



KEEP ALL MEDICINE OUT OF THE SIGHT AND REACH OF CHILDREN

RICE

What IS RICE?

RICE is the name of a combination of cancer drugs for non Hodgkin's lymphoma or Hodgkin's lymphoma that has come back after previous treatment. RICE is the ICE chemotherapy combination with the drug rituximab. Rituximab is a type of biological therapy called a monoclonal antibody.

RICE is made up of the drugs

- R = Rituximab, also known as Mabthera
- I = Ifosfamide
- C = Carboplatin
- E = Etoposide

The side effects of a combination of drugs are usually a mixture of those of each drug. The combination may increase or decrease your chance of getting each side effect or it may change the severity

How you have RICE treatment

- You have RICE drugs into your bloodstream (intravenously). You can have them through a thin, short tube (a cannula) put into a vein in your arm each time you have treatment. Or you may have them through a central line, a portacath, or a PICC line. These are long, plastic tubes that give the drugs directly into a large vein in your chest. You have the tube put in just before your course of treatment starts and it stays in place as long as you need it.
- You usually have ifosfamide with another drug called mesna, either as a drip (infusion) or as tablets. It is very important that you take tablets according to the instructions your doctor or pharmacist gives you. For example, whether you have a full or empty stomach can affect how much of a drug gets into your bloodstream. You should take the right dose, not more or less. Mesna stops the ifosfamide from irritating your bladder and causing bleeding.
- You usually have RICE drugs as cycles of treatment. You may have 3 cycles. Each cycle lasts 3 weeks.
- Some people have an allergic reaction to rituximab, causing
 - flu like symptoms such as a fever
 - chills and shivering (rigors)
 - headache and feeling sick
- So you have the first dose slowly by drip over a few hours. To help prevent an allergic reaction you will have paracetamol and an antihistamine drug before the treatment. You may also have steroids. If you have a reaction, your nurse will stop the drip and start it again at a slower rate once your symptoms have reduced.
- Different hospitals give RICE in different ways. Two common ways are described below as schedule A and schedule B.
- Schedule A
 - On the first day of the treatment cycle you have a rituximab drip
 - On the second day of the first cycle you have a rituximab drip but you don't have this with the following cycles
 - On the third day you have a drip of etoposide over about 1 hour
 - On the fourth day you have an etoposide drip plus a drip of carboplatin over 1 hour and you start a 24 hour drip of ifosfamide and mesna

The information in this leaflet should not be construed as medical advice.
Please consult with your physician regarding your medical decisions and treatment



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- On the fifth day you have a drip of etoposide before you go home
- From the 7th to the 14th day you have daily injections of a growth factor drug called G-CSF (granulocyte colony stimulating factor). This drug helps to stimulate your bone marrow to produce white blood cells. A nurse may do the injections or you can be taught how to give them to yourself. Or you may have one injection of pegfilgrastim, which releases G-CSF slowly over a week.
- One week after the growth factor injections finish, you start another cycle of treatment.
- **Schedule B**
 - On the first day of the treatment cycle you have a rituximab drip and an etoposide drip
 - On the second day you have an etoposide drip plus a drip of carboplatin over 1 hour and you start a 24 hour drip of ifosfamide and mesna. On the first cycle you have a rituximab drip but you don't have this with the following cycles
 - On the third day you have a drip of etoposide for an hour
 - From the 7th to the 14th day you have daily injections of G-CSF (granulocyte colony stimulating factor). Or you may have one injection of pegfilgrastim.
 - One week after the growth factor injections finish, you start another cycle of treatment.

Common side effects

More than 10 in every 100 people have one or more of the side effects listed below.

- A temporary drop in the number of blood cells made by the bone marrow, causing
- An increased risk of getting an infection from a drop in white blood cells – it is harder to fight infections and you can become very ill. You may have headaches, aching muscles, a cough, sore throat, pain passing urine or feel cold and shivery
- Tiredness and breathlessness due to a drop in red blood cells (anaemia) – you may need a blood transfusion
- Bruising more easily due to a drop in platelets – you may have nosebleeds, bleeding gums after brushing your teeth, or lots of tiny red spots or bruises on your arms or legs (known as petechia)
- Some of these side effects can be life threatening, particularly infections. Contact your doctor or nurse if you have any of these effects. Your doctor will check your blood counts regularly to see how well your bone marrow is working.
- **Contact your treatment centre straight away if you have any of these effects or if your temperature goes above 38°C**
- Tiredness (fatigue) during and after treatment – most people find their energy levels are back to normal within 6 months to a year
- An allergic reaction to rituximab, causing flu like symptoms such as a fever, chills and shivering (rigors), a headache and feeling sick – let your doctor or nurse know if you have any of these effects
- Feeling or being sick is usually well controlled with anti sickness medicines
- Hair loss – most people have complete hair loss
- Irritation of the bladder and kidneys – drink plenty of water to flush out the chemotherapy. You may have fluids into your drip before and after your treatment. Tell your nurse or doctor straight away if you have pain or bleeding when passing urine



