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KIDNEY TRANSPLANT PATIENT INFORMATION



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INTRODUCTION

This booklet is your introduction to kidney transplant and what you can expect before, during and in follow up. It is important that you read it carefully and follow all the directions given. In addition to this, it is also highly important that you keep your contact information up-to-date at all times. This includes your phone number(s) and other contact details so we can contact you to schedule appointments and your transplant surgery.

Transplant programme

The Mediclinic City Hospital's Transplant Programme is committed to providing safe, effective and patient centred transplant services in Dubai.

Provides

- Pre-transplant patient evaluations
- Follow-up care for transplant patients

Supports

Research and innovation for transplantation

Coordinates

Organ donation process from both living and deceased donors

Educates

- Patients
- Health professionals
- The public

For more information about the programme go to:

www.mediclinic.ae

What are the kidneys?

The kidneys are the master chemists of the body. Normally you have two kidneys: one on either side of your spine under your lower ribs. They are pink and shaped like kidney beans. Each kidney is about the size of a closed fist.

Why are the kidneys important?

Kidneys remove wastes from the blood and excrete them into the urine. Your kidneys also regulate certain electrolytes

such as sodium and chloride, which are responsible for fluid balance; potassium, which is vital to your heart activity; and calcium and phosphorous, which are necessary for healthy bones and muscles. Your kidneys also produce hormones that assist with the production of red blood cells and the regulation of blood pressure. Many other organs depend on the kidneys in order to work properly.

What is renal disease and why do I need treatment?

Another name for kidney disease is renal disease. You can be healthy with one kidney. Renal disease usually affects both kidneys at the same time. When both kidneys do not work, waste materials and water stay in your body. Your body's chemical balance becomes upset. You become ill and need treatment to do the work your kidneys can no longer do. End-stage renal disease, or ESRD, means that you must have some form of dialysis treatment or a kidney transplant in order to stay alive. Kidney transplantation is currently the best way to restore renal function and is recommended for most individuals.

What is a kidney transplant?

A kidney transplant is a surgical procedure in which a healthy kidney from either a living or deceased donor is placed in your lower abdomen. It is not a cure, but a treatment for ESRD. It is the treatment of choice for those who are considered suitable candidates for a transplant.

How does transplantation compare to dialysis treatment?

Transplantation has many advantages. It can treat your kidney failure, improve your health, and provide a lifestyle free from dialysis. Usually, you will have fewer fluid and diet restrictions after getting a "new kidney." Most people even feel well enough to return to work or school. Most people will also be able to live longer after transplantation compared to remaining on dialysis.

With transplantation comes responsibilities. For your new kidney to work, you must take medications every day, exactly as instructed, for as long as the kidney is working, and perhaps for your whole life. These medications can have side effects. Complications may arise, such as rejection of your new kidney or an infection. Each patient responds differently and each patient is unique.

PRE-TRANSPLANT

Referral

The first step in getting a kidney transplant is a referral to Mediclinic City Hospital from your nephrologist. An appointment will then be arranged for you to meet with a transplant nephrologist who specialises in transplantation and the transplant coordinator. This doctor will discuss with you what is involved with receiving a kidney transplant. Following this appointment tests will be requested to determine your suitability to undergo the procedure. You will also be invited to an education programme to know the risks and benefits of the procedure. Here you will also get the opportunity to meet with previous transplant recipients and live donors.

Pre-transplant evaluation

Once you have decided at the end of your appointment with the transplant nephrologist that you wish to have a transplant, several appointments will be made for you.

These tests include:



Blood tests

To determine your blood group, HLA typing and serology (these are described on the following pages)



Radiology investigations

To identify any abnormalities that may interfere with a transplant, including ultrasound scan of the abdomen, chest x-ray and scan of the blood flow to the legs



Cardiovascular assessment

You will be assessed by a cardiologist to assess the function of your heart, the cardiologist may request an ECG (heart tracing), echocardiogram (ultrasound scan of the heart) and a stress test initially



Dental and other consults

You will also be seen by a dentist and any other relevant specialists to determine your suitability for transplantation.

