

## IVAC (Lymphoma)

The possible benefits of treatment vary; for some people this chemotherapy may reduce the risk of the cancer coming back, for others it may control the cancer and its symptoms. Chemotherapy is the most commonly prescribed anti-cancer treatment but other types of treatment are also used. Your doctor will explain to you whether you will receive chemotherapy or another type of treatment, or a combination of both. Your doctor or nurse will be happy to answer any questions you have about your treatment. You will find it useful to refer to the booklet Chemotherapy, a guide which gives general information on chemotherapy and side effects.

### Your treatment

IVAC is given between cycles of CODOX-M chemotherapy (see separate information leaflet). You will receive 4 cycles of chemotherapy in total – alternating cycles of IVAC and CODOX-M, usually starting with CODOX-M. You will have your treatment in hospital and stay in hospital until your blood counts recover. This means you will be in hospital for about 3 to 4 months, but this may vary from person to person. You will also have two infusions of Rituximab (antibody treatment) with each cycle during this time (see separate information leaflet). Your treatment includes the following:

#### Day 1:

- Rituximab given as an infusion (drip) into a line (cannula or central line) over a few hours if you have not received it before.
- Etoposide given as infusion over 1 hour.
- Ifosfamide/Mesna given as infusion over 1 hour once Etoposide is completed.
- Cytarabine given as infusion over 3 hours once Ifosfamide/Mesna is completed.
- Mesna given as infusion over 12 hours once Cytarabine is completed.
- Cytarabine given as infusion over 3 hours, starting 12 hours after previous Cytarabine dose.

**Day 2:** as day 1 without Rituximab.

**Days 3, 4 & 5:** as day 2 without Cytarabine. Mesna infusion will start 4 hours after ifosfamide/mesna infusion.

**Days 6 & 7:** no chemotherapy.

**Day 8:** Rituximab given as an infusion over 60 minutes.

**From Day 9:** no chemotherapy until your blood count has recovered ready for your next cycle.

You will also have Methotrexate chemotherapy given via a needle into the base of the spine during the first week of each cycle.

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

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.



## Tumour lysis syndrome

This treatment may cause the rapid breakdown of lymphoma cells, which may lead to abnormalities in the blood. This problem is more likely with the first cycle of treatment, if your disease is widespread or if your kidneys do not work as well as they should do. Your doctor will tell you if you are at risk. You may be given kidney-protective medicines such as allopurinol or rasburicase and intravenous fluids. Your doctor may do additional blood tests to monitor this side effect.

## 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)

- **Increased risk of serious infection**

You are vulnerable to infection while you are having chemotherapy. 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 when you are at home. You can buy one from your local chemist.

- **Bruising or bleeding**

This treatment can reduce the production of platelets which help the blood clot. Let your nurse or doctor know if you have any unexplained bruising or bleeding, such as nosebleeds, bloodspots or rashes on the skin, and bleeding gums. You may need a platelet transfusion.

- **Anaemia (low number of red blood cells)**

While having this treatment you may become anaemic. This may make you feel tired and breathless. Let your doctor or nurse know if these symptoms are a problem. You may need a blood transfusion. You will have a routine blood test every day while you are in hospital to monitor the effects of the chemotherapy, but please tell your nurse if you feel tired or breathless.

- **Nausea and vomiting (sickness)**

The severity of this varies from person to person. Anti-sickness medication will be given along with your chemotherapy to prevent this. If you continue to feel or be sick your anti-sickness medication may need to be changed or increased.

- **Reduced appetite**

This chemotherapy can suppress your appetite. Ask the staff for a copy of 'Eating: help yourself' which has useful ideas about diet when you are having treatment.

- **Sore mouth**

Your mouth may become sore or dry, or you may notice small mouth ulcers during this treatment. Drinking plenty of fluids and cleaning your teeth regularly and gently with a soft toothbrush can help to reduce the risk of this happening. We can prescribe a mouthwash for you to use during treatment. You can dilute this with water if your mouth is sore. Ask your doctor or nurse for further advice. There is also general mouth care information in the chemotherapy booklet.

- **Constipation**

Etoposide and some anti-sickness tablets can cause constipation. Try to drink plenty of fluids and eat foods high in fibre. Report this to your doctor or nurse who may prescribe a suitable laxative. Ask the staff for a copy of 'Eating: help yourself' which has useful ideas about diet when you are having treatment.

- **Diarrhoea**

This chemotherapy can cause diarrhoea. If this becomes a problem during or after your treatment, anti-diarrhoea tablets can be prescribed by your doctor once infection has been ruled out. Ask the staff for a copy of Eating: help yourself which has some useful ideas about diet when you are having treatment.

- **Lethargy (tiredness)**

Some chemotherapy may make you feel tired and lacking in energy. It can be frustrating when you feel unable to cope with routine tasks. It can last for a number of weeks or months after treatment. If you do feel tired, rest and get help with household chores. Gentle exercise such as walking can be beneficial.

- **Flu-like symptoms/fever**

Cytarabine may cause flu-like symptoms such as fever, aches and pains and shivering about 3 to 5 hours after it is given. These symptoms are temporary and should go within 12 to 24 hours. Paracetamol will help. If your symptoms are particularly severe, tell your doctor or nurse.

