

# Medications

## Medications After Transplant

Medicines 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 organ(s) and to treat any other medical health issues you may have. Always take your medicines as directed. **Never** stop or start a medicine or change a dose without approval from the transplant team. If you miss a dose of medicine, always let the transplant team know as soon as possible.

The following pages will describe the basics of some medicines 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 doctor. Follow the “Dos and Don’ts” that are listed on the next page.

## Before Leaving The Hospital You Should Know:

- Names of your medicines
- Purpose of each medicine
- Dose of each medicine
- When to take each medicine
- Possible side effects of your medicines

## Medicine Dos and Don’ts

1. Always take your medicines as directed. Never stop, start or change your dose without approval from the transplant team.
2. If a doctor other than your transplant doctor orders a medicine for you, check with your transplant team before taking that medicine.
3. Keep a current list of your medicines, the directions and the times you take them with you. Bring the current medicine list with you to each doctor appointment. Be sure to update the list when 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 medicines.
5. Store all medicines away from extreme temperatures, direct light and moisture. Make sure that they are always kept away from children and pets.
6. Keep medicines with you in your carry-on bag when you travel, and always keep an updated medicine list with you that includes phone numbers for your transplant coordinator and pharmacy.

## Medications, continued

7. Contact your transplant team if you are feeling too ill to take your medicines because of an upset stomach or are throwing up or having loose stools. Do not take an extra dose without contacting the transplant team for instructions.
8. Do not run out of your medicines. Contact your pharmacy ahead of the time for refills in case the medicine needs to be ordered.
9. Call the transplant team if you have any side effects, questions about the dose or concerns about why you are taking the medicine.
10. Do not take any over-the-counter medicines or herbal supplements without the approval of the transplant team. Some of these products interact with your transplant medicines or cause side effects, which may be harmful to you and your new organ.
11. Do not stop taking your medicines because of a lack of money. Call the transplant office during business hours as soon as you think that you may have a problem. We have social workers, pharmacy counselors and financial counselors who will work with you. They can find out if there are other choices to help get your medicines.

**Please do not wait until Friday afternoon, or until you are out of medicines to contact us.**

### Medicines to Prevent Rejection

Anti-rejection medicines are a group of drugs used to keep your body from trying to reject your new organ(s). They are vital to keep your newly transplanted organ(s) alive and functioning well. You will take a combination of medicines to prevent rejection.

# Medications, continued

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

Tacrolimus is dispensed in 0.5mg, 1mg and 5mg capsules.

### Uses

Tacrolimus is used to prevent or treat rejection. It blocks the body's immune response to the transplanted organ(s).

### Schedule

Tacrolimus is taken twice a day 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 your lab work including a tacrolimus level.

#### **Do not take your tacrolimus dose before your blood is drawn.**

We may change your tacrolimus dose based on the level of the drug in your system called a trough level. This occurs about 30 minutes before you take your next dose.

Take the ordered dose after your blood is drawn. The transplant coordinator will call you if you should change your dose.

### Possible Side Effects Of Tacrolimus

- Headaches
- Shaking (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 pomegranate juice because it can interfere with your tacrolimus level.

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

This medicine should not be cut in half or opened.



Prograf®  
0.5 mg



Prograf®  
1 mg



Prograf®  
5 mg

# Medications, continued

## Cyclosporine (Neoral, Sandimmune, Gengraf)

Cyclosporine comes in 25mg, 50mg and 100 capsules. Neoral comes in 25mg and 100mg capsules.

### Uses

Cyclosporine is used to prevent or treat rejection. It blocks the body's immune response to the transplanted organ(s).

### Schedule

Cyclosporine is taken 2 times a day, 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 your lab work including a cyclosporine level. Do not take your cyclosporine dose before your blood is drawn.

We may change your cyclosporine dose based on the trough level. This occurs about 30 minutes before your next dose.

#### **Take your ordered dose after your blood is drawn.**

A transplant coordinator will call with changes to your cyclosporine dose.

### Possible Side Effects Of Cyclosporine

- Headaches
- Shaking, 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 pomegranate juice because it can interfere with your cyclosporine level.

Your pharmacy or insurance company may recommend a change to a generic form of cyclosporine. Notify the transplant team if this change is recommended or has been made. Check with the transplant team for any possible drug interactions before taking any new medicines, including herbal supplements.

# Medications, continued

## Prednisone (Deltasone)

Prednisone comes in different strengths (1mg, 5mg, 10mg 20mg). Usually our patients receive 5mg tablets.

