



A Handbook For Kidney Transplant Patients

NATIONAL KIDNEY & TRANSPLANT INSTITUTE
Department of Adult Nephrology
Department of Organ Transplantation
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***A Handbook For
Kidney Transplant Patients***

***National Kidney and Transplant Institute
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By Manuel Combite

Kidney transplantation is the best treatment for patients who have ESRD (End Stage Renal Disease) and the National Kidney and Transplant Institute (NNTI) is among the best kidney transplant centers in Asia and it continues to be the leading transplant center in the country. Since 1983, NNTI has performed over 5,000 kidney transplants, with around 300 transplants done annually in the years prior to the pandemic.

This handbook aims to guide patients who have ESRD who are candidates for kidney transplantation. It will also introduce you to the process of kidney transplantation at NNTI. It will offer you the basic and most essential information regarding kidney transplantation and answers most of the frequently asked questions so that you and your family may make an informed decision to undergo transplantation.

We wish to acknowledge the following. Without them this book would not have been completed.

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We are happy to provide you with this handbook to inform you about kidney transplantation and add to what you have already discussed with your transplant team. This handbook was prepared to give you a basic overview of your daily healthcare routine, medications, monitoring, and other activities. It also has tips on recognizing problems that may require immediate medical attention.

Our primary goal is to get you and your family actively involved in your own healthcare. Having a new kidney brings new responsibilities that include:

Staying healthy by having a nutritional diet and regular exercise

Following your medication schedule

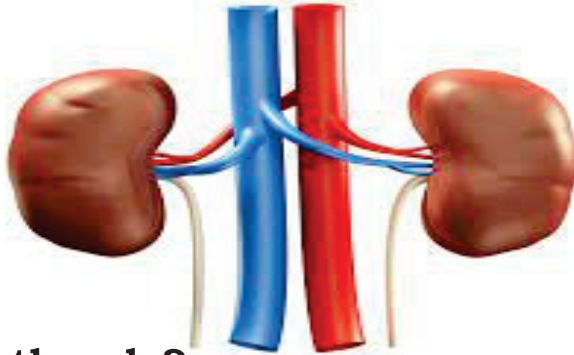
Checking your weight, temperature, blood pressure, pulse rate, fluid intake, and urine output periodically

Talking to your transplant team regularly

Following your schedule for lab tests and check ups

What are the kidneys?

The kidneys are two bean-shaped organs about the size of one's fist. They are located at the back, behind the lower ribs.



What do they do?

These are the major functions of the kidneys :

- Filter waste products and excess water out of the blood
- Secrete renin, a hormone or chemical messenger that helps control our blood pressure
- Produce erythropoietin that stimulates our bone marrow to make red blood cells. The red blood cells carry oxygen to all parts of the body.
- Produce vitamin D, that is important to keep the bones healthy

WHAT IS KIDNEY FAILURE?

Kidney failure occurs when the kidneys cannot perform the functions mentioned earlier. This can happen slowly and is called chronic kidney disease (CKD). This is usually caused by damage to the kidneys in the form of long-standing diseases such as diabetes, hypertension, swelling of the filtering units of the kidneys called chronic glomerulonephritis and autoimmune diseases such as systemic lupus erythematosus. Other diseases such as kidney stones, congenital birth defects and polycystic kidney disease may also lead to renal failure.

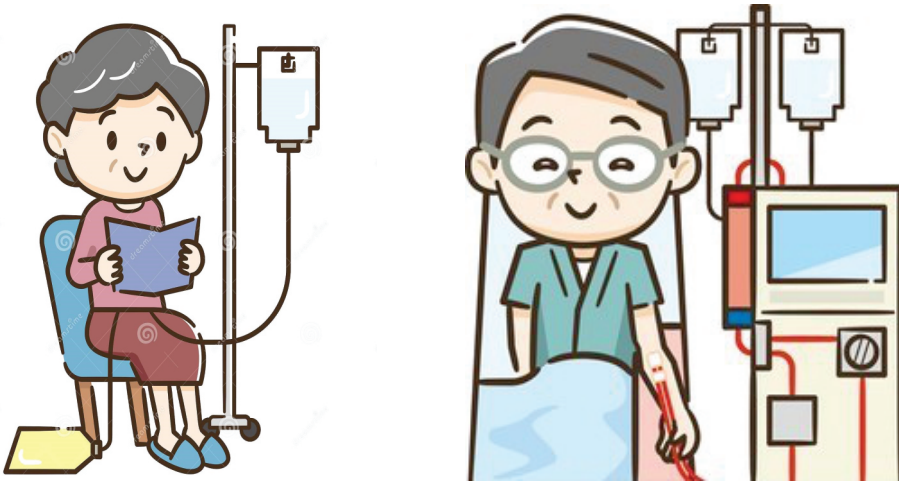
SYMPTOMS OF KIDNEY FAILURE

Most people notice they feel weak, get easily tired and lose their appetite. Other signs commonly seen include:

- Difficulty of breathing
- Decrease in the amount of urine
- Sensation of vomiting
- Easy bruising
- Uncontrolled blood pressure
- Swelling in the face, ankles and legs
- Chest pain
- Itching
- Cramps and twitching
- Low back pain
- Inability to sleep
- Reduced sexual functions

When your kidneys are no longer working properly, treatments such as peritoneal dialysis and hemodialysis that clean your blood of waste products are needed.

However, dialysis cannot completely replace all the functions of the kidneys. Only a kidney transplant can restore all the kidney's functions.



A patient who is diagnosed to have end-stage renal disease but is not yet on dialysis may undergo a pre-emptive transplant (transplant before dialysis is started).

WHAT IS KIDNEY TRANSPLANTATION?

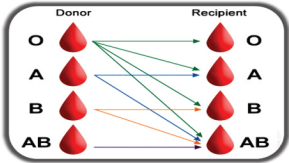
Kidney transplantation is an operation where a healthy kidney from another person is placed into your body. A kidney transplant offers several benefits such as an improved quality of life, a life free from dialysis, able to go back to a regular diet and will not have any fluid restriction. You will also be able to return to a healthier lifestyle with increased activity and independence.

Talk with your doctor first because transplantation is not for everyone. You might have a medical condition that would make an operation dangerous or unlikely to succeed.

You may receive a kidney from a member of your family (living related donor), from a person who is brain dead (deceased organ donor), from your spouse or a very close friend (living non-related donor). The donor's blood type and tissue type may or may not be compatible with yours to proceed with kidney transplantation.

HOW WILL I KNOW IF I AM COMPATIBLE OR NOT COMPATIBLE WITH MY DONOR?

The transplant team will perform tests to determine compatibility. There are three factors in matching donor kidneys with potential recipients to help predict whether your body’s immune system will accept or reject the new kidney.



Blood type

Your blood type (A, B, AB, or O) usually should be a match with the donor’s. This was the most important matching factor for so long but advances in transplantation has come up with a way to proceed with kidney transplantation even if your blood type is not compatible with the donor. This will be discussed later.

A blood type O donor can donate to anyone. A blood type AB patient can receive a kidney from any blood type.



Tissue Typing

Your cells carry six important human leukocyte antigens (HLAs) that compose your tissue type, three of which are inherited from each of your parents. The more matches you have, the greater the chance that your body will accept the new kidney. You may still receive a kidney if the HLAs are not a complete match as long as (1) your blood type matches that of your donor's, and (2) the tissue crossmatch is negative. The closer the relationship, the more compatible you are.

Tissue Crossmatch

This is the most critical test to be done before implanting an organ. A small sample of your blood will be mixed with a sample of the organ donor's to see if there will be a reaction. If none occurs, the result is called a negative crossmatch and the transplantation can proceed.

What is a Living Donor Transplant?

In a living donor transplant, a kidney from a living donor is transplanted into your body. The most suitable donors are usually members of your immediate family (children, parents, brothers, sisters, cousins, aunts, uncles, nephews, and nieces).

Sometimes a spouse, distant relative, or friend can be a suitable donor. An Ethics Committee evaluates and approves all non-related donations.

People who donate a kidney can live a normal life with one kidney. There are only a few risks to healthy donors. Extensive medical tests will be done to determine the health of the donor. If you have a living donor, you don't have to wait long and the transplant operation is planned at a time convenient for you and your donor.

What is a Deceased Organ Donor Transplant?

This is a transplant where the kidney comes from someone declared brain dead and his/her family gives consent for organ donation. In this type of transplant, a series of medical tests are done to determine if the donor's organs are healthy before they can be transplanted. The length of time you will have to wait is unpredictable because it depends on how closely you will match with the donor.

In the event that you have no living donor, you may get in touch with the Human Organ Preservation Effort (HOPE) at (02) 8924-4673/ (02) 8981-0400 Local 4410 to 4413.