PLEASE NOTE

Women who are sexually active will require PAP smears. Women over 40 years of age need a routine mammogram.

Once your tests have been completed you will be seen by a transplant nephrologist and transplant surgeon to review the tests and ensure all tests are satisfactory. Following this we will discuss your case at our multi-disciplinary team meeting and activated on the transplant wait list.

Once you are on the transplant wait list for transplant, ongoing updates are necessary to ensure that your health has not changed and that you remain healthy enough to receive a kidney transplant. You will be sent an appointment to be reviewed every three months in the clinic.

It is important for you to notify your transplant coordinator of any changes regarding your health/medical status such as an infection. You may be placed on hold for transplant if there are any changes. However, once you are better you will be reactivated on the list and will not lose your position. If you are going on a holiday you must inform the transplant coordinator so we can place you on hold while you are away.

Not all patients are suitable to receive a kidney transplant, and sometimes patients who are listed for transplantation become unsuitable for various medical reasons and do not return to the wait list.

Your transplant coordinator is your contact person to the transplant programme. If you have any questions regarding your transplant status you can contact your coordinator.

Types of kidney donors

There are two ways that a kidney becomes available for transplant:

Deceased donor

A deceased donor is a person who dies as a result of a severe brain injury, causing "brain death" or in some cases "circulatory death". Both kidneys from a deceased donor can be used - one for each of two recipients. You may be put on a wait list for this kind of transplant if you do not have a possible living donor.

Living donor

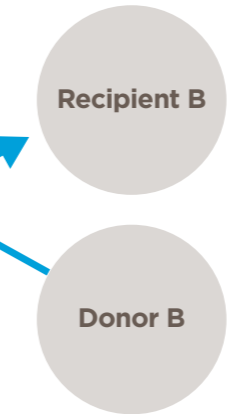
The second way to receive a kidney is from a living person; up to 4th degree relative is acceptable in Dubai.

If you have a living donor but they are not a match to you because of blood group or tissue incompatibility, the Living Donor Paired Exchange (LDPE) Program is an option. With Paired Exchange your incompatible donor will be matched to a compatible recipient and you will receive a kidney from someone who you are compatible with. Matched pairs remain anonymous before and after the transplants. This option is not yet available but we hope to be able to offer this option in the near future.

INCOMPATIBLE PAIR A



INCOMPATIBLE PAIR B



If someone wishes to be a possible living kidney donor for you, please contact your physician or the transplant coordinator on

Matching deceased donor kidneys for transplant

A kidney is matched to patients who are waiting using several blood tests:



Blood Group
A, B, AB or O



HLA Typing
This test determines the genetic tissue match between you and the donor



HLA Crossmatch
This test will tell us whether you are fully compatible with the donor - a positive test means you are a high risk to reject the kidney. A negative result means you are less likely to reject the new kidney.



HLA Antibody Screening
This tests to see if you have any HLA antibodies in your blood that could make you reject the donor kidney. Once you are activated on the transplant wait list, these antibody samples are drawn every three months and two weeks after blood transfusion. If you are on hemodialysis, this sample is drawn by the dialysis unit.

To find the person who will make the best recipient we consider five main factors:

- Medical urgency
- Age (children are usually transplanted with higher priority to ensure proper development and learning)
- Degree of tissue match (HLA) to the donor
- Degree of HLA antibodies
- Wait time - time you were activated on the wait list

Average wait times

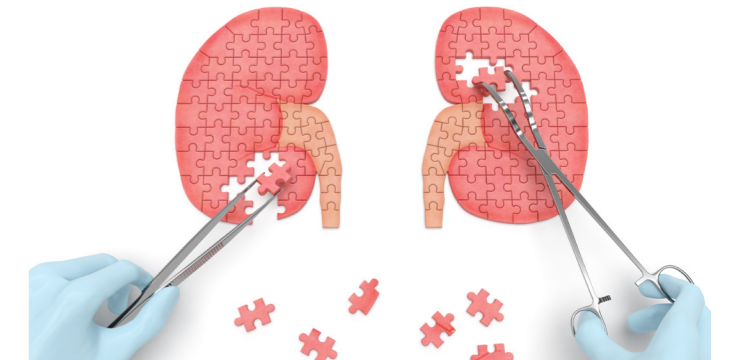
Wait times vary depending on blood type with blood group O recipients waiting longer as they can only receive an organ from a blood group O donor, whereas blood group O donors are considered universal donors and can donate to a blood group A or blood group B recipient.

