

Medicines to Keep Your New Organ Healthy

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Medicines to Keep Your New Organ Healthy

Disclaimer: Every effort has been made to provide the most updated information. Patients are encouraged to consult their transplant center for more information.

KEY INFORMATION TO KNOW ABOUT TRANSPLANT MEDICINES

Your transplant team will work very hard to keep you and your new organ healthy. The team may change your medicines, change the amount of your medicines, add new medicines, or take some away. They will always try to keep everything in balance. It is very important for you to stay in contact with your transplant team. Talk to them and ask them questions. They need you to work with them as they try to find the right medicines in the right amount for you.

You will take 3 kinds of medicines:

- Medicine to keep your body from attacking or “rejecting” your new organ.
- Medicine that protects you from infection.
- Medicine to prevent or control side effects.

1. Transplant immunosuppressant medicines

Your body's defense system — called the immune system — fights off things that are foreign to your body like bacteria and viruses. Your immune system keeps you from getting sick. Unfortunately, your immune system may also think that your new organ is a foreign invader and attack it. We call this “rejection”.

Your transplant team will prescribe medicines that block your immune system and keep it from attacking or hurting your new organ and causing rejection. These medicines are called immunosuppressants (im-u-no-su-pres-ants) or anti-rejection medicines.

These anti-rejection medicines work better when more than one is used. Most patients will be on 2 or 3 anti-rejection medicines to keep the new organ healthy. Over time, you may need less medicine. However, if your body tries to reject your new organ, you may need more medicines. Your transplant team will work with you to find the best medicines to keep you and your transplanted organ healthy. It is very important to take your medicines as prescribed!

If you miss taking your anti-rejection medicines even once or skip taking them this can cause rejection and may cause your new organ to fail.

Many transplant medicines are now available in generic forms. Generic medicines are usually acceptable to use. If you have any doubts, ask your transplant team. Ask your pharmacist if you notice any change in the shape, size or color of your medicines. Always tell your transplant team if there are any changes in the medicines you are taking.

2. Medicines to prevent infections

After you receive your new organ, it will be easier for you to get infections because of the anti-rejection medicines you will be taking. Your body will not be able to fight infections as easily as before your transplant. To help keep you from getting sick from certain infections, your transplant team will prescribe medicines to help prevent you from getting infections caused by bacteria, viruses, and fungus.

3. Medicines to prevent and/or treat side effects

The anti-rejection medicines you will take have side effects, just like all medicines. Your transplant team can prescribe medicines to help prevent or treat these side effects. For example, if your stomach bothers you, your transplant team may prescribe a medicine to help with upset stomach. If the anti-rejection medicines cause high blood pressure, your transplant team will prescribe a medicine to lower your blood pressure.

TAKING YOUR MEDICINES CORRECTLY

There are a few things you can do to make sure you are taking your medicines the right way.

- Bring all the medicines you are taking with you each time you visit your doctor.
- Show your transplant team how and when you take your medicines. Tell your transplant team if you think any of the medicines are causing problems for you.
- Keep a list of all medicines that you are currently taking with you at all times. It may be easy for you to keep an electronic list of your medicines in your phone.
- Make sure that both you and your caregivers know the name and amount of each medicine you take and why you are taking it.
- Take your medicines as instructed by your transplant team. Be consistent with how you take them.
- Find a schedule that you can follow every day for taking your medicines. For example, 7am and 7pm or 9am and 9pm.

Note: You are the most important part of the transplant team. The rest of the team cannot help you in taking your medicines without you. Be sure to tell your team everything about your medicines so they can understand what you are doing and what you may *not* be doing.

Here are some important things to do when taking transplant medicines:

- Never stop taking your medicines without talking to the transplant team first.
- Tell your transplant team if you experience side effects from your medicines.
- Always have enough medicine available. Get your prescriptions filled before you run out. You must have the right amount of medicine every day to prevent rejection and infection.
- If you cannot pay for your medicine, tell your transplant team right away. Transplant medicines are expensive. Your transplant team can help you, but only if you tell them you are having a problem!

It is very important to take your medicines as prescribed! If you miss taking your anti-rejection medicines even once or skip taking them this can cause rejection and may cause your new organ to fail.

Be sure to call your transplant team if:

- You miss taking your medicine
- Another doctor gives you a prescription for any medicine
- You want to take any over the counter medicine, including herbal medicines or supplements
- If you lose insurance or your copays are too high
- If you do not have insurance

GENERIC MEDICINES

There are several generic versions of many of your medicines, including many of your anti-rejection medicines. Most transplant teams will agree with you using generic medicines, but you should always check with them before taking these medicines. The label on the medicine bottle will indicate the manufacturer of the generic medicine. Some transplant teams may want to know every time you change any generic medicine you are taking. If you notice that the name of the manufacturer changed or the medicine looks different, ask your transplant team if this is important for you. Generic medicines can vary in their size,

shape, and color. Talk to your pharmacist if you are not sure your medicine is correct.

HOW TO STORE YOUR MEDICINES

- Keep all medicines where children cannot reach them.
- Store them away from direct sunlight in a cool, dry place like a closet or bedroom.
- Do not store medicine in a bathroom or kitchen where it is warm and humid.
- Do not store medicine in the refrigerator unless you are told to do so.
- Destroy any medicine you are no longer using.

THINGS TO CONSIDER IF YOU ARE, OR WANT TO GET, PREGNANT

Many women who could not get pregnant before receiving a new organ are able to get pregnant after receiving a new organ. But, getting pregnant after receiving a new organ is safe only for some women. If you want to have a baby, you should tell your transplant team and create a plan with your transplant doctor. Pregnant transplant patients need to be watched very closely by their transplant and pregnancy doctors. Pregnancy in a transplant patient is considered a high-risk pregnancy.

If you accidentally become pregnant, you need to let your transplant team know right away. There are risks to the mother and to the unborn baby. Some of the medicines you are taking may harm the unborn baby while you are pregnant. Please see the pregnancy section listed under each medicine's section for more specific information. If you are a woman and able to get pregnant, please talk about birth control with your transplant team to avoid accidental pregnancy.

Transplant Anti-Rejection Medicines

TACROLIMUS

Prograf®, Envarsus XR®, and Astagraf® are brand names for tacrolimus (ta-KROE-li-mus). Tacrolimus is a medicine that helps to prevent your body from rejecting the new organ and is sometimes called "tacro" for short.

You will need to have blood tests to check the level of tacrolimus in your blood. Your transplant doctor needs to make sure the level is not too high or too low. If your level is too high, you may have

more side effects. If your level is too low, your body may reject your transplanted organ.

When you go for a blood test, do not take tacrolimus in the morning before the test. Instead, bring your tacrolimus with you.