After you have a series of tests, you will be placed on a transplant waiting list until a kidney that is compatible with you is found. You will need to remain on dialysis while waiting for your kidney transplantation. Once enlisted, make sure that all your latest contact information, updated medical data and work up are provided to HOPE so you can easily be reached once a kidney becomes available. Stored blood samples for crossmatch are required monthly.



The moment an organ becomes available, the transplant team will contact you and give you instructions. Go to the hospital immediately and proceed to the HOPE Office.

In the event that you may have fever, cough, colds or any other illness when the transplant team member calls, please let them know at once. This will help them decide whether to push through with your operation or postpone it until you feel better so that the precious organ can be offered to another patient in need.

How will I prepare for the surgery?

Pre-transplant work-up is done to ensure that you are suitable for transplantation. This includes a general physical examination (blood pressure, pulse, temperature, and body weight), collection of blood samples, chest x-ray, electrocardiogram and other tests the transplant team may need to better plan for your care.



For Kidney Transplant With Living Donors

One or two days before the surgery, you will be admitted to the hospital and anti-rejection medications will be started. Your blood pressure pills may be stopped by your doctor a day before the surgery. If you are on dialysis, you will have your dialysis session a day prior to surgery.

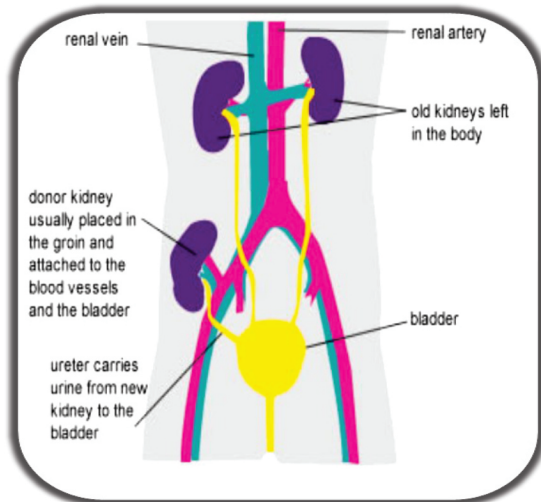
The night before the surgery, you will be instructed not to eat nor drink and an enema will be given to cleanse your bowels. On the morning of surgery, you will still be given your dose of anti-rejection drugs and you will receive some medications to make you sleepy and relaxed.

For Kidney Transplant With Deceased Donors

Your anti-rejection medications will be started once you get admitted to the hospital. You will be instructed not to eat nor drink. Enema will be given to cleanse your bowels. You will receive some medications to make you sleepy and relaxed.

How is the procedure done?

Your own kidneys usually are not removed except for particular indications such as stones, infections, masses, and some congenital malformations. The new kidney will be placed either on the left or right side of the lower abdomen. The blood vessels to the kidney are connected to the blood vessels going to your legs while the ureter (the tube where urine passes from the kidney) will be attached to your urinary bladder.



What happens after the operation?



After the operation, you will stay at the recovery room for a few hours until you are stable. Your doctor will decide when you can be transferred to your regular room or if you will need further monitoring in the intensive care unit.

Expect that you will feel bloated or feel like vomiting. You will not be allowed to eat nor drink immediately after the operation. Once you pass gas, you will be placed on a clear liquid diet. This will be changed to soft diet, then to a normal diet a few days after.

A foley catheter is inserted in your bladder to monitor the amount of urine that you pass every hour. This will be removed after 5-7 days. A drain which may be placed near your surgical incision will be removed after 5-6 days. Occasionally a small tube called a stent will be placed in the ureter. Daily blood extractions will be done to ensure that your new kidney is working.

For transplant with a deceased donor, the new kidney may not function immediately because of the condition of the donor. During this time you may need dialysis while your kidney is recovering. Delayed function may last from several days to several weeks.

You have to try and get up and gradually move about as early as the second day after your operation. This can easily be done with some assistance either from your nurse or any of your family members. You will probably be discharged a week after surgery if all goes well.

You will be asked to follow-up with your doctor weekly for the first month, every two weeks on the second month and monthly thereafter. Blood tests will be done on every clinic visit.

Inform your doctor immediately for any of the following symptoms: fever, cough, colds, abdominal pain, diarrhea, vomiting, pain or discharge at the surgical site, decreasing amount of urine.

You should always wear a face mask and avoid going anywhere especially crowded places to avoid infections. Keep a list of your medications and take them regularly and on time.

Your doctors will advise when you can return to work and resume physical activity including sexual intercourse. Pregnancy is not recommended until after 2 years post-transplant. You can resume a healthy diet and you can drink as much fluid as you want if your new kidney is functioning well.

What do I need to know regarding my medications?

You are responsible for taking the medications that have been prescribed for you. Talk to your doctor, pharmacist, transplant nurse, and/or coordinator so you understand:

- The name, purpose, and dosage of each medication
- When to take each medication
- How to take each medication
- How long to continue taking each medication
- Main side effects of each medication
- What to do if you forget to take a dose
- When to order more medication so you do not run out.
- How to get your medication
- What you should avoid (such as drinking alcohol or driving) while you are taking medication

When you return home, you will continue taking most of the medicines you began taking in the hospital after your surgery.

Your immune system recognizes your new kidney as foreign and will try to reject it. Therefore, your immune system must be controlled with anti-rejection medications. You will probably have to take one or more of these drugs for the rest of your transplanted kidney's life, in addition to other medications. Certain medications will be given for 3-6 months after transplant to prevent certain conditions. These are called prophylactics. They prevent conditions that are at high risk of occurring immediately after transplantation when immunosuppression is high.

How should the medications be stored

1. Keep medications in the original container, tightly capped. If you use a special container to hold your pills, keep the container tightly sealed.
2. Store in a cool, dry place away from direct sunlight.
3. Do not store medications in the bathroom because moisture and heat can cause them to lose their strength.

4. Do not allow liquid medications to freeze.
5. Do not store medications in the refrigerator unless your pharmacist advises you to do so.

BEFORE TAKING YOUR MEDICATIONS

1. Ask your doctor, nurse, transplant coordinator, or pharmacist to help you choose the best times to take your medications.
2. Try to take each medication at the same time every day.
3. Follow a written schedule.
4. **DO NOT** cut or crush a tablet unless you are advised to do so.

NOTIFY YOUR TRANSPLANT TEAM IF YOU...

- Cannot take your medicines by mouth because of an illness
- Have vomiting, diarrhea, or nausea for 24 hours or more
- Think the directions on the label may be different from what you were told
- Have a new prescription from your local doctor or a change in a current prescription

- Experience any unusual symptoms or side effects, since they may be related to the medication you are taking.

INFORMATION ABOUT SPECIFIC MEDICATIONS

This section is a general guide to each medication's purpose, proper timing of intake, dosage, precautions, and side effects. The information does not cover everything about each medication and does not replace your doctor's advice. Always follow the instructions given to you by your transplant team. Not all of the medications discussed in this handbook will be prescribed by your transplant doctor.

You will not experience all of the side effects listed for each medication and the side effects usually decrease with time.

Important Warning

If you are pregnant, most medications can be harmful to your unborn child. The benefits of taking this medication if you are pregnant or breastfeeding must be weighed against the possible damage to you and your baby. Call your transplant team immediately if you think you are pregnant.

IMMUNOSUPPRESSION OR ANTI-REJECTION MEDICATIONS

Your body will identify your new kidney as foreign and will naturally refuse to accept it as it would when germs enter your body. Immunosuppressive drugs help prevent rejection by weakening your body's defense mechanism. This, however, can make you more susceptible to infection so a balance must be achieved between the need to prevent rejection and the need to protect you against infection.

The combination of anti-rejection drugs given by your transplant team is specific to your needs (type of donor, number of mismatches on tissue typing). A combination of two to three immunosuppressive medications is given at least 2 days before the kidney transplantation and maintained afterwards.

The dose of the immunosuppressive medicine you need to take decreases after the first few months following surgery. However, immunosuppression is always necessary many years after transplantation, and even lifetime in most patients, and you should never skip doses or reduce the dose of your medication without your doctor's permission.

Note: Brands are not interchangeable without the advise and guidance of the Transplant Physician

CYCLOSPORINE (Neoral ®, Arpimune ®)



Classification: Calcineurin inhibitor (CNI)

Preparation: 25 mg and 100 mg capsule

How to take:

- Taken two times a day, 12 hours apart
- Dose is based on your weight and adjusted according to blood levels

Storage:

Store cyclosporine capsules at room temperature. Do not leave cyclosporine in your car nor store it inside the refrigerator. Do not expose it to direct light. Good places to store this drug include the kitchen or your bedroom, away from heat, cold, moisture, and access to children.

Testing Blood Levels of the Drug

The concentration of cyclosporine circulating in your body can be measured with a blood test which is used to decide how to adjust your dose if necessary.

You will have frequent lab tests during the first few months to monitor the concentration of the drug in your blood using cyclosporine trough or C2.