Tissue matching (HLA matching) and level of sensitisation (HLA antibodies) can also affect wait times, making them shorter or longer than average. For example, someone who is highly sensitised with many HLA antibodies could wait longer for suitable kidney compared to someone who has not got many antibodies. Antibodies are generally acquired via blood transfusion, previous transplant or pregnancy.

Keeping your contact information up to date

This is very important to note: you are responsible for notifying the transplant programme of any changes in your address or phone number, otherwise we may not be able to contact you if a suitable donor organ becomes available.

You should also provide us with two or three other contact numbers in case you are not at home. If you are planning to be out of town and away from your regular contact number you should provide us a phone number for the place you will be staying and let us know when you are home again.



THE SURGERY

The phone call

If you are one of the potential recipients matched for a deceased donor kidney, the transplant coordinator will call you. This phone call could happen at any time of the day or even during the night. They will ask you a few questions about your state of health such as if you have a cold, the flu, any infections and if you have received any blood transfusions. It is important to be healthy at the time of your transplant.

They may ask you to come in right away to give a fresh blood sample for the HLA Crossmatch test. They may even ask you to be admitted to the ICU at Mediclinic City Hospital

The result of the Crossmatch is usually available within 12 to 24 hours. At this point you will find out if you are the one to receive the donor kidney or not.

The lab calls three to four possible recipients for every deceased donor kidney. You may be called in more than once before you successfully receive a kidney transplant.

Fasting before transplant surgery

Fasting is an important step in preparing for surgery. The decision of when to begin fasting and for how long will depend on timelines, and a transplant doctor or coordinator will tell you when. You should have nothing to eat or drink (except a sip of water for taking any medicine) once you have had confirmation that you will be receiving a transplant. If you are diabetic, you should check with the transplant doctor to give you directions for your insulin.

Transportation

If you have any questions about your travel arrangements they should be discussed ahead of time with your coordinator so you have a travel plan in place before receiving your call for a transplant.

In most cases, you are responsible for your own transportation to the hospital when you are called. If you are to drive a long distance it is recommended that someone drive with you.

What to bring to the hospital

You should bring your own personal items with you to hospital such as:

- Tooth brush
- Lip and skin moisturiser (fragrance-free)
- Hair brush or comb
- Slippers
- Loose, comfortable clothing (such as a track suit) is also appropriate

- Medications that you are taking (complete list of the names, doses and times)
- Do not bring valuables

Other responsibilities

Your suitability to receive a kidney transplant will depend partly on your health at the time of the phone call to come to the hospital. There are several things that you can do to help:

- Keep yourself healthy and attend all appointments
- Tell us if you have felt unwell recently, taking any antibiotics, seen a doctor for any reason or have had a blood transfusion recently

Sometimes, problems may come up even though you are taking care of yourself. Your doctors may order special tests or ask you to see a specialist. It is important that you keep your scheduled appointments. The Transplant Programme needs the results of the tests and the opinions of the specialists to help us know if it is okay for you to get a transplant.

PREPARING FOR TRANSPLANT DAY

Live donor transplant

Pre-admission appointments for transplant from a living donor

When you are scheduled for a living donor kidney transplant, the following appointments will be made for you to attend before the surgery date:

Final HLA Crossmatch – This blood test will be done on both you and your donor. This test will be familiar to you as it has been done previously. This test now needs to be repeated one week before the transplant to make sure there is no change in the result of this test which will affect the kidney transplant. You will also have blood drawn for chemistry, hematology and repeat serology at this time.

Pre-admission Clinic visit – This appointment will involve you meeting with the anaesthetist who will put you to sleep for the surgery. Post-operative pain control will also be discussed.

