

Patient leaflets from the BMJ Group

## Non-Hodgkin's lymphoma

**It's very worrying to learn that you have any type of cancer. But there are good treatments for many types of non-Hodgkin's lymphoma. They can even cure cancers that have spread around the body.**

We've brought together the best and most up-to-date research about non-Hodgkin's lymphoma to see what treatments work. You can use our information to talk to your doctor and decide which treatments are best for you.

### What is non-Hodgkin's lymphoma?

Non-Hodgkin's lymphoma is a type of cancer. The cancer starts in your lymphatic system, a part of your body that helps to fight infections. There are many different types. The information here is for adults with diffuse large B-cell lymphoma. If you are unsure what type of lymphoma you have, ask your doctor.

When your body's cells are healthy, they divide, grow, and are replaced in an orderly way. When cells become cancerous they grow too fast and do not develop properly. Abnormal cells form a lump, called a tumour which enlarges over time.

Non-Hodgkin's lymphoma starts in cells called lymphocytes. These cells help your body to fight infections. They are made in lymph nodes which are found throughout the body. Common areas where lymph nodes are found are your neck, armpits and groin. They are usually too small to feel, but swell up when you have an infection. Lymph nodes also swell up if a lymphocyte starts dividing too fast and forms a tumour.

Tumours made of lymphocytes are called lymphomas. They don't just grow in your armpits, neck and groin. They may also grow in other lymph nodes in your chest or abdomen, or other places, including your stomach, intestines and brain.

We do not know why some people get non-Hodgkin's lymphoma. It's more common in people over the age of 65, and in people who have problems with their immune system (for example, in people with AIDS (acquired immune deficiency syndrome), or people who have had an organ transplant).

### What are the symptoms?

The most common symptom is being able to feel one or more lumps in your neck, armpit, groin, abdomen, or testicles if you're a man. Some lumps get very big and grow fast, but others grow more slowly. They do not usually hurt. The lumps can come and go, but most last for at least six weeks.

About 1 in 3 people get symptoms that can also be signs of other types of illness. These include feeling very tired, having a fever that makes you sweat badly at night, losing your appetite and losing weight.

## Non-Hodgkin's lymphoma

Tumours cause problems depending on where they grow. Sometimes a tumour can block your intestines or grows through your gut wall. This can cause pain, vomiting with blood, or passing blood in the stools. If you get these symptoms, you need treatment in hospital straight away.

A tumour in the lungs could cause difficulty breathing. You can get headaches, and seizures and become forgetful if the lymphoma develops in your brain. A tumour anywhere in your body can cause pain.

Non-Hodgkin's lymphoma is not easy to diagnose from symptoms alone. Before your cancer is diagnosed, you should have had either a biopsy (where a surgeon removes a piece of tissue for testing) or surgery to remove a lymph node for testing.

### What treatments work?

Chemotherapy is the main treatment for non-Hodgkin's lymphoma. You might also have radiotherapy or a drug called rituximab. All of these treatments work well.

### Chemotherapy

Chemotherapy uses drugs to kill cancer cells. The type of chemotherapy most often used for non-Hodgkin's lymphoma is a combination of drugs, called **CHOP**. It includes these four drugs: cyclophosphamide, doxorubicin, prednisolone and vincristine.

Research shows CHOP chemotherapy will probably shrink your tumour and may cure it. Even if your cancer does not go away completely, CHOP chemotherapy can help you live longer.

You have chemotherapy in cycles. One cycle is one treatment, followed by a rest period. If you are having chemotherapy for advanced non-Hodgkin's lymphoma, you will usually have between three and eight cycles of chemotherapy. Each cycle is given every two to four weeks. The exact number and duration of each cycle will depend on the exact nature of your disease. No other combination of chemotherapy has consistently been shown to be better than CHOP; this combination of drugs is used in most countries throughout the world.

In studies, between 2 in 10 and 6 in 10 people were cured by chemotherapy. This means they were still alive, with no sign of the cancer having come back, five years after treatment.

You are likely to get some side effects from cancer treatment, but you probably won't get all of them. The most common side effects from chemotherapy are: losing some or all of your hair, feeling or being sick, feeling tired, and having low levels of blood cells. In general, CHOP chemotherapy is well tolerated, and most side effects, if they occur, can be successfully treated.