- On the day when your ***cyclosporine trough level*** is to be measured, ***have your blood extracted first before taking your morning dose. Do not take your morning dose of cyclosporine until after your blood has been drawn.***
- On the day when your cyclosporine ***C2 (CYA-C2) level*** is to be measured, ***have your blood extracted exactly 2 hours after taking your morning dose.***

Precautions:

- Cyclosporine may interact with many commonly used drugs. Check with your transplant team before starting any new medications.

Side Effects:

Headache, high blood pressure, high blood sugar, high cholesterol, infection, elevated blood potassium level, excessive hair growth, trouble with sleep, swelling or overgrowth of the gums. If the drug level is too high, it may result in increased creatinine.

NOTE: **Neoral**® and **Arpimune**® should not be used interchangeably without consulting your transplant team.

TACROLIMUS (Prograf® , Advagraf®, Cidimus®)



Classification: Calcineurin Inhibitor (CNI)

Preparation: Prograf: 1mg capsule

Advagraf: 0.5 mg, 1mg and 5 mg capsule

How to take:

- Taken two times a day, 12 hours apart on an empty stomach 1 hour before meals (Prograf)
- Taken once a day (Advagraf)
- Dose is a based on your weight and adjusted according to blood levels

Testing Blood Levels of the Drug

The concentration of tacrolimus circulating in your body can be measured with a blood test and the results are used to decide when and how to adjust your dose if necessary.

You will have frequent lab tests during the first few months to monitor the concentration of the drug in your blood using tacrolimus trough. The adjustment in the dose of your medication will depend on the result of this test.

On the day when your ***tacrolimus trough level*** is to be measured, ***have your blood extracted first before taking your morning dose.***

Precautions:

- Tacrolimus may interact with many commonly used drugs. Check with your transplant team before starting any new medications.

Side effects:

Headache, high blood pressure, sensation of vomiting, diarrhea, high blood sugar, tremors, hair loss, trouble with sleeping, infection, numbness and tingling sensation of your feet, elevated blood potassium level, elevated serum creatinine.

SIROLIMUS (RAPAMUNE®)



Classification: Proliferative Signal Inhibitor (PSI)

Preparation: 0.5 mg and 1mg tablet

How to take:

- Taken once a day, usually 2 to 4 hours after intake of cyclosporine or tacrolimus
- Dose is adjusted according to blood levels

Testing Blood Levels of the Drug

You will have frequent lab tests during the first few months to monitor the concentration of the drug in your blood using rapamune trough. The adjustment in the dose of your medication will depend on the result of this test.

- On the day when your ***rapamune through level*** is to be measured, ***have your blood extracted first before taking the morning dose.***

Side effects:

- High cholesterol and high triglyceride level
- A temporary decrease in your platelets which are blood cells that promotes blood clotting. This may result in unusual bleeding or bruising.
- A decrease in white blood cells, which can affect your ability to fight infection. Your transplant team will be monitoring your blood counts and adjusting medication doses as needed

- Incidence of poor wound healing or wound dehiscence
- Headache, diarrhea, occasional joint pain and edema
- Lymphocoele formation

EVEROLIMUS (Certican ®)



Classification: Proliferative Signal Inhibitor (PSI)

Preparation: 0.25mg, 0.5mg tablets

How to take:

- Taken two times a day; may be given simultaneously with cyclosporine or tacrolimus
- Daily dosage should be given consistently according to food intake: either given with or without meals for better absorption

Precautions: Same as Sirolimus

NOTE: Rapamune and Certican should not be used interchangeably without consulting your doctor. Switching of drugs may result in malfunction of your transplanted kidney

MYCOPHENOLATE MOFETIL (CellCept®
Mycept®)



Classification: Antimetabolite

Preparation: 500 mg tablet

How to take:

- This is usually taken twice a day, 12 hours apart.
- It is recommended that you take this drug on a full stomach.
- May be taken with food if it causes stomach upset or discomfort.

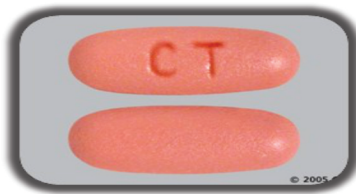
Precautions:

- The drug may lower your white blood cell count which fights infection.
- It may also reduce the number of your platelets which help in blood clotting. You should report any unusual bruising or bleeding to your transplant team.

Side effects:

Stomach discomfort, sensation of vomiting, and diarrhea. These side effects may decrease with reducing the dose of the drug.

MYCOPHENOLATE SODIUM (Myfortic®, MPS)



Classification: Antimetabolite

Preparation: 360 mg tablet

How to take:

- The usual dose is 720 mg (2 tablets) taken twice a day, 12 hours apart

- Do not chew or crush the tablets as this will destroy the special coating on the tablet that protects it from the stomach.
- You may choose to take it with food or without food.

Precautions:

- Myfortic may reduce the number of your white cells which fight infection.

Side effects:

Diarrhea, constipation, sensation of vomiting, indigestion, bloated feeling, stomach discomfort, and headache

NOTE: Cellcept/Mycept and Myfortic should not be used interchangeably without consulting your doctor. Switching of drugs may result in malfunction of your transplanted kidney

CORTICOSTEROIDS (Prednisone, Prednisolone)

Prednisone is used to prevent or treat rejection of your transplanted kidney. It is always taken in combination with other immunosuppressives



Preparation: 5mg, 10mg, 20mg, 30mg, tablets

How to Take:

- Dose is based on your weight and on the age and function of your new kidney
- It is best to take prednisone after a full meal (with food)
- Must not be discontinued abruptly and without your transplant team's knowledge

Side effects:

The short-term side effects of corticosteroids include:

- Poor wound healing
- Suppression of the normal fever response even if in the presence of an infection

- Elevation of blood sugar, particularly in patients who already have diabetes
- Mood changes ranging from a 'high' to agitation and confusion, and in some cases depression

Over the long-term, the side effects of corticosteroids tend to be related to the total maintenance dose required. Depending upon the dosage, corticosteroids can cause:

- Increase in appetite and weight gain
- A shift in the distribution of body fat (putty cheeks, rounded back, prominent abdomen)
- Increased tendency towards high blood pressure
- Decrease in skin thickness, susceptibility to easy bruising
- Gastrointestinal effects such as stomach upset, heart burn and ulcers
- Diabetes
- Blurred vision and cataracts
- Acne (pimples), facial hair growth

Although this list of side effects appears rather tremendous, it has to be emphasized that with the relatively low doses of corticosteroid used nowadays to prevent rejection, these adverse side effects are much less common than in the past.

Corticosteroids have some advantages compared with other immunosuppressive agents: they do not suppress bone marrow formation, they can be used safely in combination with other drugs, and they are not directly toxic to the transplanted organ.



BASILIXIMAB (SIMULECT ®)

Basiliximab is an induction medication that suppresses white cell function against the transplanted kidney, preventing rejection immediately after transplantation. It is usually given for patients who are categorized as low to standard risk kidney transplants. This includes recipients with living related donors, non-related donors, deceased donors, or those with poor match on tissue typing. It is also given for ABO incompatible living donor transplants.

How is it given

This medication is given by injection on the day of transplant and 4 days later.

Side Effects

- Constipation, vomiting, diarrhea
- Generalized body ache
- Infections



RABBIT ANTI-THYMOCYTE GLOBULIN (rATG)

rATG destroys lymphocytes in the peripheral blood, and can be given as induction treatment or as a rescue drug for rejection that does not improve with high dose steroids. It is also given for standard, moderate, and high immunologic risk transplantations.

Preparation: 2.5 grams, 5 grams, 10 grams

How it is given:

Dose is based on the patient's weight, and it is given with pre-medications usually for 3 days by injection before and during transplant

Side Effects:

Low blood pressure, allergic reactions, decreased white blood cell count and platelet count.

RITUXIMAB (MABTHERA®)

Rituximab targets B cells and is given for patients with high panel reactive antibody (PRA). It is also given for ABO incompatible living donor kidney transplant.

Preparation: 100 mg/vial, 500mg/vial



How it is given

Dose is based on the patient's weight and is given with pre-medications intravenously days to weeks before the transplant, sometimes with plasmapheresis treatment.

INTRAVENOUS IMMUNOGLOBULIN (IVIG)

It is derived from pooled human plasma. It contains the pooled, polyvalent, IgG (Immunoglobulin G) extracted from the plasma of over one thousand blood donors.

It is also given for patients with high panel reactive antibody (PRA) and also alongside with each plasmapheresis session for ABO incompatible living donor kidney transplant.



Preparation: 1gram, 5 grams, 7 grams and
10 grams per vial

How it is given:

Dose is based on the patient's weight and it is also given with intravenous pre-medications days to weeks before the transplant, sometimes with plasmapheresis treatment

Side effects:

Flushing, chills, headache, nausea, joint and muscle pains.