Surgical Assessment – You will meet with the surgeon who is going to perform your kidney transplant. The surgeon will meet with you to describe the surgery, review the risks of surgery, and have you sign the consent for surgery.

Transplant Advocate – you will meet with a transplant advocate who will discuss your motivation for donation.

History and Physical – you will meet with a transplant nephrologist in the transplant clinic to have a history and physical done in preparation for your admission for surgery. This physical is done to make sure there are not any new medical issues that have come up that would affect the transplant surgery.

Transplant Coordinator Meeting – You will meet with the transplant coordinator who will review with you the admission process and answer any questions that you may have regarding your upcoming transplant. He/she will also take you on a tour of the transplant ward and provide you with any requisitions for additional testing needed including blood tests for antirejection medication levels, if indicated.

Admission to hospital

You will be admitted to a private room in ICU where you will be cared for after the transplant, your family can visit depending on the visiting hours.

If you are receiving a transplant from a deceased donor

The deceased donor kidney transplant operation is usually done within four to 24 hours of your admission to hospital. You will be seen by the kidney doctor, nurse, anaesthetist, and the surgeon as part of your preparation for surgery. You may also need dialysis to get you ready for surgery.

If you are receiving a transplant from a living donor

A live donor transplant is more predictable as you would have an approximate time for the surgery. You will be seen by the kidney doctor, nurse, anaesthetist and the surgeon as part of your preparation for surgery. You may also need dialysis to get you ready for surgery.

Visitors

Visitors can visit you depending on the current visitation rules of the hospital. Good hand washing when entering and leaving the room is the most important step in preventing infection. Visitors with obvious infections (colds, flu) will not be allowed to visit.

Precautions

While in hospital, you will be in protective isolation since you will be on large doses of anti-rejection medications. These medications make it easier for you to pick up an infection. You will be asked to wear a mask.

The operation

The operation takes three to four hours. The kidney is placed down in the pelvic area, either on the left or right side.

During surgery, a special tube (stent) may be placed in the ureter between the transplanted kidney and the bladder. It helps to keep the ureter open during the first few weeks after surgery. It is removed four to six weeks later.



PACU (post-anaesthesia care unit)/Recovery Room

In PACU (the Recovery Room), nurses will watch your blood pressure, breathing, and urine output. They will also help with any pain you may have. A few hours later, you will go back to your room in ICU.

After surgery, you will have:

- Oxygen from a mask or a tube by your nose for a short time
- An intravenous line (IV) giving you water, sugar, and salt
- A central line (line placed in a large vein usually in the neck) to allow infusion of anti-rejection medications
- You will also have an arterial line placed in your forearm to measure your blood pressure accurately
- A catheter in your bladder (to allow easy and accurate measurement of the urine from your new kidney and to allow for healing)
- A bandage covering the incision on the lower part of the abdomen. It is not uncommon to have blood in your urine at this point

On the ICU and ward

You will be given medication to help control pain in your incision area, but it is important that you tell the nurse if you are having pain. Several hours after the surgery, the nurse will have you sitting up on the side of the bed. The nurse will also help you do deep breathing and coughing exercises to help prevent pneumonia.

Blood clot prevention

Because you have had surgery you are at risk for blood clots forming in your legs. Blood clots can become loose and travel to your lungs. You will also get a blood thinner injected daily under your skin. You will also be encouraged to move your legs and sit out the next day.

Important symptoms to report to the nurse are:

- Calf pain, redness, warmth and/or swelling
- Sudden shortness of breath or difficulty breathing
- Chest pain

If you experience these symptoms after you are discharged, this is a medical emergency and you should go to an Emergency Room immediately for treatment.

The **staples** (stitches) are removed from the incision about 10 days after the transplant if dissolving stitches are not used.

As your new kidney begins to work better, the urinary catheter and IV line will be removed, usually by day 4-5.

It can take a few days for your stomach to start working. You will only be given ice chips until your bowels start to work. The nurse will listen to your stomach for any rumbling sounds before you will be started on food.