After a sample of your blood has been taken for the blood test, you should take your medicine. The amount of tacrolimus that is in your blood immediately before you take your medicine is called a *trough level*. It is important to have your *trough level* measured at the right time. Ask your transplant team if you are confused about when you need to have a sample of blood taken to measure your *trough level*.

There are three different forms of tacrolimus

- Tacrolimus immediate release (Prograf®) capsules
- Tacrolimus extended release (Envarsus XR®) tablets
- Tacrolimus extended release (Astagraf®) capsules

DO NOT SWITCH between the different forms without instructions from your transplant team.

How do I take tacrolimus?

Immediate release tacrolimus (Prograf®) capsules are available in three strengths: 0.5mg, 1mg, and 5mg. The immediate release form of tacrolimus can also be specially made into a liquid form by the pharmacy. You will usually take Prograf® two times a day, **12 hours apart** (either before or after you eat). It is rarely prescribed to be taken once or three times per day. When you take tacrolimus depends on how quickly your body uses the medicine and what you are eating. For example, children may need to take the medicine three times a day.

Astagraf XL® capsules are available in three strengths: 0.5mg, 1mg, and 5mg. Envarsus XR® tablets are available in three strengths: 0.75mg, 1mg, and 4mg. You will usually take Astagraf XL® or Envarsus XR® once a day, **24 hours apart** (either before or after you eat). Sometimes, they will be prescribed to be taken two times a day. This depends on how quickly your body uses the medicine and what you are eating when you take it.

You must take tacrolimus at the same time each day. Consistency is very important! You can take this medicine with or without food, but be consistent. For example, if you take your medicine with food, *always* take it with food. If you take your medicine on an empty stomach (1 hour before or 2 hours after you eat), *always* take it on an empty stomach. Do not change how you take it from day to day, because this will change the amount of tacrolimus in your blood.

What are the side effects?

Side effects related to a high amount tacrolimus in the blood:

- Decreased kidney function
- Tremors and shakiness
- Headache
- Trouble sleeping
- High potassium
- Low magnesium

Side effects not related to the amount of tacrolimus in the blood:

- High blood pressure
- High blood sugar
- Tingling in hands and feet
- Hair loss or hair thinning

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with tacrolimus?

Yes. Please see the section called "Combining medicines: What you need to know."

This section provides important information on medicines to avoid. Always ask your transplant team before starting a new medicine.

Do foods interact with tacrolimus?

Yes. Avoid grapefruit and any drinks that contain grapefruit juice, such as Fresca and Sunny Delight. Grapefruit can increase your levels of tacrolimus to a potentially poisonous level.

Avoid foods high in potassium, such as bananas, oranges, orange juice, potatoes, spinach, etc.

CYCLOSPORINE

Neoral®, Sandimmune®, and Gengraf® are brand names for cyclosporine (SYE-kloe-spor-een). Cyclosporine is a medicine that helps to prevent your body from rejecting your new organ and is sometimes called "cyclo" for short.

You will need to have blood tests to check the level of cyclosporine in your blood. Your transplant doctor needs to make sure the amount of cyclosporine is not too high or too low. If the amount is too high, you may have more side effects. If the amount is too low, your body may reject your transplanted organ.

When you go for a blood test, do not take cyclosporine in the morning before the test. Instead, bring your cyclosporine to clinic with you.

After a sample of your blood has been taken, you should take your medicine. The measurement of the amount of cyclosporine in your blood immediately before you take your medicine is called a *trough level*. It is important to get your *trough level* measured at the right time. Ask your transplant team if you are confused about your trough level timing.

Your doctor may also draw another level called a peak level. This level is taken approximately two hours after you take your cyclosporine, and is the highest level of the medicine in your body.

Make sure you know whether your doctor is drawing a *peak* or a *trough level*. It is important to give a sample of your blood at the right time to know the amount of cyclosporine in your blood. Ask your transplant team if you are confused about when you need to have a sample of blood taken to measure your *level*.

There are two different forms of cyclosporine:

- Cyclosporine-nonmodified, or cyclosporine regular (Sandimmune®)
- Cyclosporine-modified, or cyclosporine microemulsion (Neoral® and Gengraf®)

DO NOT SWITCH between forms without instructions from your transplant team.

How do I take cyclosporine?

Cyclosporine capsules come in three strengths: 25mg, 50mg and 100mg.

Cyclosporine is also available in liquid form as a 50mL bottle. Each mL (or milliliter) of the liquid contains 100mg of cyclosporine.

You will usually take this medicine two times a day, **12 hours apart** (either before or after you eat). Cyclosporine will rarely be prescribed once or three times per day. This depends on how quickly your body uses the medicine and what you are eating when you take it. Children may need to take the medicine three times a day.

Take cyclosporine at the same time each day. This medicine and your food work together. If you take your medicine 1 hour before

you eat, then you must *always* take it 1 hour before you eat. If you take it 1 hour after you eat, then you must *always* take it 1 hour after you eat. Do not change how you take it from day to day because this will affect the amount of cyclosporine in your blood.

How should I take cyclosporine?

The capsules should be swallowed whole and not opened, crushed, or chewed.

Cyclosporine-nonmodified liquid may be taken directly by mouth or mixed with room temperature milk, chocolate milk, or orange juice. **Cyclosporine-modified liquid** may be taken directly by mouth or mixed with room temperature orange juice or apple juice. When you choose to mix cyclosporine liquid with other juices or milk as described, you must mix it in a glass container and use a metal spoon. **Never mix your cyclosporine in a plastic or Styrofoam glass.** The medicine will stick to the cup and you will not receive the right amount. Be sure to stir the mixture well and drink it at once. After drinking the mixture, add another 4 ounces (1/2 cup or 120mL) of your mixing liquid, stir it, and drink it again to be sure you take all the medicine.

Never mix your cyclosporine with grapefruit juice. Grapefruit juice may cause a dangerous increase in the amount of the medicine in your blood.

How should I store cyclosporine?

Each capsule comes in its own foil package. Leave each capsule in this package until you are ready to take it. You may notice a slight odor when you open the foil package. This is normal and does not mean the capsule has gone bad.

DO NOT keep the liquid form of cyclosporine in the refrigerator. An opened bottle of cyclosporine liquid may be used for up to two months.

What are the side effects?

Side effects related to a high amount of cyclosporine in the blood:

- Decreased kidney function
- Tremors
- Headache
- Trouble sleeping
- High potassium
- Low magnesium

Side effects not related to the amount of cyclosporine in the blood:

- High blood pressure

- Excessive hair growth on face, arms, and legs
- Swollen and bleeding gums
- High cholesterol
- Tingling in hands and feet
- Gout

What should I do if I miss a taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with cyclosporine?

Yes. Please see the section called "Combining medicines: What you need to know." This section provides important information on medicines to avoid. Always ask your transplant team before starting a new medicine.