INFECTION-PREVENTING DRUGS

The medications that you take to stop your body from rejecting your new kidney also decrease the normal ability of your body to fight bacteria, viruses, and other germs. As a result, you are at an increased risk of getting an infection. Your doctor may prescribe one or more of the drugs listed below to protect you from common infections after your transplant.

Trimethoprim/Sulfamethoxazole or TMP/SMX or Cotrimoxazole***Purpose:***

TMP/SMX is used to prevent and/or treat *Pneumocystis carinii* pneumonia.

How to take:

- This medication is taken by mouth and is available in pill or liquid form.
- Usually taken 3x a week for 3 months
- Take plenty of fluids with this medication

Precautions:

- Do not take TMP/SMX if you have a history of allergy to this drug.

Common side effects:

Sensation of vomiting, rash, itching, and increased risk of sunburn.

Isoniazid

Purpose: Isoniazid is given at a dose of 300 mg/day for TB prophylaxis

How to take:

- take 1 tablet once a day for 6 months
- taken on an empty stomach at least 1 hour before meals

- Vitamin B complex is also given alongside Isoniazid for prevention of peripheral neuropathy

Common side effects:

Dark urine, loss of appetite, nausea or vomiting, numbness, tingling burning or pain in hands, unusual tiredness or weakness, yellow eyes or skin.

Drugs To Prevent Or Treat Cytomegalovirus (CMV)

Viral infections are common after kidney transplantation. The CMV virus is present in about 50% of the general population and most people are unaware that they have had the virus. After a kidney transplant, reactivation of the virus may occur in the form of fever, flu-like symptoms, respiratory tract infection, and diarrhea.

The following drugs are given to treat or prevent CMV infection: **Ganciclovir and Valganciclovir**

Precautions:

- These medications may cause some abnormalities in your blood; a decrease in your in your platelets, white blood cells and red blood cells. Your complete blood count will be monitored regularly.

ANTIFUNGAL DRUGS

The lowered ability of your body to fight infection also puts you at risk of getting a serious fungal infection. This may be in the form of mouth sores, pain on swallowing, skin infections and vaginal itchiness or discharge in women.

Purpose:

Various drugs are used to treat or prevent fungal infections. Nystatin, clotrimazole and fluconazole are the most commonly used antifungal drugs.

Antifungal drugs interact with most anti-rejection medications, so an adjustment will be made in your medications when you start and stop taking the antifungal drugs.

How to take:

Nystatin (liquid)

- Gargle 2-3 mL then swallow 2-3x a day
- Do not drink or eat for 30 minutes after intake

Fluconazole (capsule)

- Taken orally depending on the dose prescribed by the physician
- The dose of Cyclosporin or Tacrolimus needs to be adjusted if you are taking this drug (Consult with your transplant team for the proper dose adjustment)

Clotrimazole (cream)

- Apply to the affected area 2x or 3x a day

MEDICATIONS THAT PROTECT YOUR DIGESTIVE SYSTEM

Some of the medications you take, especially steroids, can cause stomach ulcers, you may need to take drugs to help protect your digestive system.

Antacids/Antiulcer Medications

Rantidine, omeprazole, pantoprazole, esomeprazole and sucralfate are medications used to prevent and sometimes treat stomach ulcers.

Main side effects:

- Headache and skin rashes

OTHER MEDICATIONS THAT YOU MAY NEED

The following is a list of common complaints and medications for these problems. Please consult your doctor before taking them.

Constipation – Increase fluids and fiber (bran, fresh fruits and vegetables) in your diet. If constipation remains a problem, you may take Bisacodyl, Lactulose, or Senna concentrate. Please consult your doctor prior to taking these medications.

Diarrhea – Increase fluids to prevent dehydration until the diarrhea goes away. If diarrhea lasts for more than a day, please notify your doctor. A stool exam may be needed in some cases. Imodium and Loperamide are medications that you may take.

Headache, Muscle Aches, other Aches and Pains – If headaches persist or is accompanied by fever, please notify your doctor immediately. Paracetamol is a medication that you may take.

Do not take IBUPROFEN, MEFENAMIC ACID, KETOPROFEN, CELECOXIB, ASPIRIN AND NAPROXEN (non-steroidal inflammatory drugs or NSAIDS) without consulting your doctor

NUTRITIONAL SUPPLEMENTS

Your transplant team may recommend you take vitamins and/or mineral supplements if your diet is not providing enough of the nutrients you need.

CAUTION: HERBAL PRODUCTS OR TEAS

Since there is little information about drug interactions between herbal medicines and anti-rejection drugs, it is not recommended that transplant patients take herbal products. Most herbal products are not regulated by any government agency and have not been tested for safety, side effects or drug interactions.

COMPLICATIONS AFTER TRANSPLANT

A number of complications are possible after surgery. Your transplant team will do its best to reduce your chance of having complications and to treat any problems or difficulties. Following instructions carefully and keeping your transplant team informed of any problems will help you return quickly to normal, active life.

INFECTIONS

Anti-rejection medications can lower your immune system making you more prone to infections.

Viral Infections:

Cytomegalovirus (CMV) – The risk of CMV infection is highest in the first 6 months after transplantation. Signs include fatigue, fever, cough, night sweats, joint pain, diarrhea and headache. You may need to be hospitalized to receive the proper treatment especially when your donor is CMV positive and you are CMV negative

Herpes-simplex virus type 1 and 2 – These most often infect the skin but they can also affect other areas like the eyes and lungs.

Type I causes cold sores and blisters around the mouth, and the type 2 causes genital sores. Herpes can be transmitted sexually. Symptoms of herpes include painful, fluid-filled sores in your mouth or genital area. Women should watch for any unusual vaginal discharge

Precautions:

- . Keep the sore area as clean and dry as possible.
- . Wash your hands with soap and water before and after touching the sore.
- . Wear loose-fitting clothing to avoid irritating the sores and spreading the virus.
- . Avoid kissing someone who has cold sores.
- . Avoid having sexual relations with someone who has sores.

Herpes zoster (shingles) – This appears as small blisters, often painful, confined to one part of the body usually the chest, back or hip.

Fungal Infections

Candida (yeast) – Candida is a fungus that can cause a variety of infections in transplant patients.

It usually starts in the mouth and throat but may also occur in the respiratory and urinary tract, surgical wound, or eyes. If there is infection in the mouth or throat, it is called a thrush (a white patch which is usually painful.) Vaginal infections usually cause an abnormal discharge that may be yellow or white and is often itchy. Treatment of severe fungal infections may require hospitalization.

Bacterial Infections

Wound infections — may happen at the operation site. If you have fever or notice redness, swelling, pain, or discharge at the site of your operation, inform your surgeon immediately.

Urinary Tract Infections — Symptoms include pain on urination, frequent urination, pain on the lower part of the abdomen, fever and chills. A urine culture is recommended before your doctor treats you with antibiotics.

Pneumonia — Symptoms include cough with or without phlegm, fever, and difficulty of breathing. Patients need to be hospitalized for antibiotic treatment.

REJECTION

Your immune system protects you from infection by recognizing bacteria and viruses as foreign and eliminates them. Unfortunately, the immune system also sees your new kidney as a foreign body.

Rejection is an attempt by your immune system to fight the transplanted kidney. To prevent rejection, you must take anti-rejection medications, as prescribed by your doctor.

Despite all precautions, rejection may still occur at any time but often within the first 6 months after kidney transplant. Kidney rejection does not necessarily mean kidney failure. Most episodes of rejection can be reversed with intravenous high dose steroids and adjustment of immunosuppressive medications.

Doing a kidney biopsy is recommended before treatment to confirm the diagnosis of rejection or other possible causes of the increase in creatinine or abnormalities in the urinalysis. The patient needs to be confined for this procedure.

After local anesthesia is given, a needle is inserted into the kidney under ultrasound guidance to get 2-3 specimens which will be sent to the Pathology Laboratory. After the procedure, bed rest is recommended for 12-24 hours to prevent bleeding.

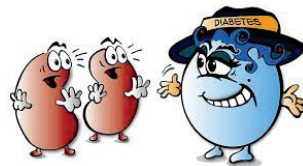
What are the signs/symptoms that are seen in rejection?

- Increasing creatinine
- Abnormal urine test
- Pain over your operation site
- Fatigue/ weakness
- Fever
- Swelling of hands or feet
- Sudden weight gain
- Elevated blood pressure

Consult your doctor immediately for any the above

DIABETES

Some of your prescribed anti-rejection medicines may cause diabetes. The onset of diabetes after transplant is usually mild.

