The ROYAL MARSDEN
NHS Foundation Trust

Patient information

R-CHOP chemotherapy for non-Hodgkin lymphoma

Your doctors have suggested you are likely to benefit from a course of R-CHOP chemotherapy treatment. They have weighed the expected benefits in terms of controlling the cancer and its symptoms, against the possibility of side effects. Your doctor will have discussed these with you.

The aim of this treatment is to shrink the cancer and potentially cure the disease. It is not possible to predict, before you start treatment, how your cancer will respond and if the response will be permanent. This factsheet explains what you can expect from the chemotherapy you will receive.

R-CHOP chemotherapy is a combination of five drugs. They are cyclophosphamide, doxorubicin, vincristine, prednisilone and rituximab (a monoclonal antibody).

Monoclonal antibodies

Rituximab is an antibody used to try to destroy some types of cancer cells while causing little harm to normal cells. The antibody recognises a certain protein that is found on the surface of particular cancer cells. The antibody 'locks on' to the protein (like a key in a lock). This process may trigger the body's immune system to attack the cancer cells. Rituximab attacks both abnormal (malignant) and normal B-cell lymphocytes. The body quickly replaces any normal white blood cells which may be damaged, so the risk of side effects from this treatment is small.

Treatment plan

Your R-CHOP chemotherapy will be given as a cycle over 21 days as follows:

- cyclophosphamide – given as an injection into a vein through a thin tube (cannula) on day one
- doxorubicin – given as an intravenous injection on day one
- vincristine – given as an intravenous infusion over 10-15 minutes on day one
- prednisolone – given as tablets on days one to five
- rituximab – given as an intravenous infusion (over a period of 1.5 to 4 hours) on day one.

Days 6 to 21 are a rest period. Each three week period is called a cycle. The treatment is usually given over a period of three to six months. Your doctor will discuss with you, the number of cycles you are likely to have.

A new cannula will be placed in your arm before each dose of chemotherapy and will remain there only while that chemotherapy is being given. Some people may have their treatment given through a central venous access device (see The Royal Marsden booklet *Central venous access devices* for further information). The doctors in clinic will see you and have your blood tested before each cycle of chemotherapy. Treatment may be delayed if your blood count is not at a suitable level. This factsheet should be read together with The Royal Marsden booklet

Chemotherapy; your questions answered. The booklet offers general information about chemotherapy and details about many of these side effects and how to manage them.

Side effects

All drugs can have some side effects and this includes R-CHOP chemotherapy. These vary and for some people they may not occur.

The more common side effects of R-CHOP chemotherapy are:

- **Tiredness or lethargy** – during your chemotherapy, you may become very tired a few days following treatment. Pace yourself and rest as necessary.
- **Low blood count** – chemotherapy temporarily reduces the rate at which blood cells are produced in your bone marrow. This may cause:
    - Anaemia (low red cell count) – you may need blood transfusions.
    - Neutropenia (low white cell count) – this may increase your risk of developing an infection, which may be serious and life threatening.
    - Thrombocytopenia (low platelet count), which may increase your tendency to bleeding – you may need platelet transfusions.

If you feel unwell at any time or have a temperature (37.5°C/99.5°F or higher or 35.5 °C/95.9 °F or lower) **you should contact the hospital immediately** as you may need to be admitted for intravenous antibiotics. For further information please refer to The Royal Marsden booklet *Chemotherapy; your questions answered*.

- **Nausea and vomiting** – chemotherapy sometimes causes this. It can usually be managed with anti-sickness (anti-emetic) drugs.
- **Hair loss (alopecia)** – temporary hair loss usually happens. For further information please refer to the Macmillan booklet *Coping with hair loss*.
- **Sore mouth** – keep your mouth clean and healthy by drinking plenty of fluids and carrying out good oral hygiene. You will be given prescribed mouthwashes to help with this.
- **Numbness and tingling in the hands and feet (peripheral neuropathy)** – vincristine can cause problems with the nerves in the body. It can cause sensations like tingling, burning, numbness or pins and needles in the hands and/or the feet. Tell your doctor if you get any of these sensations, so they can be monitored. Most of the time, these symptoms will get better after your treatment ends, although it may take some time.
- **Effects on the bladder** – cyclophosphamide can cause irritation to the bladder. Drinking plenty of fluids will help prevent this. However, if you notice blood in your urine, please inform your doctor or nurse. Doxorubicin is red in colour and may cause your urine to become pink or red for up to 24 hours following each treatment.
- **Skin and nail changes** – the skin around the site of the injection may become irritated. Your skin may also become darker, redder and more sensitive to light. You will need to take care in the sun as your skin may burn more easily during treatment and for several months afterwards. Your nails may become darker than usual and they may develop ridges. White lines may appear on them. These changes usually grow out over a few months after the treatment has finished.