Do foods interact with cyclosporine?

Yes. Avoid grapefruit and any drinks that contain grapefruit juice, such as Fresca, Sunny Delight. Grapefruit can increase the amount of cyclosporine to a potentially poisonous level.

Avoid foods high in potassium, such as bananas, oranges, orange juice, potatoes, spinach, etc.

MYCOPHENOLATE MOFETIL (CELLCEPT®)

Mycophenolate mofetil and CellCept® are the same medicine. CellCept® is the brand name for mycophenolate (mye-koe-FEN-oh-late) mofetil. Mycophenolate mofetil is a medicine that helps to prevent your body from rejecting the new organ and is sometimes called "MMF" for short.

How do I take mycophenolate mofetil?

Mycophenolate mofetil is available as a 250 mg capsule, a 500 mg tablet, and a 200 mg/ml oral suspension. The capsules and tablets should be swallowed whole and should not be opened, crushed, or chewed.

This medicine should be taken at the same time each day. It is most commonly prescribed to be taken twice a day, 12 hours

apart. Your transplant doctor might change how often you take the medicine to three or four times a day if you have stomach problems. You can take this medicine with or without food.

What are the side effects?

- Stomach problems
This medicine can cause diarrhea, nausea, vomiting, and/or heartburn. These side effects may get better by changing how often you take mycophenolate mofetil to three or four times a day. **DO NOT** make any changes to your medicine, including how and when you take it, without first talking to your transplant doctor. Contact your transplant team if diarrhea, nausea, or vomiting becomes bothersome.
- Low white blood cell and platelet counts
This medicine can cause low white blood cell and platelet counts. Low white blood cell counts can increase your risk of getting an infection; low platelet counts can increase your risk of bleeding. If these blood counts become too low, your transplant doctor may lower the amount of mycophenolate mofetil you are taking.

What should I do if I miss taking my medicine when I should have taken it?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with mycophenolate mofetil?

Cholestyramine, antacids containing calcium, magnesium, or aluminum hydroxide (i.e., Maalox®, Mylanta®, Gaviscon®, Tums® etc.), and "binders", such as sevelamer and sucralfate, can prevent you from absorbing mycophenolate mofetil as well as you should. For this reason, take these other medicines 1 hour before, or 2 hours after, you take your mycophenolate mofetil medicine.

Do foods interact with mycophenolate mofetil?

There are no foods or drinks that interact significantly with this medicine.

Pregnancy Warning

The FDA warns that mycophenolate may cause an increased risk of birth defects and pregnancy loss in the first trimester. If you become pregnant, let your transplant doctor know immediately.

If you are a woman of child-bearing age, talk to your transplant doctor about birth control options.

MYCOPHENOLIC ACID (MYFORTIC®)

Mycophenolic acid and Myfortic® are the same medicine. Myfortic® is the brand name for mycophenolic (mye-koe-FEN-oh-lick) acid. This medicine helps to prevent your body from rejecting the new organ. You may also hear it called mycophenolate sodium.

How do I take mycophenolic acid?

These tablets come in two strengths: 180 mg and 360 mg tablets. The tablets should be swallowed whole and should not be crushed, or chewed.

This medicine should be taken at the same time each day. It is most commonly prescribed to be taken twice a day, 12 hours apart. Your transplant doctor might change how often you take your medicine to three or four times a day if you have stomach problems. You can take this medicine with or without food.

What are the side effects?

- Stomach problems
This medicine can cause diarrhea, nausea, vomiting, and/or heartburn. These side effects may get better by changing how often you take the medicine to three or four times a day. **DO NOT** make any changes to your medicine without first talking to your transplant doctor. Contact your transplant team if your diarrhea, nausea, or vomiting becomes bothersome.
- Low white blood cell and platelet counts
This medicine can cause low white blood cell and platelet counts. Low white blood cell counts can increase your risk of getting an infection. Low platelet counts can increase your risk of bleeding. If these blood counts become too low, your transplant doctor may lower the amount of mycophenolic acid you should take.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with mycophenolic acid?

Cholestyramine, antacids containing calcium, magnesium, or aluminum hydroxide (i.e., Maalox®, Mylanta®, Gaviscon®, Tums® etc.), and "binders", such as sevelamer and sucralfate, can prevent you from absorbing mycophenolic acid as well as you should. For this reason, take these other medicines 1 hour before, or 2 hours after, you take your mycophenolic acid medicine.

Do foods interact with mycophenolic acid?

There are no foods or drinks that interact significantly with this medicine.

Pregnancy Warning

There is a warning from the FDA about mycophenolic acid being linked to an increased risk of birth defects and pregnancy loss in the first trimester when pregnant women have taken this medicine. If you become pregnant, let your transplant doctor know immediately.

If you are a woman of child-bearing age, talk to your transplant doctor about birth control options.

AZATHIOPRINE (IMURAN®)

Azathioprine and Imuran® are the same medicine. Imuran® is the brand name for azathioprine (ay-za-THYE-oh-prin). This is a medicine that helps to prevent your body from rejecting the new organ.

How do I take azathioprine?

Azathioprine is a tablet you take by mouth once a day, at the same time every day. It can be taken on an empty stomach or with food. Azathioprine is available as a 50mg tablet. Azathioprine tablets can also be specially made into a liquid suspension by the pharmacy.

What are the side effects?

- Low Blood Cell Counts
 - This medicine can cause low white blood cell counts. Low white blood cell counts can increase your risk of getting an infection. If your white blood cell count becomes too low, your transplant doctor may decrease how much you should take.
 - Azathioprine can also cause a drop in the number of platelets in your blood. You need platelets to help clot your blood so that bleeding will stop.
 - The number of red cells in your blood may also drop. This could cause anemia.
- Other side effects that are rare
 - Fever, rash, thinning hair, loss of appetite, joint or muscle pain, or liver and pancreas problems can also occur when taking this medicine.
 - Although rare, this medicine may cause liver damage. You will need to have blood tests to check for this side effect.

Before starting azathioprine, your doctor may test your blood for the enzyme TPMT. If you have a small amount or no TPMT in your blood, you may be at an increased risk of side effects like low blood cell counts. This may require decreasing how much azathioprine you are taking or stopping the medicine.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with azathioprine?

The gout medicines allopurinol (Zyloprim®) and febuxostat (Uloric®) significantly increase your blood levels of azathioprine. This can greatly increase your risk of severe side effects with your blood and bone marrow and will require a decrease in the amount of azathioprine you are taking. If another doctor decides to start you on either of these medicines, immediately notify your transplant team. Azathioprine interacts with warfarin, a common blood thinner. When starting or stopping azathioprine, your doctor will need to check your INR (international normalized ratio) more frequently to help determine how much medicine you need.

