

Medications

Medications After Transplant

Medications play an important role after transplant. Some of them will be taken for the rest of your life to prevent your body from rejecting your new kidney and to treat any other medical conditions you may have. Always take your medications as directed. **Never** stop or start a medication or change a dose without approval from the transplant team. If you miss a dose of medication, always let the transplant team know as soon as possible.

The next pages will describe some medications that are commonly used after transplant. The information is meant to serve as a learning guide only and should not replace advice from your transplant physician. The following is an overview of the medications and does not include every detail about each medication. Make sure to follow the Do's and Don'ts that are listed on the next page. These important reminders will help you to use medications effectively and keep you and your new kidney healthy.

Before Leaving The Hospital You Should Know:

- The names of your medications
- What each pill looks like
- The dose of each medication
- When to take each medication
- What each medication is used for
- Possible side effects

Medications To Prevent Rejection (Also Called Immunosuppressants Or Anti-Rejection Medications)

Immunosuppressants are medications that help keep your new kidney from being rejected as a foreign object by your body's natural immune system. They are essential to keep your new kidney alive. Most patients take a combination of three medications to prevent rejection.

Medications To Prevent Infection (Also Called Anti-Infective Medications)

Anti-infective medications is a group of medications that helps prevent infections in your body. They are given because your body's immune system will not be able to fight infection as well since you are taking anti-rejection medications. You will take three medications to prevent infection - one to prevent bacterial infections, one to prevent viral infections and one to prevent fungal or yeast infections (also covered in the following pages).

Injectible Medications To Prevent Rejection

Initially, you will be given either intravenous or subcutaneous medications to prevent acute rejection. They are called induction medications. These medications will protect you and your new kidney from the time after transplant until oral medications are started.

Medications, continued

The two most commonly used induction medications are Alemtuzamab (Campath)[®] and Basiliximab (Simulect)[®] and will be given at the time of your transplant. Both medications prevent your immune system from attacking your new kidney as a foreign object. Campath is given on the day of the transplant and Basiliximab (Simulect) will be given on the day of your transplant and **again as prescribed by the transplant surgeon**. Methylprednisolone (Solu-Medrol) will be given at the time of transplant.

Medication Do's And Don'ts

1. Always take your medications as directed; never stop, start or change your dose without approval from the transplant team.
2. If a doctor other than your transplant physician prescribes a medication for you, check with your transplant team before taking that medication.
3. Always keep a current list handy of your medications, the directions and the times you take them. Bring the current medication list with you to each doctor appointment. Be sure to update the list anytime a change is made.
4. If you miss a dose, do not double the next dose. Contact the transplant team for instructions. Remember, it is best to stay on schedule with all your medications!
5. Store all medications away from extreme temperatures, direct light and moisture. Make sure that they are always kept away from children and pets.
6. Keep medications with you in your carry-on bag when you travel, and always keep with you an updated medication list with phone numbers of your transplant coordinator and pharmacy.
7. Contact your transplant team if you are feeling too ill to take your medications because of nausea, vomiting or diarrhea. Do not take an extra dose without contacting the transplant team for instructions.
8. **Do not run out of your medications.** It is important to contact your pharmacy ahead of the time for refills in case the medication needs to be ordered.
9. Call the transplant team if you have any side effects, or if you are ever uncertain about a medication or its dose.
10. Do not take any over-the-counter medications or herbal supplements without the approval of the transplant team. Some of these products interact with your transplant medications or cause side effects, which may be harmful to you and your new kidney.
11. Do not stop taking your medications because of a lack of money! Notify the transplant office during business hours just as soon as you anticipate that you

Medications, continued

may have a problem. We have social workers, pharmacy counselors and financial counselors who will work with you. They can determine if there are other options to help obtain your medications. Be prepared to provide financial information as well as income tax paperwork. Remember, if you lose your job, file federal taxes! Without federal tax paperwork, it is hard to file for assistance. **Please do not wait until Friday afternoon to notify us that you may have a problem. Please do not wait until you are out of medications!**

There are possible solutions available for patients, but it takes time to sort them out and make the necessary contacts to check qualifications. Please notify us immediately if you know of an impending change in your insurance or finances.