### Uses

Prednisone is a steroid and is used to prevent or treat rejection. It lowers the body's immune response to the transplanted organ(s).

### 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

Your prednisone dose will be decreased over time. In the event of rejection, your 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
- Weak or brittle bones
- Increased risk of infection
- Increase in cholesterol levels
- High blood sugar
- Stomach irritation/ulcers

### Special Notes

It is NOT safe to suddenly stop taking prednisone. Doses should be reduced per a doctor's instruction.

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

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



Prednisone®

5 mg

# Medications, continued

## Mycophenolate Mofetil (Cellcept, Myfortic, Also Called "MMF")

Mycophenolate mofetil is dispensed in 250mg and 500mg gel tablets. Myfortic is dispensed in 180mg and 360mg tablets. Each tablet has a coating that helps protect against stomach pain.

### Uses

Mycophenolate mofetil is used to prevent rejection. It may be added to help protect your kidney function or it may be added if you have an episode of rejection. It lowers the body's immune response to the transplanted organ(s).

### Schedule

Mycophenolate mofetil is taken twice a day, 12 hours apart.

### Dose

Your mycophenolate mofetil dose will generally not change unless you are having bad side effects. Your dose will be reviewed by your liver doctor at 3 months after transplant. If it is safe for you to stop taking this medicine at that time, we will contact you.

### Possible Side Effects of Mycophenolate Mofetil

- Stomach discomfort
- Loose stools
- Upset stomach/throwing up
- 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 mofetil 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 mofetil and for 6 weeks after stopping the medicine. Always check with the transplant team before planning a pregnancy.

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

Contact the transplant office if you have upset stomach, vomiting or loose stools after starting this medicine.



CellCept®  
Liquid medication

CellCept®  
250 mg

CellCept®  
500 mg

# Medications, continued

## Everolimus (Zortress)

Everolimus comes in 0.25mg, .50mg and .75mg tablets.

### Uses

Everolimus is used to prevent rejection. It may be given as an added medicine to help prevent rejection and to help protect kidney function. It lowers the body's immune response to the transplanted organ(s).

### Schedule

Everolimus is taken twice a day, 12 hours apart.

### 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 dose before your blood is drawn for lab work.**

We may change your everolimus dose based on the level of the drug in your system called a trough level. This occurs about 30 minutes before you take your next dose. Take the ordered dose after your blood is drawn. A transplant coordinator will call with changes to your levels.

### Possible Side Effects Of Everolimus

- Increased cholesterol and triglyceride levels
- Constipation
- Upset stomach
- Loose stools
- Abnormal kidney function
- Impaired wound healing
- Increased risk of infection
- Water retention (swelling in ankles/feet)
- High blood pressure
- Abnormal blood counts (low iron, low platelet counts, low white blood cell counts)
- Mouth sores

### Special Notes

Do not drink grapefruit juice or pomegranate juice because it can interfere with your everolimus level.

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

**It is very important that you call the transplant team if you are planning any surgery. This medicine will need to be stopped 4 weeks before surgery and replaced with another anti-rejection medicine.**



**Zortress®**  
.25 mg



**Zortress®**  
.5 mg



**Zortress®**  
.75 mg

# Medications, continued

## Sirolimus (Rapamune)

Sirolimus is dispensed in 0.5mg, 1mg, and 2mg tablets

### Uses

Sirolimus is used to prevent rejection. It may be added to protect kidney function or if you have had an episode of rejection. It lowers the body's immune response to the transplanted organ(s).

### Schedule

Sirolimus is usually taken once a day. If you take tracrolimus, you can take sirolimus 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 (Rapamune) level.

#### **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. Take your ordered dose after your blood is drawn. A transplant coordinator will call with changes to your sirolimus dose. The transplant team may also change your dose based on other factors, such as other lab tests or possible side effects.

- Shaking, 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 because it can interfere with your sirolimus level.

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

**It is very important that you call the transplant team if you are planning any surgery. This medicine will need to be stopped 4 weeks before surgery and replaced with another anti-rejection medicine.**

### Possible Side Effects Of Sirolimus

- Impaired wound healing
- Stomach discomfort or heartburn
- Upset stomach
- Loose stools
- Headaches

# Medications, continued

## Trimethoprim/Sulfamethoxazole Single Strength (SS)

(Bactrim SS, Septra SS, Smz-Tmp, Co-Trimazole, Cotrim)

### Uses

Trimethoprim/sulfamethoxazole is used to prevent bacterial infections, including Pneumocystis carinii pneumonia (PCP). The SS stands for single strength because Bactrim is also available in a double strength formulation. Bactrim SS is a sulfa drug; the transplant team will decide a different medicine for you if you are allergic to sulfa medicines.