STEROIDS

There are many different types of steroids. The steroids used in transplant patients are not the same as those used by some athletes. Steroids used in transplant suppress the immune system to help your body from rejecting the new organ. Here are the names of some steroids used by transplant patients:

- Prednisone (Deltasone®)
- Methylprednisolone (Solu-medrol®, Medrol®)
- Prednisolone (Orapred®, Pediapred®, Prelone®)

How do I take steroids?

Your transplant team will probably give you strong steroids through your vein (by IV) and by mouth during and right after your transplant operation.

When you are home, you might take steroids once a day, twice a day, or once every other day. Some people are able to stop taking steroids. Never stop taking steroids unless instructed to do so by your transplant doctor.

If your body tries to reject the new organ, you may be given a large amount of steroids through a vein or by mouth for a few days. After these taking these large amounts, you may have

to start taking steroids every day, if you were not already. The amount you take every day may also go up for a period of time to help prevent rejection. After that, you will start to take smaller amounts of steroids.

Prednisone is available as tablet form in many different strengths. Liquid preparations of prednisone and prednisolone are also available.

Be careful when you look at the strengths of your medicines. Your transplant doctor might give you a small amount, such as a 5 mg tablet, to allow you to gradually decrease how much medicine you are taking over time. Doctors refer to this as "tapering." Prednisone also comes in stronger tablets, such as 10 mg and 20 mg. Sometimes your doctor might have you take half of a tablet. For example, half of a 10 mg tablet = 5 mg. Steroid *tapers* can be confusing. Taking the wrong amount of medicine can cause side effect or rejection. Ask your transplant team if you are confused about the instructions for taking your steroids.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

What are the side effects?

Steroids can have many side effects. Side effects are usually more noticeable when taking larger amounts of steroids or when you are taking them for a long time. Your transplant doctor can help you if you have side effects.

- Changes in mood or behavior
- Steroids can cause mood changes. You may have trouble sleeping or have nightmares. You might feel sad or very emotional.
- Steroids can make people, especially children, feel nervous or hyperactive. This happens more often with higher amounts of steroids. The side effect usually goes away when the amount of the steroid is lower.
- There are many medicines that can relieve these symptoms. Be sure to tell your doctor if you are having any side effects.
- Fluid retention and high blood pressure
- Steroids can cause your body to keep salt and water. This can increase your blood pressure and cause you to need blood pressure medicine.

- Try to avoid eating salty foods and those that contain a lot of sodium. This can help keep your blood pressure down.
- Hunger and weight gain
 - Steroids can make you feel hungry. Try to eat low-fat foods and limit the amount of sweets you eat. Ask the dietitian on your transplant team to help you with an eating plan.
- High blood sugar levels
 - Your blood sugar may go up if you are on a high dose of steroids. You may need to take medicines to lower your blood sugar. Some people need insulin shots. If you have taken insulin before, or have a family history of diabetes, you might need to take insulin.
- Problems with bones and muscles
 - Steroids can cause your muscles to weaken. This is mainly the muscles in your thighs and shoulders.
 - Some people get muscle cramps and pains in their joints, mostly in their hips and knees.
 - Steroids can take calcium out of your bones. This can lead to weak bones (osteoporosis). You can decrease this by taking calcium and vitamin D.
 - Your doctor may need you to have a test to check your bone density every 1 to 2 years while you are on steroids.
- Changes in the way you look
 - Your face might get more round. You may get more fat deposits around your waist and the back of your neck.
 - Some people get stretch marks; others get bruises.
 - Teenagers and young adults often get acne on the face, back, and chest.
 - You might become very sensitive to the sun.
 - Most of these changes do not last and will begin to go away when the amount of your steroid is reduced.
- Stomach problems
 - Steroids can cause heartburn, indigestion, and stomach ulcers.
 - Take your steroid medicine with food to make it easier

on your stomach. Your transplant team can also give you other medicines for your stomach.

- Eye problems
 - Some people get eye diseases like cataracts or glaucoma (high pressure in the eye that can lead to vision loss). Regular eye exams are an important part of your treatment. Talk to your doctor about regular eye checkups.

Do other medicines interact with prednisone?

If you are taking steroids and your doctor suggests you take blood thinners like aspirin, make sure you tell your transplant team so that they may prescribe the right kind of medicine to prevent ulcers.

SIROLIMUS (RAPAMUNE®)

Sirolimus and Rapamune® are the same medicine. Rapamune® is the brand name for sirolimus (sir-OH-li-mus). Sirolimus is a medicine that helps to prevent your body from rejecting the new organ and is sometimes called "rapa" for short.

How do I take sirolimus?

Sirolimus is available as a tablet (0.5 mg, 1 mg and 2 mg) and an oral solution (1 mg/mL). Generics are available for the tablets.

Sirolimus is taken once a day, though some people may need to take it two times per day. Take it at the same time each day.

You will need to have blood tests to check the amount of sirolimus in your blood. Your transplant doctor needs to make sure the amount is not too high or too low. If there is too much sirolimus in your blood, you may have more side effects. If the amount of sirolimus is too low, your body may reject your transplanted organ. **When you go for a blood test, do not take sirolimus in the morning before the test. Instead, bring your sirolimus with you.** After a sample of your blood has been taken, you should take your medicine. The sample of blood that is taken immediately before you take your medicine is called a *trough level*. It is important to get your *trough level* at the right time. Ask your transplant team if you are confused about when you need to have a sample of blood taken to measure your *trough level*.

For the oral solution, use the amber syringe provided with the bottle to measure the prescribed amount of sirolimus that you need to take. If you are instructed to carry the medicine with you, place a cap securely on the syringe. The medicine in the syringe can be kept at room temperature or refrigerated for 24 hours. The medicine can be mixed in a plastic or glass container with at least 2 ounces (1/4 cup or 60 mL) of water or orange juice. **Never mix it with grapefruit juice, apple juice, or other liquids.** Stir

vigorously for one minute and drink immediately. After drinking the mixture, add another 4 ounces (1/2 cup or 120 mL) of water or orange juice, stir it, and drink it again to be sure you take the entire amount of your medicine. The syringe and cap should be used once and then recycled.

What are the side effects?