You may have nausea after surgery. It is important to tell the nurse so that we can help.

It is important to keep track of your fluid balance (the amount you drink and the amount of urine you pass). The nursing staff will teach you how to keep track of your fluid balance. It is important to write your fluid levels on the sheet by your bed. You will be weighed every day.

You will have many tests to check how well your new kidney is working. Blood tests will be taken often for the first few days, then less often. The nurses and doctors will watch for signs of rejection of your kidney. Urine samples may also be taken.

You may have a renal scan. This test looks at the blood flow to the new kidney.

An important part of your recovery is learning how to take care of yourself and your new kidney. You will get a new list of medications. The nurse and pharmacist will show you how best to take them. You will also be taught how to look for signs of infection and rejection. The nurse will review this information with you and/or your family several times. Please ask many questions.

You will be in the hospital for about **five to seven days** if there are no complications. Some people have to be in the hospital for a longer stay. Before you leave the hospital, a team member will come to see you and answer any queries you may have.

Blood tests

Urea and creatinine (waste products), sodium, potassium, calcium and sugar will be measured by blood tests. These tests will tell how well your new kidney is working.

- **Haemoglobin (Hgb)**

Haemoglobin carries oxygen from your lungs through the body. Hemoglobin is partly responsible for how energetic you feel. With a new working kidney, your haemoglobin should return to normal, although in some cases it can take up to six weeks and in some erythropoietin injections may be prescribed to boost the blood count

- **White Blood Count (WBC)**

White blood cells (WBC) are the weapons your body uses to fight infection. It is important to watch your white blood cell count. With your immune system lowered by medication, you may not have the normal symptoms of an infection. By watching the WBC, we also get an idea of how well your body's defence system is working.

- **Creatinine and Urea**

The kidney helps to get rid of some wastes your body makes. Creatinine and urea are two important wastes.

- **Sodium, Potassium, Calcium**

These are minerals in your body that you get mostly through eating and drinking. The kidney is responsible for keeping a balance between these minerals. Post-transplant your blood phosphate and magnesium levels may be low and you may be asked to increase the intake of these minerals in your diet.

- **Tacrolimus**

A transplant medication you might take is called tacrolimus. We measure the amount of tacrolimus in your blood to be sure you are on the right dose. Each person's body responds differently to this medication. The blood level should be measured just before your next dose (taken in the morning).



MEDICATIONS

Immunosuppressive Medications

Your body's defence system (your immune system) fights off bacteria and viruses that try to attack you and make you sick. Unfortunately, your immune system will think that your new kidney is also an invader trying to attack you, and this is called "rejection". Therefore, you will be taking medications to block your immune system for the life of your kidney after your transplant so that they don't cause harm to the kidney or cause rejection. These medications are called "immunosuppressants" or anti-rejection medications. There are two main categories of immunosuppression.

Induction Therapy

Your immune system's response against your new kidney will be the strongest immediately after your surgery. Therefore, you may receive very powerful immunosuppressive medications while you are in the hospital. These strong medications are a part of what is called "induction therapy". Induction therapy ensures that your immune system is suppressed enough so that it will not reject your new organ while we get you on the right amount of medication. Depending on how strong the transplant team expects your immune response to be, you will receive induction therapy with high dose steroids and either thymoglobulin or basiliximab

Immunosuppressive (anti-rejection) medications

You will take anti-rejection medications after the transplant. These medications will help your body accept your new kidney and reduce the chance of rejection.

The anti-rejection medications used most often are:

- **Tacrolimus**

Tacrolimus is a medication used to lower your body's immune (defence) system. It is used to prevent your kidney from being rejected.

You should only take the same brand as you are prescribed and must not switch brand unless done so by your doctor as the level of the drug may change. Below is an example.