### Schedule

Trimethoprim/sulfamethoxazole is taken twice a day for 2 days of the week on Monday and Tuesdays only. You will continue this medicine for one year after the transplant.

### Dose Changes

Your trimethoprim/sulfamethoxazole dose will generally not change during the course of therapy.

### Possible Side Effects Of Trimethoprim/Sulfamethoxazole

- Upset stomach
- Rash/Itching
- Decrease in white blood cell count
- Decrease in red blood cell count
- Decrease in platelet count
- Increase in sensitivity to sunlight

### Special Notes

- Do not take trimethoprim/sulfamethoxazole if you are allergic to sulfa medicines.
- Always take trimethoprim/sulfamethoxazole 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 medicines, including herbal supplements.

# 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 decided 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 painful side effects or your kidney function changes. Acyclovir may be stopped at 3 months after your transplant.

### Possible Side Effects Of Acyclovir

- Headaches
- Upset stomach/Throwing up
- Loose stools
- Dizziness/Weak
- Confusion or mood changes
- Decreased white blood cell count
- May increase your sensitivity to sunlight - wear sunscreen while you take this medicine

### Special Notes

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

# Medications, continued

## Ganciclovir, Cytovene

### Uses

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

### Schedule

Ganciclovir can be taken by mouth, usually with food. It can also be given through the veins. Your dose and schedule will be decided by the transplant team, and there may be adjustments for patients with abnormal kidney function.

### Dose Changes

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

### Possible Side Effects Of Ganciclovir

- Upset stomach, throwing up
- Headache
- Loose stools
- Numbness or tingling in hands or feet
- Decrease in white blood cell count
- Decrease in red blood cell count
- Decrease in platelet count
- Increased risk for infection
- Dizziness
- Confusion or mood changes

### Special Notes

- Your transplant team will watch your blood cell counts while you take this medicine
- 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
- Ganciclovir may cause birth defects and impaired fertility; men and women of childbearing age should use birth control during, and for 90 days following ganciclovir use
- May increase sensitivity to the sunlight. Must wear sunscreen while taking this drug

Check with the transplant team for any possible drug interactions before taking any new medicines, 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 likely to get 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 changed for patients with abnormal kidney function. The length of therapy will be decided by your CMV status.

### Dose Changes

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

### Possible Side Effects Of Valganciclovir

- Upset stomach
- Headache
- Loose stools
- Dizziness
- Numbness or tingling in hands or feet
- Decrease in white blood cell count
- Decrease in red blood cell count
- Decrease in platelet count
- Increase risk for infection

- May increase your sensitivity to sunlight - must wear sunscreen while taking this medicine
- May increase your kidney function tests - drink plenty of water

### Special Notes

- Your transplant team will watch your blood cell counts while you take this medicine
- 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
- 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 medicines, including herbal supplements.



Valcyte®

450 mg

# Medications, continued

## Fluconazole (Difucan)

### Uses

Fluconazole is given to prevent or kill yeast or fungal infections. As a transplant patient you will be taking anti-rejection medicine and other antibiotic medicines which may result in fungal or yeast infection.

### Schedule

Fluconazole is given one time per day for 10 days to 2 weeks.

### Dose

Fluconazole comes in 200mg tablets.

### Possible Side Effects Of Fluconazole

- Headache
- Drowsiness
- Upset stomach, throwing up, loose stools – take medicine with food
- Skin rash

### Special Notes

- **This medicine may affect your tacrolimus or cyclosporine (anti-rejection) medicine levels**
- Your anti-rejection medicine dose may be decreased while you are on fluconazole therapy
- You may need to have your anti-rejection medicine levels drawn more frequently while you are on this medicine
- Please notify the transplant office if you are started on this drug.

# Medications, continued

## Furosemide (Lasix)

### Uses

Furosemide is given to help your body reduce excess fluid retention and make you urinate more.

### Schedule

Furosemide may be given once or twice per day. The schedule dose may change based on the amount of excess fluid you have and your kidney function. If you take this once a day, take it in the morning. If you take this drug twice a day, take one dose in the morning and one dose in the late afternoon so you will not be up at night going to the bathroom because of increased urine output.

### Dose

Furosemide comes in 10mg, 20mg, 40mg and 80mg tablets. Be sure to check the label of Furosemide on your bottle so you know what dose of medicine you have.