12. If your medication appears different when you receive a refill, check with the pharmacist to make sure it is the same medication.
13. If your dose of medication has changed without your knowledge when you receive your refill, confirm the dose with your transplant team. Any dose changes will be communicated to you by your transplant team.
14. **Always check with the transplant team before planning a pregnancy.**

Medications, continued

Tacrolimus (Prograf, Hecoria, also called "Fk" or "Fk-506")

Uses

Tacrolimus is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Tacrolimus is taken twice a day. Schedule doses 12 hours apart. For example, if you take your morning dose at 8 a.m., you should take your evening dose at 8 p.m.

Dose Changes And Lab Monitoring

Tacrolimus doses will be changed based on a blood level drawn by the lab, called a Tacrolimus level. Do not take your Tacrolimus dose before your blood is drawn. The transplant team wants to see the "trough" or "valley" level, which occurs about 30 minutes before you take your next dose. Take the prescribed dose after your blood is drawn. The transplant physician will evaluate the result of the Tacrolimus level. The transplant team occasionally changes your dose based on other factors, such as other lab tests or any of the following possible side effects. The transplant coordinator will call you if you should change your dose.

Possible Side Effects Of Tacrolimus

- Headaches
- Tremors
- Numb or tingling hands/feet
- Hair loss
- Trouble sleeping

- Increased risk of infection
- High blood pressure
- High blood sugar
- Increase in cholesterol levels
- Decrease in magnesium levels
- Increase in potassium levels
- Abnormal kidney function
- Stomach discomfort

Special Notes

Do not drink grapefruit juice or pomegranite juice because it can interfere with your Tacrolimus level.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Prograf®
0.5 mg



Prograf®
1 mg



Prograf®
5 mg

Medications, continued

Cyclosporine (Neoral, Sandimmune, Gengraf) (Not Used With Prograf)

Uses

Cyclosporine is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Cyclosporine is taken twice a day. Schedule doses 12 hours apart. For example, if you take your morning dose at 8 a.m., you should take your evening dose at 8 p.m.

Dose Changes And Lab Monitoring

Your dose of Cyclosporine will change based on a blood level drawn by the lab, called a Cyclosporine level. If you have an appointment scheduled for a lab draw, do not take your dose before your blood is drawn. The transplant team wants to see the "trough" or "valley" level, which occurs about 30 minutes before you would take your next dose. You may take your prescribed dose after your blood is drawn. When your transplant physician evaluates the result of the Cyclosporine level, he/she will let you know if you should change your dose. The transplant team may also change your dose based on other factors, such as your other lab tests or possible side effects.

Possible Side Effects Of Cyclosporine

- Headaches
- Tremors
- Numb or tingling hands/feet
- Excessive hair growth

- Swelling or overgrowth of gums
- Trouble sleeping
- Increased risk of infection
- High blood pressure
- High blood sugar
- Increase in cholesterol levels
- Decrease in magnesium levels
- Abnormal kidney function
- Stomach discomfort

Special Notes

Do not drink grapefruit or pomegranite juice because it can interfere with your Cyclosporine level.

Do not interchange different formulations of Cyclosporine. For example, if you start taking Neoral, do not switch to Sandimmune unless your transplant physician decides you should do so.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Sandimmune®
25 mg



Neoral®
25 mg



Neoral®
100 mg

Medications, continued

Prednisone (Deltasone)

Uses

Prednisone is a steroid and is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Shortly after transplant, Prednisone is usually taken once a day and should be taken with food. For example, you should take your morning dose with breakfast.

Dose Changes And Biopsies

Your Prednisone dose may be changed based on your biopsies. If your biopsy shows no rejection, the transplant team may lower your Prednisone dose. Likewise, if your biopsy shows rejection, your Prednisone dose may be increased.

Possible Side Effects Of Prednisone

- Increase in appetite
- Weight gain
- Water retention (swelling in ankles/feet)
- Round face or "chubby cheeks"
- Mood changes or anxiety
- Trouble sleeping
- Night sweats

- Pimples
- Purple or red bruising
- Vision changes or cataracts
- Osteoporosis
- Increased risk of infection
- Increase in cholesterol levels
- High blood sugar
- Stomach irritation/ulcers

Special Notes

It is dangerous to stop taking Prednisone all at once. Doses should be reduced per a physician's instruction.

Be alert for infections and report any black tarry stools or abdominal pain.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Prednisone®

5 mg

Medications, continued

Mycophenolate Mofetil (Cellcept, Mycophenolic Acid, also Called "MMF ")

Uses

Mycophenolate is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Mycophenolate is taken twice a day. Schedule doses 12 hours apart. For example if you take your dose at 8 a.m., you should take your evening dose at 8 p.m.

