



Australian
Rheumatology
Association

PATIENT INFORMATION ON CYCLOPHOSPHAMIDE

(Brand names: Cycloblastin, Endoxan)

This information sheet has been produced by the Australian Rheumatology Association to help you understand the medicine that has been prescribed for you. It includes important information about:

- How you should take your medicine;
- The possible side effects;
- What tests you **must** have to monitor your condition and to detect unwanted effects; and
- Other precautions you should take.

Please read it carefully and discuss with your doctor.

What is cyclophosphamide?

Cyclophosphamide (brand name Cycloblastin) is a medicine used to treat inflammatory illnesses such as systemic lupus erythematosus (SLE/lupus), polymyositis (muscle inflammation), systemic sclerosis and Wegener's granulomatosis.

It is also used in rheumatoid arthritis when there are serious complications involving other organs such as the lungs or skin. While cyclophosphamide can be very effective for rheumatoid arthritis, it is used infrequently as new more effective and safer medicines have become available.

Cyclophosphamide is also used to treat some cancers.

Cyclophosphamide is an immunosuppressive medicine, which means that it works by reducing the activity of the immune system. In rheumatoid arthritis, this action helps to reduce inflammation and thus reduce pain and swelling. It also limits damage to the joints and helps to prevent disability in the long term.

Because cyclophosphamide reduces the damage to the joints, rather than just relieving the pain, it

belongs to the group of medicines called **disease modifying antirheumatic drugs (DMARDs)**.

For more information about RHEUMATOID ARTHRITIS see the Arthritis Australia website www.arthritisaustralia.com.au/index.php/arthritism-information/information-sheets.html.

What benefit can you expect from your treatment?

When used to treat inflammatory illnesses, cyclophosphamide does not work straight away. It may take several weeks before there is some relief of symptoms. It may take several months for the full effect to be seen.

Other medicines may be given to improve your symptoms while waiting for cyclophosphamide to work.

If cyclophosphamide treatment is stopped for more than a few weeks there is a risk that your condition may worsen. Continue with your treatment unless advised by your doctor or unless side effects develop.

How is cyclophosphamide taken?

Cyclophosphamide can be taken by mouth as tablets or it can be given by injection. For long term treatment, it is normally taken in tablet form. The dose depends on the disease being treated and on the person's weight.

For the tablet form, a usual dose is 75mg to 200mg per day.

Cyclophosphamide can inflame the lining of the bladder so it is important to drink plenty of fluid to 'flush out the bladder'. 8 to 10 glasses of water a day is recommended.

The tablets should be taken in the morning and not before going to bed.

Cyclophosphamide may be used with other arthritis medicines including:

- steroid medicines such as prednisolone; and
- simple pain medicines such as paracetamol.

Are there any side effects?

Below are side effects that you might experience with your treatment. Tell your doctor if you experience any side effects.

If you do experience side effects, a reduction in dose may minimise these so that you can continue to take the medicine. Your doctor will advise on any dose changes that are necessary.

Most common possible side effects:

- Many people experience *nausea (feeling sick) and vomiting*. These effects may be worse with the tablets compared to the injection. Antinausea tablets can be used if needed.
- *Hair thinning* can occur. This is not permanent and hair will grow back when the medicine is stopped.
- Other common side effects include *mouth ulcers* and *skin rash*.

Less common and rare possible side effects:

- **Blood counts:** Cyclophosphamide rarely causes a drop in the number of white blood cells, which are needed to fight infection. It can also cause a drop in the number of platelets, which help stop bleeding. Regular blood tests aim to pick these problems up early when they occur. However, if you develop a sore mouth, mouth ulcers, easy bruising, nosebleeds, bleeding gums, breathlessness, infection or fever tell your doctor straight away.
- **Infections:** There is a slight increased risk of developing some infections, especially herpes zoster (chicken pox and shingles). You should try to avoid contact with people who have these infections. If you have an infection or persistent fever, tell your doctor straight away.
- **Bladder inflammation:** Cyclophosphamide can inflame the lining of the bladder. If you notice blood in your urine, (pinkish coloured urine) tell your doctor straight away.
- **Cancers:** There is an increased risk of developing bladder cancer with cyclophosphamide. You will therefore be

asked to have regular urine tests. There may also be an increased risk of other cancers such as skin (see *Precautions*) and lymph gland tumours.