Side effects of steroids

As prednisolone is a steroid, there are a number of side effects you may experience when taking this. Most of these will go away once treatment is finished. Other than those mentioned above, you may notice the following:

- **Fluid retention** – you may notice swelling of your ankles (ankle oedema). Usually, this is mild and goes away when treatment ends.
- **Mood changes, euphoria or difficulty in sleeping** - you may find it helpful to discuss with your doctor, which time of day is best to take your steroids. It is usually best to avoid taking them in the evening if possible.
- **Blurred vision** – tell your doctor if this happens.
- **Irritation of the lining of the stomach** – prednisolone may cause stomach pain, however you will be given drugs to prevent this from happening. It may also cause increased appetite and weight gain.
- **Steroid induced diabetes** – steroids may increase your blood sugar levels. Symptoms of a raised blood sugar are feeling tired, passing urine more frequently and feeling thirsty. Please contact your team if you experience any of these symptoms. This may be permanent. For further information, please see The Royal Marsden booklet *High dose steroids.*

Less common side effects are:

- **Lung damage** – cyclophosphamide can cause changes to the lungs. Tell your doctor if you have any changes with your breathing or a cough.
- **Constipation** – if you experience constipation, it can be treated with laxatives.
- **Changes in liver function** – there may be changes in the way your liver works.
- **Damage to the heart muscle** – there is evidence that very large cumulative doses of doxorubicin (all the doses added together) could cause long-term heart damage. The total dose that we use is far below this and therefore the risk is extremely small. It is important, however, that you inform your doctors at once if you have had heart disease in the past.
- **Eye irritation** – doxorubicin can cause inflammation of outermost layer of the eye and the inner surface of the eyelids (conjunctivitis). It can also cause excessive tear production.
- **Secondary cancer** – There is a small chance that cyclophosphamide may cause a secondary cancer. If this is of concern, please feel free to discuss with you doctor.

Side effects of rituximab

The following side effects may also happen with the rituximab part of your treatment.

- **Flu-like symptoms** – this can include a high temperature and chills, muscle aches and headache. This can occur while the infusion is in progress but should not last for long. This is due to the reaction of your body to a foreign antibody. If these symptoms occur, the infusion may need to be stopped and restarted when the symptoms have resolved. Any lingering effects should disappear once your treatment is completed. If, however, you experience any of these symptoms or feel unwell at home following the infusion, please contact your nurse or clinic as soon as possible.

- **Low blood pressure** – this may happen during the infusion. Your blood pressure will be checked regularly.
- **Allergic reactions** – for a small number of patients a more severe, occasionally life-threatening, infusion related reaction can happen. In addition to the side effects above, this may include a feeling of swelling in the tongue or throat, a cough and breathlessness. You will be monitored closely during your treatment and if any of these symptoms occur the treatment will be slowed down until you are feeling better.

Fertility, pregnancy and breastfeeding

- **Fertility** – chemotherapy can damage the testis or ovary. This may affect your ability to conceive (or father a child). Infertility can be temporary or permanent. Sometimes, in women, chemotherapy can lead to premature menopause. If relevant to you, you may want to discuss the issue of fertility with your doctor before treatment is started.
- **Pregnancy** – during chemotherapy and for up to a year afterwards, if sperm or eggs are produced they may be abnormal. Treatment can also harm an unborn child. We recommend that you or your partner use a barrier method of contraception (such as condoms), during treatment and for one year afterwards. If you know you are pregnant before starting treatment or become pregnant during treatment, you must tell your doctor immediately.
- **Breastfeeding** – there is a risk of harm to a child who is being breastfed since the drug may be concentrated in the milk. It is very important that women do not breastfeed while receiving chemotherapy.

Blood clots

Both the lymphoma and the chemotherapy can increase the risk of developing blood clots. Blood clots can occur in the veins causing problems like deep vein thrombosis (clot in the leg causing swelling of the leg) or pulmonary embolus (clot in the lung causing shortness of breath or chest pain). Blood clots can also occur in the arteries leading to a heart attack, stroke or impairment of the blood supply to a limb. Blood clots can be life threatening but can usually be treated by drugs that thin the blood. If you are concerned about any of the above, please inform your doctor immediately.

We have listed the most common side effects of this chemotherapy. You may experience some or several of these side effects listed above and they may be mild, moderate or severe. Some can occasionally be life-threatening.

As with all drugs, there may be other side effects not mentioned here that you may experience. Because of the risk of side effects, it is important that you:

- Always tell your doctor if you suffer from any of these side effects, or if you have experienced any new symptoms since your last visit. Your doctor can help you by giving you medication or advice, to reduce or stop these side effects from occurring in the future.
- Always tell your doctor about any other medicine you are taking or planning to take, including herbal and complementary therapies.
- Always consult your doctor before having any other procedure, for example, dental work or vaccinations.

Contact details

Please contact your Clinical Nurse Specialist if you have any concerns or queries.

Sutton:	020 8661 3987
Chelsea:	020 7808 2247

Alternatively, please call:

The Royal Marsden Macmillan Hotline: (available 24 hours a day, 7 days a week)	020 8915 6899