Take this Medication	8:00am	12:00pm	6:00pm	8:00pm	Purpose
Tacrolimus 1mg oral capsule Take by mouth	4 capsules			4 capsules	Prevents rejection
Mycophenolic acid 180mg oral tablet Take by mouth	4 tablets			4 tablets	Prevents rejection
Prednisone 5mg oral tablet Take by mouth	1 tablet				Prevents rejection

Tacrolimus immediate release is available in capsules with different strengths. The capsules are the same colour on the top and bottom:

- 0.5mg
- 1mg
- 5mg

Tacrolimus immediate release is taken twice a day - every 12 hours. It is important to take it at the same time every day. It can be taken with or without food - but do it the same way every day.

The dose of tacrolimus depends on its blood level. Blood levels must be done before you take your morning dose. After you leave the hospital, the Transplant Clinic will tell you your tacrolimus dose.

Common side effects of tacrolimus

- Upset stomach and occasional diarrhoea
- High blood pressure
- Headache
- Tremor
- Increased risk of infections
- Increased blood sugar

• **Prednisone**

Prednisone is a steroid that helps to lower your immune system. Most patients take prednisone for as long as they have a transplanted kidney.

Prednisone is available in 1 mg, 5 mg, and 20 mg tablets. The amount you will take will change. In hospital the nurse will tell you the daily dose. After you leave the hospital, the Transplant Clinic will tell you the dose.

Prednisone is usually taken once a day, in the morning, with food.

NEVER stop your prednisone suddenly. This can be life threatening.

Common side effects of prednisone

- Increased appetite (weight gain)
- Increased blood sugar (diabetes)
- Delayed healing of cuts and sores
- Feeling shaky
- Round face, chubby cheeks
- Night sweats (on high doses)
- Salt and water retention
- Thinning of bones, especially hips
- Acne
- Changes in vision (cataracts)
- Mood swings (on high doses)
- Increased risk of infections
- Stomach ulcers



• **Mycophenolate Mofetil**

Mycophenolate is a medication used to lower your body's immune system. It is taken twice a day and should be taken on an empty stomach. Some people may need to take mycophenolate with food. It should always be taken the same way.

Take mycophenolate at the same time as tacrolimus.

Mycophenolate Mofetil is available in 250mg capsules and 500mg tablets and Mycophenolate sodium is available in 180mg and 360mg strengths. The pills should be left in the original pharmacy container until taken. The pills should be swallowed whole and not crushed or chewed.

Mycophenolate is teratogenic, which means it can cause fetal abnormalities when taken if pregnant, patients considering pregnancy must consult their transplant doctor before contemplating pregnancy so their medications can be changed as required.

Common side effects of mycophenolate mofetil

- Diarrhoea
- Difficulty sleeping
- Nausea and vomiting
- Increased risk of infections
- Stomach cramping
- Should not be taken while pregnant
- Headache

Other medications

Many prescription and non-prescription medicines can interact with your anti-rejection medications. Herbal and natural supplements, teas and cleanses can be harmful to the kidney or interact with your anti-rejection medications so check with the transplant pharmacist before your start any new products.

It is important to tell any doctor or dentist you visit about the medications you are taking. If there are any questions about new medications or changes to the ones you take, please check with the Transplant Clinic.

Prevent Infection

After you receive your new kidney, your immune system will be low because of the anti-rejection medicines. This will mean that your body won't be able to fight off infections as easily as it did before. Your transplant team will prescribe you medicines to protect you from some infections for the first few months after the transplant.

• **Valganciclovir**

Valganciclovir is an antiviral medication used to prevent or treat cytomegalovirus (CMV), herpes, and chicken pox infections.

How Much: 1-2 tablets (450mg)

How Often: Usually once a day, may also be given 2-3x per week. Based on kidney function

How Long: 3-6 months

Side Effects:

- Low white blood cell count
- Low red blood cell count
- Low platelets

• **Co-trimoxazole (Septrin)**

This is a combination antibiotic used to prevent or treat a type of lung infection called PCP or PJP which is caused by a fungus. This type of infection is more common in patients who have a suppressed immune system. This medication belongs to the class of sulfa medications and it is very important to inform your doctor if you have an allergy to sulfa.

How Much: 480mg

How Often: Once a day

How Long: 3-6 months

Side Effects: nausea, vomiting, rash

• **Nystatin**

This medication is used to help prevent a fungal infection in your mouth and throat called "thrush" which is from Candida. In most cases we will instruct you to discontinue this medication three months after your transplant.

