Cyclosporine (Neoral)

How does it work?

- Cyclosporine is used to lower the body’s immune system. Your immune system, which normally helps to protect your body from infection and disease, is “out of order”. Instead of protecting your body, your immune system is attacking it. Cyclosporine lowers your immune system by reducing the inflammation (swelling, redness, pain or stiffness) caused by your disease.

- Cyclosporine is used to treat rheumatoid arthritis, psoriatic arthritis, psoriasis as well as other immune disorders of the eyes, lungs, muscles, nerves, and blood vessels.

Why am I taking it?

- Cyclosporine has been ordered by your doctor to help treat your condition. Cyclosporine may be taken with other medicines to help:
  - reduce swelling and pain in your joints or other tissues
  - increase ability to move your body and do daily activities
  - slow or even prevent damage to your joints or tissues

How quickly does it work?

- Most people find their symptoms (swelling, redness, pain or stiffness) decrease within 2 - 3 months.

How do I take it?

- Cyclosporine is available in capsules of 25, 50, and 100 mg strength. It is also available in a liquid.
- The capsules are taken twice a day, 12 hours apart.
- It can be taken with or without food.

- There is evidence to suggest that grapefruit, pomelo, noni, tangello, seville oranges, limes and pomegranate can interfere with the absorption of Cyclosporine. You are advised not to eat these fruits or drink their juices while taking cyclosporine. Also avoid orange marmelade and red wine.
• It is important to drink 1.5 liters of fluid a day (water, juice, milk) while on Cyclosporine. You may drink tea and coffee but, because of the caffeine content, tea and coffee do not count as part of the 1.5 liters. Be aware that caffeine may increase your blood pressure.

• **Take your Cyclosporine as advised by your doctor.** Work with your doctor to decide how much cyclosporine you need. Medicines are started at low dosages and increased slowly to decrease risk of side effects. Taking more cyclosporine than is needed may cause side effects. Skipping doses will reduce how well it is working in your body to control your condition.

**What if I forget to take it?**

• **If you forget to take your Cyclosporine**, wait until your next dose is due.

**What tests are needed?**

**Blood Tests:**

• Do blood tests (CBC, creatinine) every 4 weeks to monitor the benefit of taking Cyclosporine & to monitor for possible side effects.

• Cyclosporine blood levels are drawn monthly. It is best to go to the lab 12 hours after taking the last dose of cyclosporine.

**Blood Pressure:**

• Have your blood pressure checked monthly by your doctor or clinic nurse, or use a calibrated home blood pressure machine.

• Many extended health plans will re-imburse the cost of a home blood pressure machine with a doctor’s prescription.

The clinic staff will monitor your blood pressure and blood tests each month, but your family doctor and specialists will continue to monitor your overall care.

**Can I take other medications?**

Cyclosporine interacts with many drugs. Be sure to tell your doctor or clinic nurse about all the medications you are taking, including over-the-counter and natural remedies.
The following is a partial list of medications/supplements that **MAY** interfere with the effectiveness of Cyclosporine:

- Heart & blood pressure medications (hydrochlorothiazide, Multaq)
- Cholesterol lowering medications (statins). Low dose Crestor is okay.
- Oral antibiotics (erythromycin, clarithromycin (Biaxin), gentamycin, tobramycin, nafcillin, sulfamethoxazole)
- Antifungals
- Antivirals (Acyclovir, famciclovir)
- Anti-seizure medications
- Anti-depressants
- HIV protease inhibitors
- Gout medication
- Male or female hormones and anabolic steroids
- Echincea, ginger, marijuana, chamomile, liquorice, serenoa repens
- St. John’s Wort, Goldenseal, Scutellariae, Redix, Quercetin, Berbenine
- New oral anti-coagulant drugs (rivaroxaban, dabigatran, apixaban, edoxaban)
- Colchicine

**Radiation and phototherapy:**
- (PUVA or UVB) should be avoided while taking Cyclosporine.

**Over-the-counter medications:**
- Tylenol, cold remedies, cough syrup, and vitamins appear to be safe to take with Cyclosporine.
- Avoid regular use of Advil (ibuprofen)

**Possible major side effects are:**

**Blood Pressure:**
- Cyclosporine can increase your blood pressure. Your blood pressure will be checked each month. If there is a substantial increase in the reading, the dose of Cyclosporine may be adjusted or a blood pressure medication may be added.
Kidney Function:
• Cyclosporine can affect your kidney function. A simple blood test each month will check to ensure your kidney function is normal. If your kidney function is elevated, your Cyclosporine dose may be reduced or stopped until the test returns to normal.