Dose Changes

Your Mycophenolate dose will generally not change unless you are having intolerable side effects.

Possible Side Effects Of Mycophenolate

- Stomach discomfort
- Diarrhea
- Nausea/vomiting
- Decrease in platelets
- Increase or decrease in white blood cells
- Decrease in red blood cells
- Increase risk of infection
- Increase in cholesterol levels
- Increase in blood sugar
- Electrolyte abnormalities - a decrease in magnesium or calcium levels

Special Notes

Mycophenolate comes in gelatin capsules or tablets; these should not be opened or crushed. Wash with soap and water if contents of capsules come into contact with skin.

Women of childbearing age should use **two forms** of birth control while taking Mycophenolate and for six weeks after stopping the medication. **Mycophenolate has been associated with birth defects or fetal death in pregnancy. Always check with the transplant team before planning a pregnancy.**

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Medications, continued

Sirolimus (Rapamune)

Uses

Sirolimus is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Sirolimus is usually taken once a day. If you take Tacrolimus, you can take Rapamune at the same time.

Dose Changes And Lab Monitoring

Your dose of Sirolimus will change based on a blood level drawn by the lab, called a Sirolimus level. If you have an appointment scheduled for a lab draw, do not take your dose before your blood is drawn. The transplant team wants to see the "trough" level, which occurs about 30 minutes before you would take your next dose. You may take your prescribed dose after your blood is drawn. When your transplant physician evaluates the result of the Sirolimus level, he/she will let you know if you should change your dose. The transplant team may also change your dose based on other factors, such as other lab tests or possible side effects.

Possible Side Effects Of Sirolimus

- Impaired wound healing
- Stomach discomfort or heartburn
- Nausea
- Diarrhea
- Headaches
- Tremors
- High blood pressure

- Water retention (swelling in ankles/feet)
- Abnormal kidney function
- Increased risk of infection
- Increased cholesterol and triglyceride levels
- Mouth sores

Special Notes

Do not drink grapefruit juice or pomegranite juice while taking Sirolimus because it can interfere with your Sirolimus level.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Rapamune®
Liquid medication



Rapamune®
1 mg

Medications, continued

Azathioprine (Imuran)

Uses

Azathioprine is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney.

Schedule

Azathioprine is usually taken once a day.

Dose Changes

The transplant team will determine your dose of Azathioprine based on your weight, white blood cell count and renal function. Your dose may also change based on other factors, such as other lab tests or possible side effects.

Possible Side Effects Of Azathioprine

- Nausea or vomiting
- Increased risk of infection
- Decrease in white blood cell count
- Decrease in platelets
- Bone marrow suppression

Special Notes

- Report any unusual bleeding or bruising.
- Report any rash or yellowing of skin or whites of eyes.
- Do not take Allopurinol (a medication for gout) when you are taking Azathioprine, as it can completely suppress your bone marrow.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.

Medications, continued

Sulfamethoxazole SS/Trimethoprim (Bactrim, Septra, "Smz-Tmp")

Uses

Bactrim is used to prevent bacterial infections, including *Pneumocystis carinii* (jirovecii) pneumonia (PCP); the transplant team will determine a different medication for you if you are allergic to sulfa medications.

Schedule

Bactrim SS daily for one year.

Possible Side Effects Of Bactrim

- Nausea
- Rash/Itching
- Increase in sensitivity to sunlight

Special Notes

- Do not take Bactrim if you are allergic to sulfa medications.
- Always take Bactrim with a full glass of water to protect your kidneys.
- Wear sunscreen to protect your skin from sunburn.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.

Medications, continued

Valganciclovir (Valcyte)

Uses

Valganciclovir (Valcyte) is used to prevent viral infections, including a virus called cytomegalovirus (CMV). Transplant patients are more susceptible to developing this infection if they or their donors have had CMV in the past. Valganciclovir is also used to prevent and/or treat herpes simplex viruses and shingles.

Schedule

Valganciclovir is usually taken once a day with food. However, the dose or schedule may be adjusted for patients with abnormal kidney function.

Dose Changes

Your Valganciclovir dose will likely change during the course of therapy based on your kidney function.