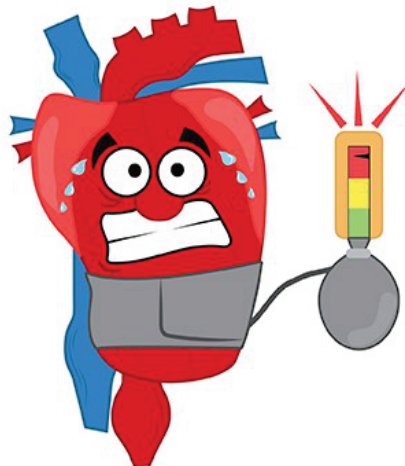


Early signs include tiredness, thirst, weight loss, excessive production of urine, blurred vision and confusion. If you have any of these symptoms you should inform your transplant team

Monitoring of blood sugar (glucose) is usually done after transplant. Diabetic patients may require higher doses of insulin or additional drugs to control their blood sugar levels. Diet, weight loss and exercise may help control blood sugar.

HIGH BLOOD PRESSURE

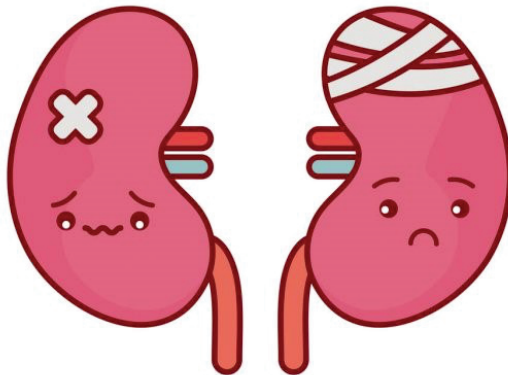
The transplanted kidney often corrects hypertension due to a failing native kidney. Patients who require 4 or more drugs to control blood pressure pre-transplant will probably only require half of that after the transplant.



It is vital to control high blood pressure. When left untreated you will be at an increased risk of heart disease or stroke. You may need higher doses of your blood pressure medications or additional medications.

KIDNEY DISEASE

Some diseases of the kidney such as glomerulonephritis recur after the transplant. Some problems such as high blood pressure and diabetes can affect your transplanted kidney even if they weren't the reason that your kidneys failed. There should be good control of both blood pressure and blood sugar as mentioned previously.



HEALTHCARE AT HOME

Once your doctors have decided that you are ready to go home, the responsibility for your health care is now yours with the help of your family. If there are concerns about your medical care at home, your transplant team is always available to assist you.

Care of the Surgical Wound

Keep your wound clean by washing with soap and water. Immediately inform your doctor if you notice any changes in your wound like redness, swelling or production of fluid.

After you leave the hospital, you may be asked to measure your:

- Temperature
- Pulse Rate
- Blood Pressure
- Oral fluid intake vs. Urine Output
- Weight

Temperature

- Check and record your temperature anytime you feel cold, hot, in pain, or weak. This may be the first sign of an infection.
- A temperature over 38°C for more than one day should be reported to your doctor immediately. This is considered an emergency, because fever can mean you have a serious infection or rejection.

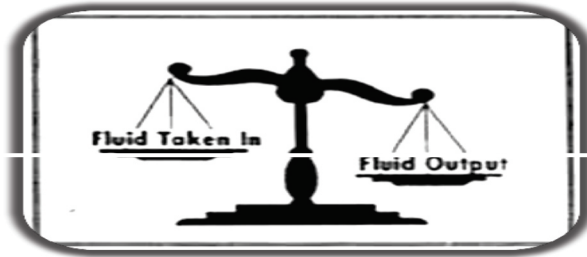
Blood Pressure and Pulse Rate

- Your nurse will teach you how to take your blood pressure and pulse rate.
- Know your usual blood pressure and pulse rate.
- Notify your doctor if you notice any sudden changes from your normal values (very high or very low BP) or very slow or very fast pulse rate.

Monitoring Your Urine Output and Weight

- A good way to measure how well your new kidney is functioning is by measuring your daily urine output vs. your daily oral fluid intake and monitoring your daily weight.

- . Weigh yourself everyday preferably as soon as you wake up in the morning before you have breakfast.
- . If you notice a decrease in your urine output or if you gain more than 1kg/day or 2kg/week, you have to inform your doctor immediately.



SIGNS TO WATCH OUT FOR



Infection and **rejection** are the two main things you should avoid.

The signs and symptoms of rejection were discussed in the previous section.

The signs of infection are:

- Pain, swelling or discharge over the operation site
- Fever
- Cough that produces yellowish or greenish phlegm
- Dry cough that continues for more than 1 week
- Vomiting or diarrhea
- Bleeding, bruising, black stools, or red and rusty-brown urine
- A rash or other skin change
- Vaginal discharge or itching
- Burning discomfort when you urinate
- Exposure to mumps, measles, chicken pox, or shingles

HOW DO I AVOID INFECTIONS?

Because anti-rejection medications interfere with your body's defenses, you need to protect yourself from infection after your surgery by taking the following precautions:

- Wash your hands often
- Get enough rest and sleep



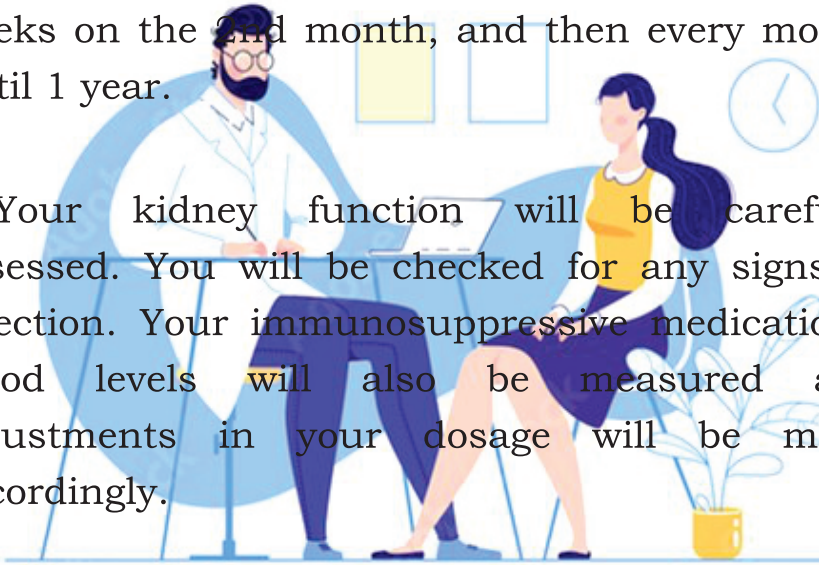
- . Keep your hands away from your face and mouth
- . Reduce close contact with anyone having an active infection such as colds, cough or flu
- . Avoid crowded places like shopping malls, wet markets, cinemas, and theatres
- . Always wear a mask when you are outside
- . Wash your hands after coughing or sneezing, and throw tissues into the trash can immediately.
- Avoid contact with animals and their waste. The waste of some animals may contain parasites which can infect you.

Vaccinations including for SARS COV-2 are recommended to be completed at least 2 weeks before transplant. If it will be given after, it is suggested to be done after 3-6 months. Flu and pneumonia vaccines are recommended after transplant. Live vaccines should be avoided.

CLINIC VISITS

After your discharge from the hospital, you have to return to your doctor for follow-up visits at least once a week in the first month, every 2 weeks on the 2nd month, and then every month until 1 year.

Your kidney function will be carefully assessed. You will be checked for any signs of infection. Your immunosuppressive medications' blood levels will also be measured and adjustments in your dosage will be made accordingly.



As the risk for infection and rejection decreases, the frequency of your visits will decrease as well.

WHEN DO I HAVE TO DO LABORATORY TESTS AFTER MY KIDNEY TRANSPLANT?



You will have blood and urine tests each time you go for a check up. The levels of your immunosuppressive drugs are also measured, to determine if the concentration is adequate to prevent rejection and to avoid toxicity. It is important that blood is taken at the exact time.

RESUMING NORMAL ACTIVITIES



FOOD SAFETY

Food can carry bacteria, viruses, fungi and parasites. Bear in mind that there are food products which may be safe for normal persons to eat but may not always be safe for you who received an organ transplant. Specific guidelines can be followed to prevent contamination. The following is a list of suggestions that you should follow to prevent infections from the food that you eat. Again, your hospital stay is a good time to meet with your transplant nutritionist to review your individual guidelines.

Dairy – drink and use only pasteurized milk and milk products.

Eggs – Yolks and whites should be cooked firm. Pasteurized egg substitutes may be a better choice if available.

Meat and Poultry – Avoid raw meat and poultry. Juices from all meats should run clear.

Fruits and Vegetables – Wash fruits and vegetables using a scrub brush and chlorinated water even when not eating the peel. Avoid food where the edible portions come into contact with bare hands when being consumed.

Avoid Cross-contamination – Thoroughly clean counter tops and dish cloths.

Suggestions for Dining Out – Avoid dining out but if you will be buying food from a restaurant order meat, seafood, and poultry cooked to “medium”. If animal flesh has any pink, do not eat it. Make sure shellfish is well cooked and firm. Raw and other food cooked only rare should be avoided in the first 3-6 months after transplant.

DIET AND NUTRITION

During the first weeks after your transplant, your body will require extra calories and protein.

