



Living with Pulmonary Fibrosis: Immunosuppressant medication

Cyclophosphamide (Cytoxan[®], Neosar[®], Endoxan[®], Cyclonex[®])

i Disclaimer

This resource provides some information about cyclophosphamide. It does not contain all the available information and **does not take the place of talking to your doctor or pharmacist**. Always seek the guidance of your doctor or other qualified health professional for any questions you may have regarding medications, your health or medical conditions. Please refer to the Consumer Medicine Information leaflet linked below for a more detailed guide to side effects and safety precautions.

Why is this medication being recommended?

Cyclophosphamide belongs to a group of medications known as immunosuppressants. It affects your body's immune system and reduces the amount of inflammation, including in your lungs. Inflammation may lead to fibrosis (scarring) in the lungs. By reducing inflammation, it is hoped that cyclophosphamide will prevent the formation of more lung fibrosis.

Cyclophosphamide can be administered intravenously through a drip into a vein or orally as tablets. It is often better tolerated as an intravenous infusion. You will most likely receive cyclophosphamide as a monthly intravenous infusion as an outpatient at a hospital or clinic. It is usually given as a monthly dose for six months.

Cyclophosphamide doesn't work straight away, so it may take several weeks before you notice an improvement. It's important to attend your planned infusions or take the cyclophosphamide tablets as directed, even if you feel it doesn't seem to be working at first.



Cyclophosphamide also belongs to a group of medicines called antineoplastic or cytotoxic agents.

Sometimes, cytotoxics are called chemotherapy medicines as they can be used to treat cancers. It is important to note that the doses used in chemotherapy are much higher than what is given for treatment of pulmonary fibrosis (PF). However, extra precautions to those listed below may still need to be taken when being given cyclophosphamide for PF to reduce the risk of exposing other people to the toxic effects. Please speak with your treating healthcare professional for the best advice, based on your dosage.

What special precautions should I follow?

Before taking cyclophosphamide:

- Tell your doctor and pharmacist if you are allergic to cyclophosphamide or any other medications, foods, preservatives or dyes.
- Cyclophosphamide can interact with other medicines. Tell your doctor and pharmacist what other prescription and non-prescription medications, vitamins, nutritional supplements, and herbal products you are taking. Your doctor may need to change the doses of your medications or monitor you carefully for side effects. You should also mention your treatment when you see other health professionals.
- Tell your doctor if you have or have ever had kidney, bladder or liver problems; blood disorders; diabetes or lowered immunity. The dose of cyclophosphamide may need to be adjusted.
- Vaccinations are important. Cyclophosphamide can affect the way vaccinations impact your body. It is preferable to have vaccinations before starting cyclophosphamide. In addition, some vaccines are to be avoided. Your doctor will advise on what vaccinations you should have.
- Cyclophosphamide has been associated with certain types of cancers including bladder and skin cancers. Talk with your doctor about the potential risks and ways to reduce this risk.

While taking cyclophosphamide:

- While being treated with cyclophosphamide, it is important to drink plenty of fluids because this drug can irritate your kidneys and bladder. It is important also to monitor for any blood in your urine and speak with your doctor if you see any changes.
- While you are on cyclophosphamide treatment, you will be also prescribed an antibiotic to take several times each week. This is to support your immune system and help fight infection.
- Avoid infection by staying away from people who have easily transmitted infections and by washing or sanitising your hands often.
- You need to be treated quickly if you develop an active infection of any kind.
- Avoid pregnancy or planning a pregnancy. Use effective contraception during treatment and for at least three months after you stop treatment for men, and at least six months after stopping treatment for women. If you or your partner become pregnant, tell your doctor immediately.
- Do not breastfeed while you are taking this medication.
- You should not be immunised with 'live vaccines' during treatment. Discuss vaccination schedules with your doctor while on cyclophosphamide and always check before receiving a vaccine.
- Tell other doctors, dentists and pharmacists who treat you that you are taking cyclophosphamide and remind them of this if you are about to be started on any other medication.
- If you are having surgery, including dental surgery, tell the doctor or dentist that you are on cyclophosphamide.
- Drinking alcohol while taking cyclophosphamide can worsen some side effects of the medication, such as nausea, vomiting or dizziness. Consult your doctor for advice about how much alcohol is safe in your situation.
- Do not eat grapefruit or drink grapefruit juice while you are on cyclophosphamide. Grapefruit may interact with cyclophosphamide and cause it not to work as well.
- When taking cyclophosphamide, a yearly skin check is recommended to monitor for skin cancers.
- Be careful driving and operating machinery until you know how cyclophosphamide affects you.

What side effects can this medication cause?

You might experience side effects with your treatment. Tell your doctor if you are concerned about possible side effects. A reduction in dose may minimise side effects so that you can continue to take this treatment. Your doctor will advise on any dose changes that are necessary.

An intended effect of immunosuppressants is to dampen the function of your immune system. This may decrease your ability to fight infection. Be alert to signs of infection and see your GP if you are concerned.

- Monitor for signs of infection including fevers (particularly above 38 degrees Celsius), chills, lethargy, sore throat and/or nasal congestion.

Cyclophosphamide may cause other side effects.

Common side effects are listed below. Tell your doctor if any of these symptoms are severe or do not go away:

- Nausea (feeling sick) and vomiting. These effects may be worse with the tablets compared with the injection. Antinausea tablets can be used if needed.
- Hair thinning. This is not permanent, and hair will grow back when the medicine is stopped.
- Mouth ulcers and skin rash.

Cyclophosphamide can reduce fertility in men and women. This may be irreversible in some people. Please discuss this with your doctor.

Other less common side effects from cyclophosphamide are listed below. If you experience any of the following symptoms, call your doctor immediately:



Painful urination or red, bloody urine



New difficulty with breathing or coughing



Black, tarry stools



Swelling of the feet or ankles



Blistering of the mouth or skin



Yellowing of the skin and/or eyes



Unusual bruising or bleeding



Severe stomach pain



Tiredness, headaches, dizziness, blurred vision



Skin lesions

What monitoring will I need?

Cyclophosphamide can affect your blood, liver and kidney function or make you more prone to certain types of cancer. Monitoring is very important. You will receive regular blood tests while undergoing this treatment.

Your blood count (white blood cells, red blood cells and platelets), liver and kidney function, and your urine will be checked prior to giving the infusion each month. You will also receive regular skin checks. Additional tests may be ordered by your doctor depending on the results.

You will likely be monitored with lung function tests halfway through your course of intravenous

cyclophosphamide treatment, and at the end of the six months, when your doctors will usually introduce another medication to maintain the benefits of treatment. Your specialist will also review you to discuss any other side effects that you may be experiencing. It's helpful to keep your own detailed record of your prescriptions and tests.

It is very important that you contact your treating team if you experience side effects from this medication, or if you find you are deteriorating in any way.

Notes on your cyclophosphamide prescription:

	Date of infusion	Blood/urine test results*	Side effects and other notes
Month 1			
Month 2			
Month 3			
Month 4			
Month 5			
Month 6			

**Usually your blood and urine tests are taken on the day of the infusion before cyclophosphamide is given.*

FURTHER INFORMATION AND SUPPORT

This information sheet is a guide to cyclophosphamide, its benefits and potential side effects. If there is anything else you would like to know about this drug, please ask the healthcare professionals in charge of your care.

Visit our website at lungfoundation.com.au to find out more.

We thank the individuals and teams who contributed to the content and expert review of this fact sheet, in particular, Dr. Aruvi Thiruvarudchelvan, Respiratory and Sleep Physician.

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