Possible Side Effects Of Valganciclovir

- Nausea
- Headache
- Diarrhea
- Dizziness
- Numbness or tingling in hands or feet
- Decrease in white blood cell count
- Decrease in red blood cell count
- Decrease in platelets
- Increase risk for infection

Special Notes

- Your transplant team will monitor your blood cell counts while you take this medication.
- Report any unusual bleeding or bruising.
- Do not crush, chew or cut tablets before swallowing. Avoid direct contact of broken or crushed tablets with the skin or mucous membranes because Valganciclovir is a potential carcinogen.
- Valganciclovir may cause birth defects and impaired fertility; men and women of childbearing age should use birth control during, and for 90 days following, Valganciclovir use.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Valcyte®
450 mg

Medications, continued

Valacyclovir (Valtrex)

Uses

Valacyclovir (Valtrex) is used to prevent viral infections, including a virus called cytomegalovirus (CMV). Transplant patients are more susceptible to developing this infection if they or their donors have had CMV in the past. Valacyclovir is also used to prevent and/or treat herpes simplex viruses, shingles, and chicken pox.

Schedule

Valacyclovir is usually taken three times per day with food. However, the dose or schedule may be adjusted for patients with abnormal kidney function.

Dose Changes

Your Valacyclovir dose will likely change during the course of therapy based on your kidney function.

Possible Side Effects Of Valacyclovir

- Nausea
- Headache
- Diarrhea
- Vomiting
- Rash
- Dizziness
- Decrease in white blood cell count
- Decrease in red blood cell count
- Decrease in platelets

Special Notes

- Your transplant team will monitor your blood cell counts while you take this medication.
- Report any unusual bleeding or bruising.

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.



Valtrex[®]
1,000 mg

Medications, continued

Everolimus (Zortress)

Uses

Everolimus is used to prevent or treat rejection. It suppresses the body's immune response to the transplanted kidney and/or pancreas.

Schedule

Everolimus is taken twice a day. Schedule doses 12 hours apart. For example, if you take your morning dose at 8 a.m., you should take your evening dose at 8 p.m.

Dose Changes And Lab Monitoring

Your dose of Everolimus will change based on a blood level drawn by the lab, called an Everolimus level. Do not take your Everolimus dose before your blood is drawn. The transplant team wants to see the "trough" or "valley" level, which occurs about 30 minutes before you take your next dose. Take the prescribed dose after your blood is drawn. The transplant physician will evaluate the result of the Everolimus level. The transplant team occasionally changes your dose based on other factors, such as other lab tests or any of the following possible side effects. The transplant coordinator will call you if you should change your dose.

Possible Side Effects Of Everolimus

- Mouth sores
- Acne
- Diarrhea
- High blood pressure
- Headache
- Muscle cramps
- Fatigue
- Bloating or swelling of the face, arms, hands, lower legs or feet)
- Abnormal kidney function
- Increased risk of infection
- Impaired wound healing
- Increase in glucose and cholesterol levels

Special Notes

Do not drink grapefruit or pomegranite juice because it can interfere with your Everolimus level.

Check with transplant team for any drug interactions before taking any new medications, including herbals.



Zortress®
.25 mg



Zortress®
.5 mg



Zortress®
.75 mg

Medications, continued

Acyclovir (Zovirax)

Uses

Acyclovir is used to prevent or treat viral infections, including herpes simplex viruses and shingles.

Schedule

Acyclovir is usually taken with food and should be taken with plenty of water. Your dose and schedule will be determined by the transplant team, and there may be adjustments for patients with abnormal kidney function.

Dose Changes

Your Acyclovir dose will generally not change during the course of therapy unless you are having intolerable side effects or your kidney function changes.

Possible Side Effects Of Acyclovir

- Headaches
- Nausea/Vomiting
- Diarrhea
- Dizziness/Fatigue
- Confusion or Mood Changes

Special Notes

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.

Medications, continued

Nystatin Liquid (Mycostatin)

Uses

Nystatin liquid is used to prevent and/or treat oral thrush, which is white, patchy areas in the mouth or on the tongue due to a fungus (yeast). Sometimes this yeast can also be found in the esophagus.

Schedule

Nystatin liquid should be used four times a day after eating. You should not eat or drink for at least 30 minutes after using Nystatin. Patients should swish the medicine in their mouth and then swallow it, allowing it to coat the surfaces of the mouth. You will take this for one month after transplant.

Dose Changes

Your Nystatin dose will not change during the course of therapy. Remember that the dose of 5 mL (measured in a dose cup) is equal to one teaspoonful.

Possible Side Effects Of Nystatin Liquid

- Unpleasant taste
- Nausea/Vomiting
- Diarrhea

Special Notes

Check with the transplant team for any possible drug interactions before taking any new medications, including herbal supplements.