Healthy eating is an important part of your recovery. Unfortunately, corticosteroids cause an increase in appetite resulting in weight gain that poses a long-term problem for many transplant patients. You may need a low-fat, low-sugar diet to help control both your weight and blood sugar. Our renal nutritionist/dietician can discuss your dietary changes as well as devise an eating plan that is best suited for you.

The following are some tips to help you increase calories and protein in your diet.

- Try eating 5-6 small meals a day.
- Ask your nutritionist about adding high calorie, high protein supplements and/or snacks with or between your meals.
- Choose high calorie drinks such as juice or milk rather than water.

Limit Fats & Oils: butter, margarine, cooking oil, lard, salad dressing, fried foods, gravies, cream and sour cream.

Limit Sugars: sugar, honey, syrups, jellies and jams, soft drinks, candies, ice cream, cakes, cookies and pies.

Electrolytes

Levels of sodium, potassium, calcium, phosphorus and magnesium. Your medications may also affect the levels of these electrolytes in your body. You may need to restrict or supplement your intake of these things to keep them in a desirable range.

Potassium

Majority of transplant patients with good graft function regain normal potassium balance. The most significant determinant of normal potassium balance is urine volume. You must have an adequate supply of foods rich in potassium to ensure potassium balance. A list of high potassium foods are as follows:

Juices: Orange, pineapple, prune

Fruits: Melon, dalanghita, mabolo, banana, guyabano, anonas, santol, lanzones, papaya

Dairy Products: All liquid milks, yogurt, ice cream, milk, powdered, whole milk, powdered, non-fat

Vegetables: Beans, sili leaves, cauliflower, ampalaya leaves, squash ka mote leaves, malunggay leaves

Rice & other Cereals & Rice Equivalents:

Root crops, oatmeal

Salt (Sodium)

- Corticosteroids also cause your body to store salt. This can lead to water retention and increased blood pressure. You should try to restrict your salt intake by:

- Using salt sparingly when cooking
- Avoid salty foods, eg. Potato chips
- Avoid canned foods

Average Sodium Content of Common Foods

Food Groups	Amt/ Serving	Na (mg)/ Serving
<u>Dairy Products:</u>		
Milk (whole)	1 glass	160
Yogurt(regular)	1 cup	113
Ice cream(vanilla)	½cup	58
<u>Cheese:</u>		
American	28.3gms	273
Cheddar(1 slice)	28gms	174
Parmesan(grated)	28.4gms	433.5

Mozzarella	30 grams	180
Cottage Cheese	½ cup	240
Cream Cheese	2 tbsp	85
<u>Rice/Noodles/Breads & Other Cereals:</u>		
Rice & noodles, unsalted	½ cup	1
White bread (pan-americano/ pandesal)	2 sl/2 pcs	180
Sponge cake (5x5 cm)	1 sl	67
Cookies, assorted	5 pcs	73
Soda crackers	8 pcs	330
<u>Meat & Substitute:</u>		
Processed Meats	1 pc	500
Frankfurter	2 sl.	200
Bacon, crisp	1 pc	125
Egg	1 pc	110
<u>Fruits & Juices:</u>		
Processed fruit	1 pc	2
Fresh fruits	1 pc	3
<u>Vegetables:</u>		
Fresh, unsalted	½ cup	5
Canned, salted	½ cup	200
<u>Fats & Oils:</u>		
Margarine, butter, salted	1 tbsp	45

Cooking oil	1 tbsp	Negligible
Mayonnaise	1 tbsp	45
Bacon	1 tbsp	82
Fresh dressing	1 tbsp	205
Coconut milk	1 tbsp	1
Peanut butter	1 tbsp	100
<u>Condiments:</u>		
Salt	1 tbsp	7200
Catsup/steak sauce	1 tbsp	150
Mustard	1 tbsp	200
Horseradish	1 tbsp	15
Soy sauce	1 tbsp	914
Tabasco sauce	1 tbsp	75
Worcestershire sauce	1 tbsp	165
Chili sauce	1 tbsp	250
Fish sauce	1 tbsp	1240
<u>Snacks:</u>		
Potato chips	30 gms	250
Corn chips	30 gms	200
Pretzels	30 gms	500
<u>Miscellaneous:</u>		
Jelly/jam	2 tbsp	Negligible
Sugar	1 tbsp	Negligible
Canned soup	1 cup	1000
Bouillon, salted	1 cube	38.4

Additional Recommendations:

- Avoid sugary snacks such as pastries between meals. If you feel hungry, eat some fruit and vegetables (low in calories).
- Vegetables that grow in soil, like potato and kamote should always be peeled and cooked in boiling water.
- Try to drink at least 2 liters of water every day. This is good for your kidney and helps remove waste products from your body.

EXERCISE



A daily exercise routine is important for you to regain your strength and improve your well-being. Your program has to be progressive by gradually increasing your exercise levels. This will help you achieve the full benefits of the physical activity without causing strain or injury to your body.

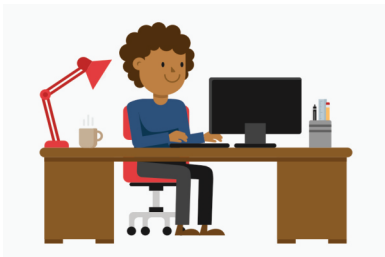
Walking is one good form of exercise but you have to be careful not to overdo things. Rest whenever you feel tired. When you lift an object, try to bend at the knees instead of bending from the waist to avoid straining your lower back.

Make sure that you check with your doctor or any member of the transplant team prior to starting any exercise program.

We also have physical therapists that would be willing to assist you in developing your routine.

RETURNING TO WORK OR SCHOOL

Returning to work or school must be discussed with your transplant team. They will help you determine your readiness. The time frame will depend upon many factors including your recovery and the type of work you perform.



SEX AND PREGNANCY



Loss of sexual desire is a common experience among end-stage renal disease patients. This is also accompanied by absence of menstruation in women and impotence in men.

Most women will find that their menstrual cycle returns to normal a few months after transplantation.

Sexual activities usually improve within a few months after a successful transplant. You are advised to wait at least six weeks after surgery before resuming sexual activity in order to allow healing of the incision.

Fertility is usually improved after kidney transplantation. Although the risk of developing pregnancy complications is higher among transplant patients compared to general population, in general, pregnancy is safe for the mother, fetus, and the kidney graft as long as the following are met before conception:

- good general health > 18-24 months before conception
- stable kidney graft function with creatinine <2mg/dl (preferably < 1.5mg/dl)
- controlled blood pressure
- normal or minimal protein in the urine
- stable immunosuppression at maintenance doses

The drug levels of anti-rejection medications should be monitored closely and adjusted to prevent kidney graft rejection.

For those planning pregnancy, consult with your doctor before conception for adjusting your medications. Some medications are dangerous to the developing fetus. If you are on MMF or sirolimus, your antirejection medication will be shifted to another medication.

SKIN AND HAIR CARE

You will not need any special skin care unless you develop acne or dry skin. Generally, you should shower or bathe as often as necessary to keep your skin clean. Call your transplant team if you discover any unusual skin growths, rash or discoloration.

Having received a new kidney gives you a new lease in life. The responsibility of taking care of this gift is in your hands. Look after it well. You will need it for a long time.

- Avoid midday (10am to 3pm) sun exposure when ultraviolet rays are strongest.
- Wear a hat, long sleeves and slacks when outdoors unless you are using a sunscreen.
- Use a sunscreen lotion with Skin Protection Factor (SPF) rated at least 30.
- Use a sunscreen lotion and lip balm every day (rain or shine) and put them on any areas that are not covered, especially your face, neck and hands.

NOTE: Remember that the sunscreen lotion washes off. Reapply the sunscreen lotion especially after swimming or sweating profusely.

Dry skin care – If you have problems with dry skin, use a mild soap. Put on body lotion after bathing.

Cuts and scratches – Use of an electric razor is recommended to avoid cuts while shaving. Wash minor cuts and scratches daily with soap and water. For large cuts, see your doctor right away.

Hair care

Prednisone will probably change the condition of your hair. Permanent hair dyes, tints, wave lotions and bleach may cause your hair to become brittle and to break. It is recommended that you wait until the prednisone dosage is lower than 10 mg a day before having a permanent hair coloring. Tell your hairdresser that you are taking prednisone and you need to use a good conditioner on your hair.

Unwanted hair growth

If you get more facial hair, use a hair-removal cream. Be sure to follow directions carefully to avoid eye or lip irritation.

Another way is to bleach extra hair growth with 50% peroxide solution. You might consider waxing or electrolysis to remove extra hair. Even if there is a lot of hair growth, do not alter your medication. Call your transplant team about ways to deal with this problem.

ALCOHOLIC BEVERAGES

Drinking beer, wine and liquor may damage your liver. Medications such as tacrolimus, cyclosporine, azathioprine, mycophenolate and TMP/SMX are broken down by the liver and, if combined with alcohol, your liver can be damaged. Excessive alcohol intake is not recommended.