Possible minor side effects are:
• nausea, bloating, loose stools, abdominal cramps
• slight trembling of the hands
• tingling in the fingers, toes, mouth
• muscle or joint pain, cramping
• increased cholesterol or potassium levels
• blurred vision
• sensitivity to heat and cold
• mild headaches
• increased growth of fine hairs on the body
• tender or swollen gums
• acne, oily skin
• fatigue
• edema in the legs or ankles
• mild depression or mood swings

Possible rare, serious side effects are:
Lymphoma:
• Although very rare, cancers of the white blood cells (lymphomas) have occurred. These rare cases appear to be related to high doses of Cyclosporine. People taking Cyclosporine for autoimmune disease are on very low doses of the medication and if they follow the doctor's instructions, the risk of lymphoma appears to be minimal

Skin Cancer:
• Use of high SPF sunscreen is recommended.

Liver Function:
• On rare occasions, Cyclosporine can affect the liver. Blood tests are performed each month to check liver function. If abnormalities occur, Cyclosporine is discontinued. Your liver function will return to normal once the medication has
been stopped.

**Allergic Reaction:**
Symptoms include any or combination of:
- rash
- itching/swelling (especially of face/tongue/throat)
- severe dizziness
- trouble breathing

If this occurs, stop taking cyclosporine, seek immediate medical attention and let the rheumatologist and clinic nurse know what happened.

**What if I have a side effect?**

**Contact your doctor or clinic staff:**
- if you experience any of the listed side effects.
- Side effects can occur anytime during treatment and are usually temporary. They are often related to the dosage of Cyclosporine that you are taking.
- A decrease, or temporary withdrawal of Cyclosporine and an increase in the frequency of blood testing may be required.

- You are welcome to call the clinic at any time with questions or concerns about your Cyclosporine therapy. It is important that clinic staff know if:
  - you are unable to drink 1.5 liters of fluid a day
  - you are having surgery
  - you have a change in medications
  - you have an infection, sore throat, fever, sores that last more than a few days
  - you are diagnosed with a new medical condition
  - you become pregnant
  - stop cyclosporine if you develop shingles and alert rheumatologist and clinic nurse
  - sudden onset of confusion, dizziness, paralysis, seizures.

**Precautions:**

**Other conditions:**
You should not take Cyclosporin if you have:
- serious high blood pressure
• kidney problems
• cancer - check with rheumatologist and oncologist
• gout

Prescriptions:
• Never allow medication to run out between refills. Plan to order refills one week ahead of time. Make sure you have enough medication when going on vacation.

Pregnancy:
• You may continue to take Cyclosporine during pregnancy. However, please advise your doctor if you are pregnant or planning a pregnancy.
• Males using Cyclosporine father normal children.

Keep cyclosporine out of reach of children:
• A child who accidentally takes this drug may be seriously harmed. Poison Control Centre phone number is (604) 682-5050, toll free 1-800-567-8911.

Breastfeeding:
• Do not breastfeed your baby if you are taking Cyclosporine. The medication passes into the breast milk and could harm your baby.

Dental visits:
• Dental gum examinations are recommended every 6 months.

Vaccines:
• The use of live vaccines should be avoided. Examples of live vaccines are measles, mumps, MMR vaccine, oral polio, chickenpox (varicella), and shingles vaccine.
• Cyclosporine may make vaccines less effective. Consult the clinic before getting any vaccines or immunizations.
• Flu & pneumovax vaccines are recommended.

Diet:
• Because your immune system will be lowered by the medication, avoid eating raw or unpasteurized dairy products, cheeses with mold, and raw or undercooked meat,
Avoid eating or drinking the juices of grapefruit, pomelo, pomegranate, tangellos, seville oranges and limes. Avoid orange marmalade and red wine.

Do not use salt substitutes that have potassium.

**What if I get sick?**

**Inform your health care providers if you have an infection.**
- The body maintains its ability to fight minor infections while on Cyclosporine.
- If you require an antibiotic, make sure it is one that can be taken with Cyclosporine.
- People with serious infections, such as pneumonia or shingles, are advised to stop Cyclosporine until the infection has cleared.
- If you are unable to drink 6 – 8 glasses of water per day, you should not take Cyclosporine.
- Temporarily stop cyclosporine if experiencing flu with vomiting and/or diarrhea.

**Develop a plan with your rheumatologist**
- About changes to your medicines & herbal supplements when having surgery, dental work or other procedures
- Cyclosporine should be stopped 24 hours before surgery.
- Restart cyclosporine after surgery when you are able to eat and drink normally.

**What if I need surgery?**

- Store at temperatures between 15°- 25°C and should not be removed from the blister packs until taking a dose.
- When blister package is opened, a characteristic smell is noticeable. This is normal.

**How often will I see my doctor?**

- See your rheumatologist or clinic doctor every 3 months after starting Cyclosporine. These visits allow you & your doctor to decide how well the Cyclosporine is working to help your condition, & if any changes to your medicine are needed.
- Keep a diary and a medicine list in your wallet. Record of all medications, vitamin/mineral & herbal
supplements you are taking & any allergies you may have. Record when you take your medicine, any side effects and reasons for changes or stopping of medicine. Bring these with you to all appointments with your health care providers.

**Disclaimer:**

This information does not replace medical advice. Specific questions about medications should be discussed with your doctor, nurse or pharmacist.

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