Medications, continued

Other Routine Medications

High Blood Pressure Medications

The medications that you take to prevent rejection can cause high blood pressure as a side effect. The transplant team will determine if you need a medication for high blood pressure and which one is right for you.

High Blood Sugar Medications

The medications that you take to prevent rejection can also cause high blood sugar levels. **Even if you had diabetes that was controlled with oral medications before transplant you may need insulin injection after treatment.**

Antiacids/Anti-Ulcer Medications

These medications are important because you are taking many medications that can cause stomach irritation. You will usually be prescribed one of the following medications to protect your stomach: esomeprazole (Nexium), lansoprazole (Prevacid), rabeprazole (Aciphex) or omeprazole (Prilosec), pantoprazole (Protonix) deslansoprazole (Dexilant). Other medications that could be used are ranitidine (Zantac) or famotidine (Pepcid).

Vitamins

Vitamins are used to supplement the diet so you receive the recommended daily nutrition requirement. Please avoid multi-vitamins with “extra” ingredients such as energy boosters, weight loss, etc. These “extras” can interfere with the absorption of your transplant medications. We will have you take a multi-vitamin daily.

Aspirin

Most transplant patients will need to take a baby or regular strength aspirin each day to promote a healthy heart. You will be taking this medication to decrease your chance of blood clot formation after your transplant. The specific action of this medication is to decrease the ability of platelets to stick together, which helps prevent blood clot formation. Aspirin also decreases pain and lowers temperature.

Special Notes

Transplant patients should never take extra aspirin for pain or fever. Any excessive bruising, blood-tinged urine or blood-streaked sputum should be reported at once.

Medications, continued

Over-The-Counter Medications

Headache Or Muscle Aches Or Pains

You may take Tylenol (acetaminophen) or a pain medication that is prescribed by the transplant team. **Do not take more than 4,000 mg of Tylenol per 24 hours**, which is no more than eight double-strength (500 mg) tablets or twelve regular-strength (325 mg) tablets.

Do not take:

- Ibuprofen (Motrin, Advil)
- Naproxen (Aleve)
- Any other non-steroidal anti-inflammatory (NSAID) medication

These medications can interact with your transplant medications or harm your kidneys.

Constipation

You may take Docusate (Colace), Fiber-Con, Miralax or Senkot for constipation. Exercising, drinking plenty of water and increasing fiber in your diet are other remedies to help relieve constipation. Contact the transplant team if constipation persists.

Diarrhea

Always drink enough fluids to prevent dehydration. Call the transplant team if you have more than five loose stools in a 24-hour period.

Do not take an antidiarrheal medication such as Lomotil, Immodium, etc., until you talk to the transplant team. The transplant team may order stool cultures to determine the cause of the diarrhea, and these should be obtained before taking medication to stop the diarrhea.

Allergy/Cold Symptoms

You may take dextromethorphan for cough or guaifenesin to loosen thick secretions. You may take the following antihistamines for runny or stuffy nose and itchy or watery eyes: loratadine (Claritin or Alavert) or diphenhydramine (Benadryl). You may also use a saline nasal spray for nasal congestion. Do not use Afrin nasal spray. If you take a decongestant such as pseudoephedrine (Sudafed), phenylephrine, Coricidin HP or products that have D attached to the name, such as Claritin-D, **you must monitor your blood pressure as the decongestant medications can cause your blood pressure to be elevated.** Call your primary care physician immediately if you have persistent cold symptoms, including cough, fever, increased shortness of breath or yellow/green drainage because you may have an infection that requires antibiotics. Notify the transplant team of any medications your primary care physician prescribes.

Indigestion And Heartburn

You may take ranitidine (Zantac), famotidine (Pepcid or Pepcid AC), nizatidine (Axid) or Tums for heartburn or indigestion. **Do not** take cimetidine (Tagamet).

Other Ailments

Please contact the transplant team before choosing an over-the-counter medication that has not been discussed in this section.

Medications, continued

Herbal Medications/ Supplements

Do not use any herbal products or supplements. There may be an interaction between your transplant medications and these products, which may be harmful to you and your new kidney.

Pregnancy And Transplant Medications

Most medications used after transplant can pose a risk to an unborn baby developing in the mother's womb. Some of the medications can even affect the fertility of a male transplant patient. Always check with your transplant physician before planning a pregnancy; contact your transplant physician immediately if you think you are pregnant. (See the section on **Activity** for further information about sexual activity.)