SMOKING

Smoking is harmful to your health and increases the risk of high blood pressure, heart disease, stroke and cancer. It is recommended that smoking be stopped after transplantation.

VACATIONS AND TRAVEL

If you are planning a trip to a foreign country that requires vaccinations for smallpox, measles, German measles or certain other diseases, ask your transplant team to decide what vaccine you cannot have and ask for a medical certificate indicating that you cannot receive these vaccines.



Send the certificate to your local passport bureau. Because you cannot receive these vaccines, travel to these countries may not be safe for you.

As you travel to countries of different time zone, you will need to take this into account when you take your medications. It is important to maintain the same timing of your intake of medications when you arrive in the new time zone. For example, if you take your immunosuppressant every 12 hours at home, you will need to take your immunosuppressants in a new time zone every 12 hours. Remember to bring adequate stocks of your medications when you travel, especially to a remote area or foreign country.

DENTAL CARE

You may have consulted your dentist before transplantation so you don't need to have a dental check-up right away after kidney transplantation.



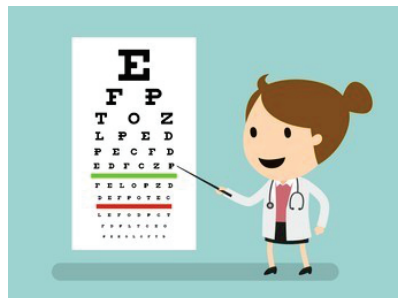
Have a regular dental check-up which may include teeth cleaning. After transplantation, you need to take an antibiotic when you have dental work done, including cleaning and polishing. You may need dental clearance before doing any dental procedure. It is extremely important that you practice good oral hygiene after your transplant. Brush your teeth once or twice a day.

Precautions for dental care – If you have toothache or gum pain, call your dentist immediately.

Cyclosporine has been known to cause gum hyperplasia (overgrowth) in some patients. Make sure your dentist knows you are a transplant recipient and the medications you are taking.

Eye Care

Have your annual check-up with your eye doctor. Prednisone can cause cataracts and initiate changes in your vision. You should schedule your first postoperative ophthalmology exam at six months, or when your prednisone dose is set at 10 mg per day.



- Low immunologic risk defined as:
 - i. Panel Reactive Antibody (PRA) less than or equal to 20%
 - ii. Primary kidney transplant (no previous solid organ transplant)
 - iii. No donor specific antibody (DSA) in the potential recipient
 - iv. At least 1 HLA-DR match
- Potential recipient has no previous history of cancer (except basal cell skin cancer), should be HIV negative, Hepatitis B surface antigen negative, and Hepatitis C antibody negative
- Transplant candidate who is CMV-negative cannot receive an organ from a CMV-positive donor.
- Absence of current severe illness (Congestive heart failure Class 3 - 4, liver cirrhosis (findings of small liver with coarse granular/heterogeneous echo pattern with signs of portal hypertension), chronic lung disease requiring oxygen, etc.)

- Absence of the following: hemi-paralysis because of stroke, leg amputation because of peripheral vascular disease or diabetes, mental retardation such that informed consent cannot be made, and substance abuse for at least 6 months prior to start of transplant work-up.
- Eligible patient for kidney transplant must have a certification from the social service of the hospital that they can maintain anti-rejection medicines for the next three years

There are also mandatory services that need to be met including:

- A. Cardiology clearance for donor (if indicated) and recipient
- B. Pre transplant evaluation/labs for donor and recipient
- C. Transplantation Surgery with living donor or deceased donor
- D. Hemodialysis or Peritoneal dialysis during admission for transplantation if indicated
- E. Immunosuppressant induction therapy, unless identical twin or zero HLA antigen mismatch
- F. Immunologic Risk - negative, tissue crossmatch between donor and recipient, and as described above

ABO Incompatible Living Donor Kidney Transplantation (ABOi KT)

What does ABO incompatible mean?

If your blood type is not compatible with the donor, ABO incompatible Kidney Transplant is an option for you.

A, B, AB, and O are the 4 major bloodtypes and are based on the small molecules on the surface of blood cells. When one person receives blood from someone with a different blood type it may cause a reaction which is called A B O incompatibility.

- People with type A blood will react with type B or type AB blood.
- People with type B blood will react with type A or type AB blood.
- People with type O blood will react with type A, type B, or type AB blood.
- People with type AB will not react with any other blood types

What is ABO Incompatible Living Donor Kidney Transplant?

ABOi living donor KT is another strategy that is used in other countries to expand the organ pool. It is composed of a desensitization protocol and immunosuppression.

What does desensitization mean?

To decrease the antibodies in the recipients blood in order to receive an incompatible solid organ transplant.

What procedures are included in desensitization?

In ABOi KT there are two things that are done in order to desensitize a patient prior to the kidney transplant:

- the first is the infusion of rituximab at a dose 200 mg and it is given 7 days prior to the scheduled transplant
- the second is a procedure known as therapeutic plasma exchange (TPE) with infusion of IVIG

What is TPE?

It is a procedure that removes and replaces a patient's blood plasma. Antibodies are also removed during this procedure. TPE is done every other day.

What is IVIG?

IVIG are antibodies prepared from pooled plasma and are used to control the antibody rebound after TPE. The antibodies also help treat a variety of infections. The dose that is given is dependent on the patient's weight. It is given after each TPE session.

What documents do I need to prepare if I want to undergo kidney transplantation?

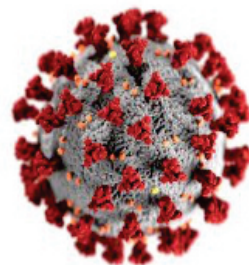
For Both LRD and LNRD

- Referral letter (from Attending Doctor or Medical Social Worker)
- Valid Government IDs
- Notarized Consent forms
- PSA Authenticated Birth Certificate
- Copy of Tissue Typing and Crossmatch Results

For LNRD Cases Only:

- Psychiatric Evaluation Report
- Medical Abstract from Attending Doctor
- Notarized Joint Affidavit of Proof of Relationship
- Barangay Certification (Containing Present/ Exact Address)
- Copy of Philhealth Contribution (of potential donor)
- Donor Evaluation Fee
- Others:
 - Photos
 - Birth Records (distant relatives)
 - Joint Affidavit of 2 Disinterested Persons
 - Certificate of Employment (co-worker, colleague)

COVID – 19



What is COVID-19?

Covid-19 is a disease caused by SARS-Cov-2, a new coronavirus.

Anybody exposed to coronavirus SARS-CoV-2 may develop COVID-19.

Among those who do develop symptoms, most (about 80%) will recover from the COVID-19 without needing hospitalization. They will only require quarantine. However, some (about 15%) may be seriously ill and need oxygen. While others (about 5%) may become critically ill and need intensive care management. Complications from failure of the lungs, septic shock, blood clots, injuries to the kidneys or heart may lead to death.

At highest risk of developing a serious infection of covid-19 are people > 60 years, and those with other medical conditions like diabetes, high blood pressure, lung problems, obesity, cancer, chronic kidney disease.

What are the symptoms of COVID-19?

Fever, cough, weakness, fatigue are usual symptoms of covid-19.

There can also be no symptoms at all (asymptomatic).

Others would feel loss of taste or smell, nasal congestion, conjunctivitis or red eyes, sore throat, headache, diarrhea, muscle pains, joint pains, rashes, chills, nausea or vomiting and others.

Severe covid-19 symptoms such as shortness of breath, high temperatures, chest pain, confusion and others should prompt the patient to seek medical care immediately.

How can we protect ourselves and other people we care for if we do not know who is infected with the virus?

We can all stay safe by following health protocols:

Physical distancing > 1 meter, wearing face mask properly, keeping rooms well ventilated, avoiding crowded places, regularly washing hands with soap and water, and disinfecting regularly will help keep us protected.

When should I get a test for COVID-19?

Anyone who presents symptoms should be tested, wherever possible. People who do not have symptoms but have had close contact with someone who is covid-19 positive may also consider testing.

Reverse Transcriptase - Polymerase Chain Reaction (RT-PCR) is the most commonly used molecular test to confirm COVID-19. Samples will be collected from the nose and throat with a swab.

A person waiting for swab results should remain isolated.

What is the difference of QUARANTINE and ISOLATION?

Quarantine is used for anyone who is a contact of a symptomatic or asymptomatic positive COVID-19 case. To prevent spread of the virus, you may be advised to do quarantine for 10-14 days in your home or a designated facility.

Isolation is used for anyone with COVID-19 symptoms or tested positive for the virus. Usually, if you have symptoms, you should remain in isolation for at least 10 days plus an additional 3 days without symptoms.

Follow your local health unit for specific recommendations.

What will I do if I have been exposed to someone with COVID-19?

If you have been exposed to someone positive for COVID-19, you may become infected, even if you are feeling well.