- Poor wound healing
 - Sirolimus may cause wounds to heal more slowly. Please make sure your transplant team knows if you develop any wounds that do not heal or if you are scheduled for surgery while taking sirolimus.
- Swelling (edema)
 - Fluid may collect in your hands and feet. This can also occur in other tissues in your body, including the sac around your heart and/or lungs. Please contact your doctor if you have trouble breathing.
- Low blood cell counts
 - Sirolimus may lower your white blood cells, platelets, and red blood cells. White blood cells are important for fighting infection, platelets help your blood clot, and red blood cells carry oxygen in your blood. Your transplant doctor will check your blood cell counts to monitor for this side effect.
- High lipid counts
 - Cholesterol and triglycerides are lipids. Sirolimus may cause your lipids to increase. This can lead to hardening of the arteries. These levels need to be monitored. If your lipids increase, you may need to take another medicine to lower your lipid levels.
- Effects on kidney function
 - You may develop increased protein in your urine. Your doctor will want to monitor your kidney function and check for protein in your urine.
- Mouth ulcers
 - You may develop sores (ulcers) in your mouth while taking sirolimus. Tell your transplant team if you notice these ulcers.

Rare Side Effects

Please tell your transplant doctor immediately if you develop any of these rare side effects

- Severe breathing problems

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with sirolimus?

Yes. Please refer to the section called "Combining medicines: What you need to know," this section provides important information on medicines to avoid.

EVEROLIMUS (ZORTRESS®)

Everolimus and Zortress® are the same medicine. Zortress® is the brand name for everolimus (ev-er-OH-li-mus) when it is used for organ transplantation. This is a medicine that helps to prevent your body from rejecting the new organ.

Afinitor® is the brand name when used for cancer. If the amount of your everolimus medicine is high, you may be prescribed Afinitor® tablets because they are available in larger sizes.

How do I take everolimus?

Everolimus is available in 0.25 mg, 0.5 mg, and 0.75 mg tablets.

Take everolimus at the same time each day. Everolimus is taken twice a day, 12 hours apart. This medicine can be taken with or without food. The tablets should be swallowed whole and not crushed or chewed.

You will need to have blood tests to check the amount of everolimus in your blood. Your transplant doctor needs to make sure the amount of everolimus is not too high or too low. If the amount is too high, you may have more side effects. If the amount is too low, you may reject your transplanted organ. **When you go for a blood test, do not take your everolimus in the morning before the test. Instead, bring your everolimus with you.**

After your blood has been drawn, you should take your medicine if it is time to take your medication. The amount of everolimus in your blood immediately before you take your medicine is called a *trough level*. It is important to have a sample of your blood taken at the right time to measure your *trough level*. Ask your transplant team if you are confused about the time your blood should be taken.

What are the side effects?

- Poor wound healing
 - Everolimus may cause wounds to heal more slowly. Please make sure your transplant team knows if you develop any wounds that do not heal or if you are scheduled for surgery while taking everolimus.
- Swelling (edema)
 - Fluid may collect in your hands and feet. This can also occur in other tissues in your body, including the sac around your heart and/or lungs. Please contact your doctor if you have trouble breathing.
- Low blood cell counts
 - Everolimus may lower your white blood cells, platelets, and red blood cells. White blood cells are important for fighting infection. Platelets help your blood clot, and red blood cells carry oxygen in your blood. Your transplant doctor will check your blood cell counts to monitor for this side effect.
- High lipid counts
 - Cholesterol and triglycerides are lipids. Everolimus may cause your lipids to increase. This can lead to hardening of the arteries. These levels need to be monitored. If your lipids increase, you may need to take another medicine to lower your lipid levels.
- Effects on kidney function
 - You may develop increased protein in your urine. Your doctor will want to monitor your kidney function and check for protein in your urine.

Rare Side Effects

Please tell your transplant doctor immediately if you develop any of these rare side effects

- Mouth and stomach ulcers
- Severe breathing problems

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then return to your regular schedule.

DO NOT take twice as much medicine the next time.

Do other medicines interact with everolimus?

Yes. Please refer to the section called “Combining medicines: What you need to know,” this section provides important information on medicines to avoid.

BELATACEPT (NULOJIX®)

Belatacept and Nulojix® are the same medicine. Nulojix® is the brand name for belatacept (bela-TA-sept). Belatacept is a medicine that helps to prevent your body from rejecting the new organ and is sometimes called “bela” for short.

How do I take belatacept?

You will receive belatacept as an intravenous (IV) infusion in to one of your veins. Each IV infusion takes about 30 minutes. After the first time you take belatacept, you will be placed on a regular schedule as directed by your transplant doctor. There is a 3-day period of time before and after the scheduled date to allow for flexibility in your schedule. The amount of belatacept you take is based on your weight.

It is important that you keep up with your appointments for belatacept treatment and monitoring. It may be helpful to mark your calendar to know the next time when you need to take your belatacept.

Note: Read the Medicine Guide provided by the infusion staff before you start using belatacept and each time you get an infusion.

What are the side effects?

- Increased risk of Post-Transplant Lymphoproliferative Disorder (PTLD)
 - PTLD is a condition where your white blood cells grow out of control after transplant. This condition can eventually become a type of cancer. Patients treated with belatacept have a higher risk of getting PTLD, especially the type that affects the brain.
 - The risk of PTLD is higher if you have not been exposed to a certain virus called Epstein-Barr virus, or EBV. Before starting treatment with belatacept, your transplant doctor should test to check if you have had an exposure to EBV. You can only receive belatacept if you have been exposed to this virus in the past.
 - Contact your transplant doctor right away if you notice any of the following symptoms while taking belatacept: fever, night sweats, swollen glands, unexplained weight loss, or unusual tiredness.

- Increased risk of brain infections
 - Belatacept increases the risk of a rare and possibly deadly brain infection called progressive multifocal leukoencephalopathy (PML).
 - Contact your transplant doctor right away if you notice new or worsening symptoms such as: clumsiness, difficulty speaking, problems with balance, sudden change in your thinking (such as confusion, difficulty concentrating, and memory loss), vision changes, or weakness of the arms and legs.
- Other side effects
 - You may get a headache, nausea, or diarrhea while receiving belatacept. If any of these symptoms continue or worsen, contact your transplant doctor right away.

What should I do if I miss taking my medicine?

If you miss your belatacept infusion, you have 3 days to reschedule your missed infusion. Contact your transplant team right away if you are having a difficult time scheduling your belatacept infusion.

Medicines for Infection

TRIMETHOPRIM-SULFAMETHOXAZOLE

Bactrim®, Cotrim®, Sulfatrim® and Septra® are brand names for trimethoprim-sulfamethoxazole (trye-METH-oh-prim-sulfa-meth-ox-a-zole) or co-trimoxazole. They are all the same medicine. This medicine is an antibiotic that helps prevent bacterial infections.

How do I take trimethoprim-sulfamethoxazole?

Trimethoprim-sulfamethoxazole is available as a tablet or liquid formulation. The tablets come in two strengths: single-strength (SS) tablets and double-strength (DS) tablets.

This medicine has sulfa in it. If you have an allergy to sulfa, tell your transplant doctors. They will give you a different medicine.

What are the side effects?