Anti-Ulcer/Heartburn Medications

Some medications (like steroids) are hard on your stomach. You may need to take some medication to treat heart burn, indigestion, or prevent stomach ulcers. Some of these are available over the counter. Some of the medications may interact with your transplant. Please discuss with your transplant team before you start taking these medications. Proton pump inhibitors such as lansoprazole or esomeprazole are often prescribed.

Electrolyte replacements

Some of the medications you are taking may change the normal levels of electrolytes in your body. You may be given supplements to increase or decrease levels of these electrolytes, depending on what you need. Listed below are some medications that we may prescribe to help.

Magnesium - Magnesium oxide may be given to increase your magnesium levels.

Phosphate - Phosphorus supplement that may be given to increase your phosphorus levels

Pharmacy

On discharge you will be given a list of medications you

need to take along with a supply to go home. Remember to order repeat prescription before you run out of medications. It's important you always have a stock of anti-rejection medications.

What should be done if a dose of medicine is forgotten? Take the missed dose as soon as you remember, then continue with your regular schedule. If it is almost the time for the next dose when you remember, do NOT take two doses. Call the Transplant Clinic or your pharmacist if you have questions.

Remember to "COMMUNICATE BEFORE YOU MEDICATE". Keep asking questions until you are satisfied. The more you know, the better you will feel.

Prescription refills

Ensure you have adequate supply of medications at home and order your repeat prescription early in order to avoid running out. When travelling, take your medicine with you. Store your medicines in your carry-on luggage when traveling by plane. Bring extra doses with you in case you are delayed in returning home. You can also ask for a holiday letter which the transplant clinic can provide you with stating the medications you are on and other relevant information.

What should you know about your medicines?

You should be able to answer the following questions for each medicine that you take. If you do not know the answers, ask your doctor, pharmacist or nurse to help you.

1. What do I take this medicine for?

- What is the name of the medication?
- What problem or symptom will it help?

2. How am I to take this medicine?

- How much do I take (the dose)?
- How often do I take it each day?
- What time of day should I take the medications?
- Can I take it with food?
- Are there any foods I should avoid?
- Are there other medicines I should not take?
- How long will I need to take this medicine?
- What do I do if I miss a dose?

3. What should I expect from this medicine?

- How will I know if the medicine is working?
- What side effects may occur?
- What am I to do if a side effect occurs?

4. How should I store my medicine?

- Does it need special storage?

POST-TRANSPLANT

Possible complications of kidney transplantation

The three main complications of kidney transplantation are:

• Slow-starting kidney

Sometimes a transplanted kidney is slow to start working. The most common reason for a “sleepy” kidney after the surgery is Acute Tubular Necrosis (ATN). You may feel let down that your kidney is not putting out much urine, but ATN gets better on its own and you may need dialysis until it wakes up. Your new kidney usually gets back to full function.

• Rejection

Rejection occurs when the body sees that the transplanted kidney is not its own and tells your immune system to fight against it.

Rejection is often “silent”; you may not feel any different or any symptoms.

Early rejection can show up on blood tests or a kidney biopsy. Kidney biopsies are the best way to diagnose rejection or tell us why a kidney may not be working very well.

Rejection is uncommon, usually has no signs and symptoms and can only be suspected by changes in the bloodwork.

If you have rejection, it can be treated with a very high dose of a steroid (prednisolone by mouth, or methyl prednisone by IV) other drugs might be used depending on the severity. The steroid is used to try to stop the rejection. Your dose of prednisone will be high for a few months then lowered gradually.

• Infection

Your body’s defense system will be weakened by the anti-rejection medications. You are more likely to get colds, flu and other infections.

Other possible complications post-transplant

Increased risk of cancer

Transplant recipients have an increased risk of developing cancer because of how the anti-rejection drugs change their immune systems. Cancer may occur at any time after transplant.