If your blood cells drop very low you can get serious problems such as infections. Your doctors will keep a close check on your blood cells to try to make sure this doesn't happen.

## Non-Hodgkin's lymphoma

Some people have a type of treatment to encourage the body to make extra white blood cells. This treatment is called **granulocyte colony-stimulating factor (GCSF)**; this is given as an injection for a few days after your chemotherapy. Your doctor may choose to use it if you have problems with infections due to low levels of white blood cells. GCSF is also being studied in clinical trials to see if it can improve the chance of curing lymphoma.

### Radiotherapy

You may have a course of radiotherapy after you've had chemotherapy for non-Hodgkin's lymphoma. Radiotherapy is used if you have lymphoma localised to a single area, if the lymphoma mass is more than 5 centimetres (2 inches) in diameter, or where it is thought that there may be some residual lymphoma at the end of chemotherapy.

Radiotherapy uses high-energy X-rays to kill cancer cells. You won't feel anything, and each treatment lasts only a few minutes. You will probably start radiotherapy about three weeks after you finish chemotherapy. Most people need treatment five days a week for several weeks.

Chemotherapy plus radiotherapy gets rid of lymphoma completely for at least 3 in 4 people. In one study, almost 9 in 10 people with early non-Hodgkin's lymphoma who had chemotherapy followed by radiotherapy were still alive 10 years later. But less than 6 in 10 who had chemotherapy on its own were still alive 10 years on.

Radiotherapy can damage normal tissues as well as cancer cells. Doctors are careful to aim the radiation directly at your tumour. The most common side effects from radiotherapy are having itchy skin where you have been treated, and feeling tired.

### Rituximab

You might be given a drug called rituximab at the same time as you have chemotherapy. Rituximab is a type of antibody. It helps your immune system recognise and destroy the cancer cells. Doctors call this biological therapy, or immunotherapy.

You need to take the chemotherapy and rituximab at the same time. Rituximab is given on the first day of each chemotherapy treatment. It goes straight into your bloodstream through a small tube in your arm.

Rituximab improves your chances of recovering from your cancer more than having chemotherapy alone. About 75 in 100 people who have chemotherapy and rituximab have no signs of lymphoma at the end of treatment. And 70 in 100 people are alive two years later.

In one study, about 10 in 100 people got some side effects while the rituximab was being put into their bloodstream. The most common problems were: a high temperature, breathing problems such as wheezing, chills, dizziness, and fainting. These side effects cleared up when rituximab was put into the arm more slowly.

A few people taking rituximab for non-Hodgkin's lymphoma or another condition called lupus had a dangerous brain infection. Some of these people died. Doctors don't know

## Non-Hodgkin's lymphoma

if rituximab caused the illness. This complication has happened up to one year after people stopped taking rituximab, but it's very rare.

### What will happen to me?

Cancer is an individual disease. Everyone is different, and everyone's non-Hodgkin's lymphoma is different. Your cancer specialist or cancer nurse is the best person to talk to about your future.

Your doctor or nurse may use the word 'remission'. Being in remission means that treatment has worked and doctors can no longer detect your cancer. You can think of yourself as cured when you have been in remission for five years.

Like many other cancers, non-Hodgkin's lymphoma can come back after it's been treated. When a cancer comes back it's called having a relapse.

No-one can tell you if your lymphoma will come back. It's hard to say exactly how many people's non-Hodgkin's lymphoma will come back, because the research doesn't give any clear answers to this question. A rough estimate is that about 1 in 2 the people who have non-Hodgkin's lymphoma will get it again after they are treated. It is rare for non-Hodgkin's lymphoma to relapse after two years.

If your cancer does come back, you can have more treatment. Many people who have a relapse can still be cured. You may need a different type of chemotherapy, or more intense chemotherapy. You might also need a stem cell or bone marrow transplant. This is to help your body recover from intense chemotherapy.

### Where to get more help

The Lymphoma Association is a UK charity providing advice and support to people with all types of lymphoma and their families. You can call its helpline on 0808 808 5555 or visit its website (<http://www.lymphomas.org.uk/>).

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