1. Nausea, vomiting, diarrhea, or stomach cramps
2. Loss of appetite
3. Skin rash and itchy skin
4. Low numbers of white blood cells and other blood changes

5. Your skin may become sensitive to sunlight. Use sunscreen when you are outdoors, and take your medicine with a glass of water.
6. High potassium levels. You may need to avoid foods high in potassium such as bananas, oranges, orange juice, potatoes, and spinach.

Do other medicines interact with trimethoprim-sulfamethoxazole?

Trimethoprim-sulfamethoxazole can increase the levels of other medicines you may be taking. Make sure your transplant doctors know that you are taking this medicine and other medicines such as Coumadin® or warfarin (blood thinner) and digoxin (heart medicine). Always inform your transplant team of any new medicines that are prescribed to you.

Do foods interact with trimethoprim-sulfamethoxazole?

There are no foods or drinks that significantly interact with this medicine.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

VALGANCICLOVIR (VALCYTE®)

Valganciclovir and Valcyte® are the same medicine. Valcyte® is the brand name for valganciclovir (val-gan-SYE-kloh-veer) and helps prevent viral infections such as cytomegalovirus (CMV), herpes, chicken pox, and cold sores.

How do I take valganciclovir?

Valganciclovir is available as a 450mg tablet and a 50mg/mL solution. The tablets should be swallowed whole and should not be crushed or chewed. This medicine may be taken once a day, twice a day, or a few times per week. Your transplant doctor will advise you what schedule is best for you. You should take this medicine with food.

What are the side effects?

Valganciclovir can lower your white blood cell, red blood cell, and platelet counts. If your blood counts become too low, your transplant doctor may decrease the strength of valganciclovir you are taking or temporarily stop this medicine.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken

it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

GANCICLOVIR (CYTOVENE®)

Ganciclovir and Cytovene® are the same medicine. Cytovene® is the brand name for ganciclovir (gan-ci-clo-vir) and helps prevent viral infections such as cytomegalovirus (CMV), herpes, chicken pox, and cold sores.

How do I take ganciclovir?

Ganciclovir is only available in the IV form that is injected into one of your veins. The first few times you take this medicine are usually in the hospital. Your transplant team will decide the right amount and length of time you should take this medicine.

What are the side effects?

Ganciclovir can lower your white blood cell, red blood cell, and platelet counts. If your blood counts become too low, your transplant doctor may lower the amount of ganciclovir you are taking or temporarily stop this medicine.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then return to your regular schedule.

DO NOT take twice as much medicine the next time.

VALACYCLOVIR (VALTREX®)

Valacyclovir and Valtrex® are the same medicine. Valtrex® is the brand name for valacyclovir (val-a-SYE-kloe-veer) and is used to prevent certain kinds of viral infections such as herpes, chicken pox, and cold sores.

How do I take valacyclovir?

Valacyclovir comes as 500mg and 1000mg tablets. It may be taken with or without food. Take plenty of fluids when you are on this medicine.

What are the side effects?

This medicine has few side effects, however low blood counts (white blood cell count, platelet count) and headaches may occur.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

ACYCLOVIR (ZOVIRAX®)

Acyclovir and Zovirax® are the same medicine. Zovirax® is the brand name for acyclovir (a-SYE-klo--veer) and helps prevent viral infections such as herpes, chicken pox, and cold sores.

How do I take acyclovir?

Shake well before using the liquid suspension. It may be taken with or without food. Take plenty of fluids when you are on this medicine.

What are the side effects?

This medicine has few side effects, however low blood counts (white blood cell count, platelet count) and headaches may occur.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then return to your regular schedule.

DO NOT take twice as much medicine the next time.

NYSTATIN AND CLOTRIMAZOLE (MYCOSTATIN® AND MYCELEX®)

Nystatin and Mycostatin® are the same medicine. Mycostatin® is the brand name for nystatin (nye-STA-tin). Clotrimazole and Mycelex® are the same medicine. Mycelex® is the brand name for clotrimazole (kloe-TRIM-a-zole). Both Nystatin and Clotrimazole prevent thrush, a yeast infection in your mouth.

How do I take nystatin and clotrimazole?

When you take nystatin, you swish and hold the medicine in your mouth for two minutes then swallow it. You should not eat or drink anything for 30 minutes after doing this. Nystatin is used four times a day.

Clotrimazole comes as a lozenge. When you take clotrimazole, allow the lozenge to dissolve making sure to coat your mouth as best as you can. Clotrimazole is used three to four times a day.

What are the side effects?

You are unlikely to experience many side effects from these medicines, but you may have some nausea, vomiting, diarrhea, or stomach cramps.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

FLUCONAZOLE (DIFLUCAN®)

Fluconazole and Diflucan® are the same medicine. Diflucan® is the brand name for fluconazole (flu-KO-na-zole) and prevents fungal infections like Candida infection.

How do I take fluconazole?

Fluconazole comes as a tablet (50 mg, 100 mg, 150 mg, and 200 mg) or a liquid (10 mg/mL and 40 mg/mL). It can interact with the medicines you take to prevent your body from rejecting your new organ. Your transplant doctor may change the strength of your medicines when you are on fluconazole and when you stop fluconazole.

What are the side effects?

The most common side effects include nausea, vomiting, diarrhea, headache, and rash. Increases in your liver blood tests occur rarely.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

ITRACONAZOLE (SPORANOX®)

Itraconazole and Sporanox® are the same medicine. Sporanox® is the brand name for itraconazole (i-tra-KO-na-zole) and prevents fungal infections like Aspergillus infection.

How do I take itraconazole?

Itraconazole is available as a capsule or a liquid formulation. Itraconazole should always be taken with food. It interacts with the medicines you take to prevent your body from rejecting your new organ. It can also change the amount of anti-rejection medicine in your blood. Your doctor may change the strength of your medicines when you are on itraconazole and again when you stop itraconazole.

What are the side effects?

The most common side effects are nausea and stomach upset, but you may also experience headaches and high blood pressure. It can rarely cause increases in your liver blood tests.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

VORICONAZOLE (VFEND®)

Voriconazole and Vfend® are the same medicine. Vfend® is the brand name for voriconazole (vor-i-KON-a-zole) and prevents fungal infections like Aspergillus.

How do I take voriconazole?

It interacts with the medicines that you are taking to prevent your body from rejecting the new organ and can change the amount of anti-rejection medicine in your blood. Your transplant team may change the strength of your medicines when you are on voriconazole and again when you stop voriconazole.

What are the side effects?

The most common side effects are visual disturbances (like changes in color vision) and hallucinations. Nausea and stomach upset, a headache, swelling of your legs, or a skin rash may also occur. It can rarely cause changes in your liver blood tests.

Do foods interact with voriconazole?

Voriconazole should be taken on an empty stomach 1 hour before or 2 hours after a meal. Ideally, voriconazole should be taken with ginger ale.