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- Kidney damage due to carboplatin – you will have blood tests before your treatment to make sure your kidneys are able to cope with the drug
- Loss of appetite
- Taste changes including loss of taste
- A drop in blood pressure can happen if etoposide is given quickly – if you feel dizzy or faint, call your nurse straight away to slow down the drip
- Feeling weak occurs in about 1 out of 4 people (25%)
- Numbness or tingling in fingers and toes happens in 1 out of 4 people (25%) and can cause difficulty doing small things such as doing up buttons – this starts a few days or weeks after treatment and usually goes within a few months of finishing treatment
- Night sweats occur in about 3 out of 20 people (15%)
- Stomach pain
- A runny nose during the rituximab drip – this is usually mild
- A skin rash, which may be itchy
- Confusion, sleepiness or extreme lack of energy (lethargy) and hallucinations happen in about 1 out of 8 people (12%) who have ifosfamide – if you have any of these effects, it is important to tell your treatment team straight away

Occasional side effects

Between 1 and 10 in every 100 people have one or more of these.

- Low blood pressure occurs in about 1 out of 10 people (10%) and more rarely, raised blood pressure
- Flushing of the face and a sudden feeling of warmth during the rituximab drip affects about 1 out of 20 people (5%)
- Your ability to hear some high pitched sounds may be reduced by carboplatin – this usually gets better on its own
- Ringing in their ears (tinnitus) occurs in about 1 in 100 people (1%) treated with carboplatin
- Inflammation around the drip site – if you notice any signs of redness, swelling or leaking at your drip site, tell your chemotherapy nurse immediately
- Reddening of the skin in areas where you have had radiotherapy in the past, and the skin may get dry and flaky and feel sore and hot – this goes away on its own but keep affected areas out of the sun
- Liver changes that are very mild and unlikely to cause symptoms may occur with ifosfamide or rituximab – the liver will almost certainly go back to normal when treatment finishes but you will have regular blood tests to check how well your liver is working
- A sore mouth
- Diarrhoea or constipation
- A cough and breathlessness may occur – rituximab can cause irritation of the lungs, so tell your doctor or nurse if you have this
- Indigestion
- Dizziness



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Rare side effects

There is a small risk that you may get a second cancer some years after RICE treatment. If this happens, it most often occurs 5 to 8 years after treatment.

Important points to remember

Not everyone will get these side effects. A side effect may get worse through your course of treatment. Or you may have more side effects as the course goes on. This depends on

- How many times you've had a drug before
- Your general health
- How much of the drug you have (the dose)
- Other drugs you are having

Coping with side effects

Talk to your doctor, pharmacist or nurse about all your side effects so that they can help you manage them. They can give you advice or reassure you. Your nurse will give you a contact number to ring if you have any questions or problems. If in doubt, call them.

Other medicines

Tell your doctor about any other medicines you are taking, including vitamins, herbal supplements, and over the counter remedies – some drugs can react together.

Pregnancy and contraception

These drugs may have a harmful effect on a developing baby and it is not advisable to become pregnant or father a child if you are having this treatment. Talk about contraception with your doctor or nurse before treatment starts.

Breastfeeding

Breastfeeding is not advisable during this treatment because the drug may come through in the breast milk.

Medical and dental treatment

If you need to go into hospital for any reason other than cancer, always tell the doctors and nurses that you are having chemotherapy. Give them contact details for your cancer doctor.

Talk to your cancer doctor or nurse if you think you need dental treatment. Always tell your dentist you are having chemotherapy.

Immunisations and chemotherapy

- You should not have immunisations with live vaccines while you are having chemotherapy or for at least 6 months afterwards. These include rubella, mumps, measles (usually given together as MMR), BCG, yellow fever and Zostavax (shingles vaccine).
- You can have other vaccines, but they may not give you as much protection as usual until your immune system has fully recovered from your chemotherapy. It is safe to have the flu vaccine.
- It is safe for you to be in contact with other people who've had live vaccines as injections. There can be problems with vaccines you take by mouth (oral vaccines), but not many people have these now.



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- So there is usually no problem in being with any baby or child who has recently had any vaccination. You might need to make sure that you aren't in contact with anyone who has had oral polio, cholera or typhoid vaccination recently, particularly if you live abroad.