- **Hair loss**

Hair loss is usually total. The hair falls out gradually 10 to 14 days following your first course of treatment. Body and facial hair can also fall out. The time scale varies from person to person. Please remember that this is a temporary side effect and your hair will grow back when your treatment is complete. 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, contact **0161 446 8100** or email [informationcentre@christie.nhs.uk](mailto:informationcentre@christie.nhs.uk). Information about the wig service can also be found here and vouchers for wigs can also be obtained for eligible patients. The wig room provides a drop in service, please see The Christie leaflet 'The wig fitting service' for further information.

The Maggie's Centre runs a Talking Heads hair loss support workshop for anyone who is anticipating or experiencing hair loss (both men and women). These sessions cover the practicalities of hair loss as well as offering support with its emotional impact. Contact Maggie's on **0161 641 4848** or email [manchester@maggiescentres.org](mailto:manchester@maggiescentres.org)

- **Changes to kidney function**

Cytarabine and ifosfamide can cause changes to your kidney function. Your kidney function will be monitored with your routine blood tests. Drink plenty of fluids to prevent dehydration. Contact your doctor or nurse if you notice any changes to the frequency you pass urine or if you notice any blood in your urine.

- **Changes to liver function**

This chemotherapy can cause changes to your liver function. Your liver function will be monitored with your routine blood tests. Doses of medication may need to be changed if your blood tests are abnormal.

- **Eye irritation**

This is a known side effect of the cytarabine at the dose given in this treatment. We will give you eye drops to try to prevent this, but please let your nurse or doctor know if your eyes feel uncomfortable.

- **Headaches/dizziness**

This chemotherapy and some anti sickness medication can cause headaches and/or dizziness. Speak to your doctor or nurse for advice if you experience these symptoms.

- **Skin reddening/rash**

Your skin may become reddened, itchy or you may develop a rash. In rare cases this can be severe. Let your doctor or nurse know if you experience any of these symptoms.

## **Uncommon side effects (less than 1 in 10)**

- **Changes to your lung function**

Etoposide, ifosfamide and cytarabine can cause some changes to your lung tissue. Report any cough or breathlessness to your doctor or nurse.

- **Bladder irritation**

Ifosfamide can cause a burning sensation on passing urine. This is caused by irritation of the bladder walls by the chemotherapy leaving the body. The medication, mesna, which you have been given should prevent this side effect. But if you do have a burning sensation on passing urine or notice any blood in your urine inform your doctor or nurse. If you are at home please contact The Christie Hotline immediately.

- **Irritation to the brain**

Ifosfamide and cytarabine can cause irritation to the brain. You may notice vivid dreams while you are on the drip (while the chemotherapy is actually being given). Sometimes people get very drowsy, sleepy or confused. Some people may have visual hallucinations. Please tell the nurse if you begin to feel any of these symptoms. These symptoms usually quickly go away if the drip is stopped and there are no permanent effects. However, rarely, ifosfamide can cause a loss of consciousness which can last for several days. Your doctor or nurse can give you more information about this.

- **Tingling and numbness in the fingers or toes/muscle weakness**

This can sometimes last for some time or become permanent. Sometimes you may also have difficulty controlling the muscles in your arms and legs or your balance. Please report these symptoms to your doctor or nurse.

## **Rare side effects (less than 1 in 100)**

- **Changes to heart function**

Ifosfamide, etoposide and cytarabine may cause changes in the rhythm of the heart, which can affect how the heart works. Etoposide can also increase the risk of having a heart attack. The effect on the heart depends on the dose given. It is unusual for the heart to be affected if you receive standard doses. Tests to see how well your heart is working may be carried out before the chemotherapy is given.

- **Extravasation**

Extravasation is when chemotherapy leaks outside the vein. If you develop redness, soreness or pain at the injection site at any time please let us know straight away. This happens rarely when you have a central line fitted.

- **Allergic reactions (Warning!)**

Etoposide and Ifosfamide can sometimes cause immediate allergic reactions when it is being given. Please tell your nurse straight away if you have any of the following symptoms: skin rash, itching, fever, shivering, dizziness, headache or breathlessness.

- **Changes to your vision**

Rarely Etoposide can cause swelling of the optic nerve that can affect your eyesight. Temporary loss of vision can also occur. Report any changes straight away to your doctor or nurse or if you are home contact The Christie Hotline.

## **Herbal medicine**

Some herbal medicine including St John's Wort can affect the chemotherapy. You should let your doctor or nurse know if you are taking any herbal medication, complementary or alternative medicines, including vitamins, minerals and medicines purchased over-the-counter.

## **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 condom 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.

### **Fertility**

This chemotherapy can 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. Etoposide and Ifosfamide can increase the risk of developing leukaemia in the future. With some drugs there is also a small but definite risk of developing another cancer. If any of these problems specifically apply to you, the doctor will discuss these with you and note this on your consent form.

## Contacts

If you have any general questions or concerns about your treatment, please ring the area where you are having treatment:

- Lymphoma clinical nurse specialist **0161 446 8573**

- Lymphoma secretaries

**0161 446 3753** - Professor Radford/Dr Linton

**0161 446 8574** - Professor Illidge

**0161 446 3956** - Dr Smith

**0161 446 3332** - Professor Cowan/Dr Chan

**0161 446 3302** - Dr Harris

**0161 446 3869** - Dr Bloor

- General enquiries - **0161 446 3000**

For urgent advice ring The Christie Hotline on **0161 446 3658**

Your consultant is: .....

Your hospital number is: .....

Your key worker is: .....

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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 or Salford. 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