What should I do if I miss taking my medicine?

If you miss taking your medicine when you should have taken it, you can take it as soon as you remember. Be sure this is not too close to the next scheduled time you normally take your medicine. Then, return to your regular schedule.

DO NOT take twice as much medicine the next time.

Medicines that help with side effects

1. MEDICINE FOR HEART BURN, INDIGESTION AND STOMACH ULCERS

Sucralfate (Carafate®)

Famotidine (Pepcid®)

Ranitidine (Zantac®)

Nizatidine (Axid®)

Omeprazole (Prilosec®)

Lansoprazole (Prevacid®)

Esomeprazole (Nexium®)

Pantoprazole (Protonix®)

How do these medicines work?

Some transplant medicines, like steroids, are hard on your stomach. You may need to take medicine to treat heart burn or indigestion and to prevent stomach ulcers. Many of them are available without a prescription.

How do I take these medicines?

Most of these medicines can be used on an as needed basis. Follow the directions on the label, and ask your transplant doctor if you have any questions.

Note: If you are taking CellCept®, you should not take Carafate® at the same time of day because it prevents CellCept® from working. Your doctor should give you a different medicine. If your doctor tells you to take an antacid or Carafate, take it 1 hour before or 2 hours after you take CellCept® or Myfortic®

What are the side effects?

Most people have very few side effects from these medicines when used for a short time. If you are using these medicines for a long time, talk to your transplant team about the risks associated with using it for a long time.

2. DIURETICS (WATER PILLS)

Furosemide (Lasix®)

Bumetanide (Bumex®)

Metolazone (Zaroxolyn®)

Spironolactone (Aldactone®)

Furosemide (Lasix®) is the diuretic used most often.

How do diuretics work?

Diuretics are called water pills because they help the kidneys make more urine. They help reduce swelling and fluid that has built up. They also help lower blood pressure, as well as lower the amount of potassium in your blood.

How do I take diuretics?

Follow the directions on the label, and ask your transplant doctor if you have any questions.

When you take water pills, it is important to watch your weight and blood pressure. It is important that your body does not lose too much water. If you have diarrhea or severe cold or flu, your doctor may ask you to STOP taking your diuretics to prevent you from losing too much water.

What are the side effects?

When you first start taking diuretics, you will probably notice that you are passing more urine than before. If you feel dizzy when you stand up, get up more slowly and let your transplant team know if the dizziness becomes worse. You can also develop low or high potassium.

3. VITAMINS AND MINERALS

How do vitamins and minerals work?

Most people get all the vitamins they need from the food they eat, but when you have a transplant it puts stress on your body. Your transplant doctor may tell you to take more vitamins or minerals, like Vitamin D and calcium.

How do I take vitamins and minerals?

Follow the directions on the label and ask your transplant doctor if you have any questions.

There is no need for you to take more vitamins than those your doctor recommends. But if you want to take more vitamins, tell your transplant team.

Note: Some herbal supplements may interact with your transplant medicines or make your immune system work too well and cause rejection. Do not take herbal supplements unless you ask your transplant doctor first.

What are the side effects?

Side effects from vitamins and minerals are rare, but can include gas, bloating, nausea and diarrhea.

4. BLOOD PRESSURE MEDICINES

How do blood pressure medicines work?

Some transplant medicines cause your blood pressure to rise. This can happen even if your new organ is healthy. If you were taking blood pressure medicine before your transplant, you may need to keep taking it.

How do I take blood pressure medicines?

Follow the directions on the label and ask your transplant doctor if you have any questions.

Note: There are many kinds of blood pressure medicines. Two of them may have side effects that can cause one of your kidney numbers (your serum creatinine) and also increase the amount of potassium in your blood. These medicines are:

- Angiotensin converting enzyme (ACE) inhibitors
- Angiotensin receptor blockers (ARBs)

Other medicines that are commonly used to treat blood pressure following transplantation include:

- calcium channel blockers (amlodipine, nifedipine, felodipine, diltiazem, etc.)
- beta-blockers (carvedilol, labetalol, metoprolol, etc.)
- hydralazine
- clonidine

Your transplant doctor will prescribe the blood pressure medicine that is felt to be best for you.

Some blood pressure medicines, like diltiazem, may affect the blood levels of your transplant medicines. **Make sure you contact your transplant team before starting any new blood pressure medicines that may be prescribed by other doctors.**

What are the side effects?

The side effects that you get from blood pressure medicine depend on which medicine you take.

Some common side effects of blood pressure medicine are:

1. Getting dizzy when you stand up
2. Being tired
3. Change in your heart beat
4. Swelling in your feet or hands
5. Problems having sex

5. BLOOD SUGAR MEDICINES

How do blood sugar medicines work?

Some transplant medicines cause your blood sugar to rise. This can happen even if your new organ is healthy. If you were taking a blood sugar medicine before your transplant, you may need to keep taking it. If you were not taking a blood sugar medicine before transplant, your transplant team may need to put you on a blood sugar medicine.

How do I take blood sugar medicines?

Follow the directions given to you by your transplant team and ask your transplant doctor if you have any questions. Some medications may be taken by mouth while for others you may need to use a needle to inject the medication into the skin.

Medicines that are commonly used to treat high blood sugar following transplant include slow and fast-acting insulin's. There

are other medicines you take by mouth, such as metformin, glipizide, glimepiride, sitagliptin, and others. Your transplant doctor will choose the medicine that is best for you. **Make sure you contact your transplant team before starting any new blood sugar medicines that may be prescribed by other doctors.**

What are the side effects?

The side effects you get from blood sugar medicine depend on which medicine you take. The most common side effect that you may feel is low blood sugar (called hypoglycemia). Signs that you may have low blood sugar include:

- sweating
- a pounding heart
- feeling shaky
- dizziness
- confusion
- headache
- irritability

It is important to check your blood sugars as directed by your transplant team and have a source of quick sugar on hand, such as glucose tablets or juice.

6. ELECTROLYTES:

What are electrolytes, and why are they important?

Electrolytes such as sodium, potassium, magnesium, and phosphorous are very important for all the cells in your body to work properly. Some transplant medicines can cause your body to keep too many electrolytes or get rid of too many electrolytes. Your transplant doctor may prescribe medicines to either add extra electrolytes or get rid of too many electrolytes.

Combining medicines: What you need to know

OVER THE COUNTER (OTC) MEDICINES

Tell your transplant doctor or pharmacist about all prescription medicines and over the counter medicines you are taking. These include medicines for pain, vitamins, herbal medicines, and cough

and cold products. Your transplant team needs to know if you are taking any of these to avoid any problems with how your medicines work together. **A very important point to remember: do not start taking any new prescription or OTC medicines after your transplant without talking to your transplant team first.** Transplant medicines are very strong, and they do not always mix well with other medicines. Below is some information you need to know about mixing medicines.