- **Fertility:** Cyclophosphamide can reduce fertility in both men and women. This occurs more often in older people or people taking high doses for long periods of time. Your doctor will discuss this with you before you start taking cyclophosphamide. Precautions such as storage of sperm may be considered.

Tell your doctor if you experience any possible side effects.

What precautions are necessary?

Urine tests:

- Regular urine tests are required to monitor the effect on the bladder.

Blood tests:

- Since your white blood cells and platelets may be affected by cyclophosphamide, you **must** have regular blood tests during your treatment. This is very important, as you may not get symptoms of these problems.
- As well as monitoring for side effects, blood tests help to monitor your condition to determine if the treatment is effective.
- You will need to have full blood tests every 2 to 4 weeks for the first few months of treatment and then every 1 to 3 months after that.
- Your general practitioner will be informed about the schedule for your blood tests.
- It is important to see your general practitioner if you have been asked to do so as they have an important role to play in monitoring your condition.

Other medicines:

- Cyclophosphamide can interact with other medicines. You should tell your doctor (including your general practitioner, rheumatologist and others) about all medicines you are taking or plan to take. This includes over the counter or herbal/naturopathic medicines. You should also mention your treatment when you see other health professionals.

- Cyclophosphamide *should be used carefully* if taken at the same time as:
 - anti-epileptic medicines such as carbamazepine and phenytoin;
 - heart and blood pressure medicines such as verapamil and diltiazem;
 - anti-fungal treatments such as ketoconazole, voriconazole and posiconazole;
 - anti- HIV (AIDS) medicines such as efavirenz, ritonavir, nevirapine, tipranavir, atazanavir and saquinavir;
 - other antibiotics such as rifampacin, ciprofloxacin, clarithromycin, erythromycin and norfloxacin;
 - warfarin (used to thin the blood).
- If you are taking cyclophosphamide you should not take St John's wort. This is an ingredient in some complementary medicines recommended for depression, which you can buy without a prescription.
- You should avoid eating grapefruit or drinking grapefruit juice while taking this medicine, as it can affect the level of cyclophosphamide in the body.
- Most vaccines can be given safely with cyclophosphamide. Talk with your

rheumatologist before receiving any vaccines.

Pregnancy and breastfeeding:

- Cyclophosphamide should not be taken during pregnancy or while breastfeeding. If you are a woman of child bearing age you should use effective contraception throughout your treatment and for 6 months after stopping the treatment. Men taking cyclophosphamide should also use effective contraception.
- If you are planning a family or if you become pregnant while taking cyclophosphamide, you should discuss this with your doctor as soon as possible.
- Some women taking cyclophosphamide may stop having periods, but they can still become pregnant. You must use effective contraception while taking this medicine.

Skin checks:

- When taking cyclophosphamide, it is important to use a sunscreen and avoid prolonged sun exposure. A yearly skin check is recommended.

All patients taking cyclophosphamide should be seen regularly by a rheumatologist to optimise treatment and to minimise any potential side effects.

If you have any questions or concerns write them down and discuss them with your doctor.

Your doctor's contact details:

REMEMBER – Keep all medicines out of reach of children

The information in this sheet has been obtained from various sources and has been reviewed by the Australian Rheumatology Association. It is intended as an educational aid and does not cover all possible uses, actions, precautions, side effects, or interactions of the medicines mentioned. This information is not intended as medical advice for individual problems nor for making an individual assessment of the risks and benefits of taking a particular medicine. It can be reproduced in its entirety but cannot be altered without permission from the ARA.

The NHMRC publication: *How to present the evidence for consumers: preparation of consumer publications* (2000) was used as a guide in developing this publication.