You may do the following:

- . Call your health care provider or local COVID-19 hotline to find out where and when to get a test.
- . Cooperate with contact-tracing procedures to help stop the spread of the virus.
- . Stay at home (quarantine) and keep away from others.
- . Keep physical distance at least a 1-metre distance from others, even from your relatives.
- . Wear a medical mask to protect others and your family members.
- . Clean your hands frequently.
- . Stay in a separate room; best if well-ventilated
- . Monitor yourself for any development of symptoms.
- . Immediately seek for medical care for any progression of symptoms or presence of difficulty of breathing, chest pain, and others especially those with comorbidities

How long does it usually take to develop symptoms?

From exposure to COVID-19 to the beginning of symptoms, it may take an average of 5-6 days (or can range from 1-14 days). Hence, people with exposure to the virus are advised to remain home and stay away from others for 14 days to help prevent spread of the virus.

Kidney transplantation and kidney donation and COVID-19

A comprehensive discussion for the potential risks (COVID-19 infection and other opportunistic infections and the complications) in the time of pandemic should be done.

Is testing for COVID-19 necessary prior to kidney transplantation?

Yes. On top of the pre-transplant work up, screening and clearances for recipients and donors, a comprehensive clinical examination will be done to ensure that there will be no active infection, particularly that of SARS-CoV2.

Only RT-PCR NEGATIVE donors and recipients will be allowed to continue with organ donation and kidney transplantation.

Strict quarantine at home, avoidance of going outdoors, and following health protocols will be implemented during the work up and kidney transplantation to avoid contracting the virus.

Can a person who had a history of COVID-19 infection be a kidney recipient?

Yes. A person who has fully recovered from COVID-19 can continue with kidney transplantation.

He/she should have a negative RT PCR swab and follow the current institutional protocols including infectious disease or attending physician's clearance/s if needed.

Can a person who had a history of COVID-19 infection be a kidney donor?

Yes. A person who has fully recovered from COVID-19 can continue to be a living kidney donor.

He/she should have a negative RT PCR swab and follow the current institutional protocols.

COVID-19 VACCINATION

Is there a vaccine for COVID-19?

Yes!

What are the benefits of COVID-19 vaccination?

Vaccines help the body fight illnesses. Development of immunity through vaccination will protect patients against severe COVID-19.

Who may be vaccinated?

COVID-19 vaccines are shown to be safe and efficacious for most people age 18 years and above.

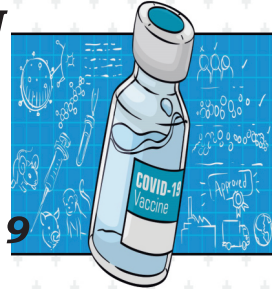
Those with stable or controlled comorbidities are prioritized to receive vaccines:

- Hypertension
- Diabetes
- Bronchial asthma
- Liver disease
- Chronic kidney disease
- And others

The kidney donor may receive his/her vaccination to add protection against the risks of covid-19 infection

When can a kidney transplant candidate receive the COVID-19 vaccine?

A kidney transplant candidate can receive COVID-19 vaccination at least 4 weeks before the scheduled kidney transplantation.



When can a post kidney transplant recipient receive the COVID-19 vaccine?

The decision for vaccination in a post kidney transplant recipient should be discussed with their nephrologist after individualized and comprehensive assessment.

In the absence of any active disease or contraindication, a stable, newly transplanted kidney recipient with no previous COVID-19 vaccination may possibly receive the vaccine 3 months after transplant surgery.

Is it necessary for the kidney donor and the members of the household to be vaccinated?

Yes. It is recommended for the kidney donor and household members of the transplant recipient to receive the COVID-19 vaccination.

Can the preventive measures be stopped after vaccination?

No! Although COVID-19 vaccine will help prevent severe COVID-19 infection, there is still continuous research about COVID-19. We still need to continue adhering to health protocols such as: physical distancing at least 1 meter, wearing facemasks properly,

cleaning or washing hands regularly, and others as advised by our health officials.

Can COVID-19 vaccine cause a POSITIVE TEST on RT-PCR or ANTIGEN TEST?

No! The vaccine cannot cause a positive COVID-19 RT PCR or antigen result. These tests detect active COVID-19 disease.

COVID-19 vaccines produce immune responses that may give positive result on serologic tests that check COVID-19 immunity (antibodies).

Do I still need to be vaccinated against COVID-19 if I have recovered from a COVID-19 infection?

Yes. The protection acquired from recovering from COVID-19 may vary among different people. We do not know, as of now, how long this natural protection will last. Hence, you may still get a COVID-19 vaccine for your protection. Coordinate with your doctor or local health units for the benefits of vaccination and the optimal timing of your vaccination.

Do vaccines have side effects?

Because vaccines will help your immune system protect your body from COVID-19, this process might have effects such as symptoms of fever, chills, headache, muscle pains of 1-2 days. Not all people will experience this and no side effects does not mean that the vaccine is not working.

OTHER VACCINES

Among kidney donors, recommendation for vaccination is similar to that of the healthy population.

Among kidney transplant recipients, however, not all vaccines are allowed.

Approved, INACTIVATED vaccines are safe and are not associated with kidney graft rejection. These are allowed at least 3-6 months, or usually 12 months, after kidney transplantation, when the levels of maintenance immunosuppressive medications are stable.

Examples of inactivated vaccines are: influenza, pneumococcus, hepatitis B, and others.

The tetanus vaccine and rabies vaccine, like the other inactivated vaccines are safe to be given to transplant recipients if necessary.

Benefits of vaccination against covid-19 outweighs the potential risks.

Contraindicated vaccines should NOT be given to transplant recipients such as the following LIVE VACCINES:

Measles

Mumps

Rubella

Varicella

Live zoster vaccine

Intranasal influenza

ANNUAL LABORATORY TESTS

In addition to the monitoring of the kidney graft function, other areas of your health need to be monitored as well. Included, but not limited to, are the following:

Screening for new onset diabetes (sugar levels)
Dyslipidemia (cholesterol / lipid levels)
Obesity (weight, BMI, waist circumference)
Monitoring for infections (BK polyoma virus and others)
Individualized cancer screening plan.

Examples:

Males ≥ 50 years old: PSA every year

Females ≥ 50 years old : breast exam every year

≥ 50 years old: fecal occult blood test every year and/or 5 yearly flexible sigmoidoscopy

Bone disease

Hyperuricemia and gout

Anemia and other hematologic complications

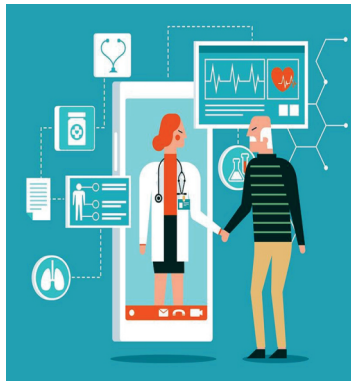
TELEHEALTH / TELEMEDICINE

Patients may use telemedicine as a mode of consultation to reduce face-to-face consultations and physical contact between health care provider and patients.

This would help lower exposure of patient to hospitals and potential contact with those with COVID-19 which may occur at any point during transportation up to hospital stay.

Patients may consult with their multidisciplinary team of doctors (nephrologist, transplant surgeon, infectious disease specialist and others needed) for the kidney transplant workup and for post operative surveillance.

It is still recommended to have at least 1 face-to-face consultation to ensure that there is no problem in the clinical evaluation and potential complications.



COMMUNICATION WITH YOUR HEALTHCARE TEAM

This is your major responsibility! Once you and your new kidney have adjusted to one another, the goal of medical care becomes the same for you as for any other person. These are preventing disease and successfully treating any medical problems that may arise. Make sure that all members of your health care team are aware that you are a kidney transplant recipient and of your complete list of medications. Keep an updated and accurate record of your medical details such as your blood pressure, pulse, weight, urine output, any changes in medication or dosage, minor infections and their treatment, new symptoms or side effects.



***PHONE DIRECTORY OF YOUR
HEALTHCARE TEAM***

National Kidney and Transplant Institute
Trunk Line: (632) 89810300

Department of Adult Nephrology
Local: 3118
Direct Line: 89810368

Department of Transplant and Vascular
Surgery
Local: 2170
Direct Line: 89207707

Human Organ Preservation Effort (HOPE)
Local: 4410
Direct Line: 89244673

Name and Phone
Number

Transplant Nephrologist
Transplant Surgeon
Transplant Coordinator
Social Worker
Other Doctors

Patient Diary

Date	Weight	Temp (AM/PM)	BP (AM/PM)	Pulse rate (AM/PM)	Sugar (AM/PM)	Others

Patient Diary

Date of Kidney Transplantation:

Date	Hgb	Creatinine	Potassium	Tacrolimus Trough/ CYA/ Others	Remarks

Patient Diary

Date	Current Medications	Changes in Medications

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