- **Herbal Medicines**

If you took herbal and/or dietary supplements before you received your new organ, it is important for you to review these medicines with your transplant coordinator and pharmacist after your transplant operation. Many herbal products can interact with the body's immune defense system and the medicines that you are taking to prevent your body from rejecting your new organ. The transplant team discourages using herbal products.

- **Nonprescription Pain Medicines**

All OTC non-steroidal anti-inflammatory medicines (NSAIDs) should be avoided in transplant patients because these medicines increase the risk of injury to the kidneys and can cause or worsen high blood pressure. OTC NSAIDs include ibuprofen, naproxen, Advil®, Motrin® and Aleve®. High amounts of aspirin also may cause kidney problems and should be avoided.

Low strengths of aspirin (81mg or 325mg once a day) for prevention of heart disease are safe. However, it is still recommended that your creatinine, a marker of your kidney function, is watched closely.

Acetaminophen (Tylenol®) is the preferred OTC pain medicine for transplant patients. For liver transplant patients, 2000 mg of acetaminophen per day is the highest recommended total amount that you should take. Other transplant patients should take no more than 3000 mg of acetaminophen per day.

- **Cough and Cold Products**

Some cough and cold products contain ingredients that transplant patients should try to avoid. If you have high blood pressure, avoid cold products that contain pseudoephedrine. Some safe options for cough or cold symptoms are chlorpheniramine, guaifenesin, and dextromethorphan.

- **Laxatives/stool softeners**

Magnesium and aluminum containing laxatives should always be taken 1 hour before or 2 hours after taking CellCept®. Senna and docusate sodium are the laxatives/stool softeners that are recommended to be used after surgery.

- **Antidiarrheals**

Diarrhea may be a sign of a serious infection that may require a visit to your doctor. Diarrhea may also affect the amount of medicine in your blood.

Contact your transplant team before you take any OTC antidiarrheals.

Loperamide is the recommended antidiarrheal medicine that you can get without a prescription. Bismuth subsalicylate (Pepto Bismal®) should be avoided since it contains salicylates. Polycarbophil (Metamucil®) may bind to CellCept® or Myfortic® and decrease the amount of those medicines that get into your blood.

MEDICINES THAT RAISE THE AMOUNT OF CYCLOSPORINE, TACROLIMUS, SIROLIMUS AND EVEROLIMUS IN YOUR BLOOD

WARNING!

This list does not include everything. Check with your transplant team before taking any new medicine.

If you are taking cyclosporine (Sandimmune®, Neoral®, Gengraf®), tacrolimus (Prograf®, Astagraf XL®, Envarsus XR®), sirolimus (Rapamune®), or everolimus (Zortress®), the following medicines can raise the amount of those medicines in your blood:

Antibacterial (antibiotic) medicines

- Erythromycin and clarithromycin (Biaxin®)

Antifungal medicines

- Ketoconazole (Nizoral®)
- Itraconazole (Sporanox®)
- Fluconazole (Diflucan®)
- Voriconazole (Vfend®)
- Posaconazole (Noxafil®)
- Clotrimazole (Mycelex®)

Hepatitis C medicines

- Telaprevir (Incivek™)

- Boceprevir (Victrelis™)
- Ombitasvir, paritaprevir, ritonavir, and dasabuvir (Viekira Pak™)

HIV medicines

- Elvitegravir, cobicistat, emtricitabine, tenofovir disoproxil fumarate (Stribild®)
- Protease inhibitors, like:
 - Indinavir (Crixivan®)
 - Saquinavir (Fortovase®, Invirase®)
 - Ritonavir (Norvir®)
 - Nelfinavir (Viracept®)
 - Fosamprenavir (Lexiva®)
 - Lopinavir/ritonavir (Kaletra®)
 - Atazanavir (Reyataz)
 - Darunavir (Prezista)

Blood pressure, or heart rhythm, medicines

- Verapamil (Calan®, Isoptin®) and diltiazem (Cardizem®)

Other medicines

- Ethisterone derivative (danazol) used for gynecologic conditions
- Amiodarone (Cordarone®) used for heart rhythm problems
- Theophylline (Theo-Dur®)

Foods

- Grapefruit, grapefruit juice and Fresca®

MEDICINES THAT LOWER THE AMOUNT OF CYCLOSPORINE, TACROLIMUS, SIROLIMUS AND EVEROLIMUS IN YOUR BLOOD

WARNING!

This list does not include everything. Check with your transplant team before taking any new medicine.

A low cyclosporine, tacrolimus, sirolimus, and/or everolimus level may lead to rejection and damage to your transplanted organ.

Medicines for seizures

- Phenytoin (Dilantin®)
- Phenobarbital (Luminal™)
- Carbamazepine (Tegretol®)

Infection medicines

- Rifampin (Rifadin®)
- Rifabutin (Mycobutin®)
- Griseofulvin (Grifulvin®)
- Nafcillin

HIV medicines

- Efavirenz (Sustiva®)

Other medicines/supplements:

- Acetaminophen, Butalbital, and Caffeine (Fioricet®)
- St. John's Wort
- Echinacea

Taking cyclosporine, tacrolimus, sirolimus or everolimus with the medicines below can be dangerous for you. You should consult with your transplant team even if another doctor prescribes them for you, since careful monitoring is needed.

Cholesterol medicines

- Simvastatin (Zocor®) and pitavastatin (Livalo®) – should not be used with cyclosporine

- Atorvastatin (Lipitor®) and lovastatin (Mevacor®) – use with caution with cyclosporine

Infection medicines

- Gentamicin (Garamycin®), tobramycin (Nebcin®) and amikacin (Amikin®)
- Amphotericin B (Fungizone®)

Pain medicines (some are over-the-counter)

- NSAIDs like ibuprofen (Motrin®, Advil®, Nuprin®), naproxen (Naprosyn®, Aleve®), indomethacin (Indocin®), ketorolac (Toradol®), ketoprofen (Orudis®), piroxicam (Feldene®)

Researching new medicines

Doctors are studying new medicines all the time. Some of these medicines may help you keep your new organ healthy. Other new medicines could have fewer side effects or cause fewer infections.

Tell your doctor if you would like to be part of a clinical trial. All new medicines must be tested before they can be given to people who need transplants. These tests are called clinical trials or studies.

Your doctor will see if there is a clinical trial that can be helpful to you. Your transplant team will discuss with you the pros and cons of taking part in a clinical trial. They will explain, in detail, all the facts about the clinical trial so that you will be able to make what we call an informed decision.

You do not have to join a clinical trial. It is your right to join or not join. Your choice will not change the quality of care you will receive after the transplant.