

Medications in Nephrotic Syndrome: Cyclophosphamide

When do we use cyclophosphamide?

In children who may not get better with steroids, have repeated relapses, or have side effects to steroids

Cyclophosphamide may reduce relapses

1 in 3 children will have no further relapses after taking a single course of cyclophosphamide

It may take several weeks to see a difference in your (your child's) condition.

How is cyclophosphamide taken?

For a single course, up to a maximum of 12 weeks



At the same time every day



In the morning



Do not change dose unless advised



With plenty of fluids



Precautions on cyclophosphamide

Watch for signs of infection



Get regular blood tests



Take care cutting hair or nails

Take care brushing and flossing teeth



Avoid grapefruits, pomelos and their juices

Do not receive vaccines without talking to your team



Practice proper hand hygiene



If a fever $\geq 38.5^{\circ}\text{C}$ develops, stop taking and call the healthcare team as soon as possible



If you (your child) throw(s) up repeatedly, call the healthcare team



- If you (your child) miss(es) a dose, take it as soon as you remember
- If it is time for the next dose, skip the missed dose
- Never take two doses to make up for a missed dose

Side effects

COMMON SIDE EFFECTS



Vomiting



Flushing



Headache



Low White Blood Cells

Seek medical care for any of these symptoms:

Painful urination/bloody urine

Fever $\geq 38.5^{\circ}\text{C}$

Prevent by drinking plenty of fluids and urinating regularly

The following side effects are very rare when given orally for nephrotic syndrome. They include risk of infections, bladder inflammation, certain cancers, and infertility.

Cyclophosphamide: Additional Resources

Incidence and outcomes of nephrotic syndrome

INSIGHT Publication: *Ethnic Differences in Incidence and Outcomes of Childhood Nephrotic Syndrome*

<http://cjasn.asnjournals.org/content/11/10/1760.short>

How cyclophosphamide works

National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK): *How is childhood nephrotic syndrome treated?*

<https://www.niddk.nih.gov/health-information/kidney-disease/children/childhood-nephrotic-syndrome>

The Kidney Foundation of Canada: *Childhood nephrotic syndrome - Other treatment*

<https://www.kidney.ca/document.doc?id=330>

Mayo Clinic: *Nephrotic syndrome - Treatment: Immune system-suppressing medications*

<https://www.mayoclinic.org/diseases-conditions/nephrotic-syndrome/diagnosis-treatment/drc-20375613>

The Royal Children's Hospital Melbourne: *What is cyclophosphamide?*

https://www.rch.org.au/uploadedFiles/Main/Content/clinical-guide/130561%20SCOTT%20Nephrotic%20Syndrome%20booklet%20A5_LR.pdf

How to give cyclophosphamide

AboutKidsHealth (SickKids): *How should you give your child cyclophosphamide?*

<http://www.aboutkidshealth.ca/En/HealthAZ/Drugs/Pages/Cyclophosphamide-For-Nephrotic-Syndrome.aspx>

NephCure Kidney International: *How is cyclophosphamide administered?*

<https://nephcure.org/livingwithkidneydisease/treatment-options/cyclophosphamide-cytoxan/>

Side effects

NephCure Kidney International: *What are the possible side effects of cyclophosphamide?*

<https://nephcure.org/livingwithkidneydisease/treatment-options/cyclophosphamide-cytoxan/>

AboutKidsHealth (SickKids): *What are the possible side effects of cyclophosphamide?*

<http://www.aboutkidshealth.ca/En/HealthAZ/Drugs/Pages/Cyclophosphamide-For-Nephrotic-Syndrome.aspx>

Royal College of Paediatrics and Child Health: *Cyclophosphamide for Nephrotic Syndrome - Are there any possible side effects?*

<https://www.medicinesforchildren.org.uk/cyclophosphamide-nephrotic-syndrome-0>