present in semen and in the vagina. If you suspect that you may be pregnant please tell your doctor immediately. For some treatments it is advised that contraception is used and pregnancy avoided for 6 to 12 months after the last dose of treatment. If you have received one of these treatments the medical team will discuss this with you.

Fertility: This chemotherapy may affect your ability to have children. Your doctor or nurse should have discussed this with you. If not, please ask them before you start treatment.

Late side effects

Some side effects may become evident only after a number of years. In reaching any decision with you about treatment, the potential benefit you receive from treatment will be weighed against the risks of serious long term side effects to the heart, lungs, kidneys and bone marrow. With some drugs there is also a small but definite risk of an increased chance of developing another cancer. If any of these problems specifically applies to you, the doctor will discuss these with you and note this on your consent form.

Flu vaccinations

Is it alright for me to have a flu jab during the time I'm having chemotherapy? It's safe to have a flu jab, but depending on the sort of chemotherapy you have had, it may not give quite as much protection against infection as usual. Some patients may need 2 vaccinations. However, if you're thinking of having any other vaccinations, do check with your Christie doctor first, because some vaccines should be avoided.

COVID-19 vaccinations

We advise that all patients receive a COVID-19 vaccination when this is offered. Your doctor will discuss with you the best time to have this.

Contacts

If you have any general questions or concerns about your treatment, please contact the haematology and transplant unit.

Haematology clinical nurse specialist	**0161 446 8167**
Haematology and transplant day unit	**0161 446 3924**
General enquiries	**0161 446 3000**
For urgent advice ring The Christie Hotline	**0161 446 3658** (24 hours a day, 7 days a week).

Your consultant is: ....

Your hospital number is: ....

Your key worker is: ....

If you need information in a different format, such as easy read, large print, BSL, braille, email, SMS text or other communication support, please tell your ward or clinic nurse.

The Christie is committed to producing high quality, evidence based information for patients. Our patient information adheres to the principles and quality statements of the Information Standard. If you would like to have details about the sources used please contact **the-christie.patient.information@nhs.net**

For information and advice visit the cancer information centres at Withington, Oldham, Salford or Macclesfield. Opening times can vary, please check before making a special journey.

Contact The Christie Hotline for
urgent support and specialist advice
The Christie Hotline: 0161 446 3658
Open 24 hours a day, 7 days a week

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The Christie Patient Information Service
Tel: 0161 446 3000 www.christie.nhs.uk