### Possible Side Effects Of Fluconazole

- Muscle cramps in legs
- Upset stomach - take medicine with food
- Decreased potassium levels
- Low blood pressure

### Special Notes

Watch your urine output. Notify the transplant office if you cannot urinate.

# Medications, continued

## High Blood Pressure Medications

The medicines you take to prevent rejection can cause high blood pressure as a side effect. The transplant team will decide if you need a medicine for high blood pressure and which one is right for you.

### Possible Side Effects Of Blood Pressure Medications

- Dizziness if you stand up quickly
- Headache - take Tylenol as needed and report to transplant coordinator
- Weakness or weak
- Swelling in lower extremities
- Shortness of breath - report to transplant coordinator
- Upset stomach or constipation
- Chest pain, fast or pounding heartbeat - report to transplant coordinator

## High Blood Sugar Medicines

The medicines you take to prevent rejection can also cause high blood sugar levels. It is not unusual for a transplant patient to need medicines to lower their blood sugars on a temporary or more permanent basis. These may include oral medications or insulin injections. You will have teaching from our diabetes team if you need to be started on insulin.

## Antacids, Anti-Ulcer Medicines

These medicines are important because you are taking many medicines that can cause stomach irritation. You will usually be ordered one of the following medicines to protect your stomach: esomeprazole (Nexium), lansoprazole (Prevacid), rabeprazole (AcipHex) or omeprazole (Prilosec). Other medicines that could be used are ranitidine (Zantac) or famotidine (Pepcid). These may be stopped once prednisone is reduced.

## Multi-Vitamins

Multi-vitamins are used to supplement the diet so you receive the recommended daily nutritional requirements of vitamins. Please do not take multi-vitamins with extra ingredients such as energy boosters, weight loss, etc. These extras can interfere with the absorption of your transplant medicines. We will have you take a multi-vitamin daily.

## Calcium (Calcium Gluconate, Calcium Carbonate, Tums Plus Vitamin D)

Liver disease as well as taking prednisone in large doses for an extended period of time can result in bone loss. Calcium and vitamin D can help increase bone density. Follow the instructions provided by the transplant team on dosing.

## Headache or Muscle Aches or Pains

You may take Tylenol (acetaminophen) or a pain medicine that is ordered by the transplant team. **Do not take more than 3,000 mg of Tylenol per 24 hours, which is no more than 6 double-strength (500 mg) tablets or 9 single strength (325mg) tablets.**

### Avoid:

- Motrin (ibuprofen)
- Advil (ibuprofen) or Aleve (naproxen)
- Any other non-steroidal anti-inflammatory (NSAID) medicine

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

# Medications, continued

## Constipation

You may take docusate (Colace), Fiber-Con or Miralax 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 lasts.

## Loose stools

Always drink enough fluids to prevent dehydration. Call the transplant team if you have more than 6 loose stools in a 24-hour period.

Do not take an anti-diarrheal stool medicine such as Lomotil, Imodium, etc., until you talk to the transplant team. The transplant team may order stool cultures to decide the cause of the loose stools, and these should be obtained before taking medicine to stop the loose stools.

## Allergy, Cold Symptoms

You may take dextromethorphan (Robitussin DM) for cough or guaifenesin to loosen thick secretions. You may take the following antihistamines for runny or stuffy nose and itchy or watery eyes: (Claritin, Alavert, Alegra Zyrtec) or diphenhydramine (Benadryl). You may also use a saline nasal spray for nasal congestion. Do not use Afrin nasal spray. Avoid taking any cold products that have pseudoephedrine unless it has been approved by your local doctor. This drug may cause high blood pressure. Call your primary care doctor 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 medicines your primary care doctor orders.

## Indigestion and Heartburn Medications

You may take ranitidine (Zantac), famotidine (Pepcid or Pepcid AC), nizatidine (Axid) or Tums for heartburn or indigestion. Do not take cimetidine (Tagamet) as this will increase tacrolimus levels.

## Pregnancy and Transplant Medicines

Most medicines used after transplant can pose a risk to an unborn baby developing in the mother's womb. Always check with your transplant doctor before planning a pregnancy and contact your transplant doctor immediately if you think you are pregnant. See the section on Activity for further information about sexual activity.

## National Transplantation Pregnancy Registry

<http://www.jefferson.edu/jmc/departments/surgery/research/ntp.html>

## Research Publication from the National Transplantation Pregnancy Registry

<http://www.ncbi.nlm.nih.gov/pubmed/18368705>