The types of cancer that are more common in kidney transplant patients are:

- Lymphoma
- Skin cancer

- Bowel cancer
- Cervix and breast cancer (for women)
- Prostate cancer (for men)

Early detection of cancer greatly increases the chances of successful treatment. You should take steps to help ensure any abnormalities get proper attention.

Women should:

- Do a breast self-exam each month and report any changes immediately
- After age 50, have regular mammograms. Some women may need one earlier
- Go for a Pap smear each year. A Pap smear checks for changes in the cells on the cervix. Cancer of the cervix begins as abnormal cells. Early detection usually makes this type of cancer curable

Men should:

- Do a monthly check for any abnormal testicular lumps and report them
- After age 50, have prostate checks regularly

• Skin cancer

It is important to lower your sun contact.



Wear a hat, long sleeves, and long pants



Use a factor 50 sunscreen



Avoid the sun between the hours of 11am and 3pm

Check your skin regularly and tell the transplant team about any new or unusual moles, lesions, or lumps on your skin. The type of cancer that may develop after excessive sun exposure is easily treated if found early.

• Bowel cancer

Bowel cancer is more difficult to detect. You should report a change in bowel habits such as alternating diarrhoea and constipation, or if you have blood in the stool. Telling

the transplant clinic about these symptoms may result in earlier treatment for this type of cancer.

After age 50, screening for colon cancer should be done. Screening can be done by colonoscopy, sigmoidoscopy or having the lab test stool samples for very small amounts of blood.

• Diabetes

A kidney transplant does not stop the effects of diabetes on the body.

If you have diabetes, you may need to use insulin injections instead of diabetes pills or a higher dose of insulin.

If you do not have diabetes but are overweight, older or have a family history of diabetes, you may get diabetes after the transplant as a result of side effect of anti-rejection medicines. Up to one in three people will get high blood sugar levels after their transplant.

The aim of treatment of diabetes is to keep the sugar levels in the blood as close to normal all the time. Managing your lifestyle in an important aspect of managing your blood sugars.

Being overweight makes diabetes much worse. It is important to lose weight if you are overweight, and avoid putting on weight if you are not. Losing weight can be difficult, but in some cases it is all that is needed to make the diabetes go away completely.

A careful diet is all that some people with diabetes need for their treatment, but in some cases medicines are also needed. These may be tablets or injections of insulin. Insulin is the body’s natural substance for regulating the amount of sugar in the blood, and boosting. Patients also tend to put on weight after transplant due to the effect of steroids, better appetite and less energy use, it is therefore important to exercise when safe to do so (your transplant doctor will tell you when) and also to lead a healthy lifestyle.

• Reappearance of Kidney Disease

Some forms of kidney disease can come back in the transplanted kidney. Your doctor and transplant staff will monitor your blood and urine for signs of this problem.

Medication related complications

Other problems you may have because of the anti-rejection medications may include:



Cataracts



High blood pressure



Thinning of the bones (osteoporosis)



High cholesterol



Stomach ulcers



Inflammation of the pancreas

Diet

A dietitian is available to see you after the transplant to answer any questions you may have. Following your diet after your transplant is important as good nutrition may help to protect your kidney. You may need to eat foods rich in phosphate and magnesium unlike on dialysis when it is the right opposite! After transplant when the kidney starts working it may excrete more phosphate in the urine and hence the phosphate levels may go low, low phosphate and magnesium are also side effects of tacrolimus.

Special considerations for you now include

Protein: include a good quality protein choice at each meal.

Sodium (salt): a moderate restriction of dietary sodium can help blood pressure or reduce swelling.

Fluid: keeping well hydrated is important. Drink at least 2-3 litres per day.

Potassium: a potassium restriction is generally not needed for most people if your new kidney is working well. Some transplant medications can cause high potassium levels and a potassium restriction may be needed.

Phosphorous: high phosphorous levels tend to drop after a new transplant. Foods high in phosphate are encouraged to help normalize levels.

Calcium: to maintain and promote bone health, it is important to eat or drink calcium containing foods such as dairy products

Weight gain: you may find that your appetite has increased after transplant. This does not always reflect your body's needs. Undesirable weight gain and large waist circumference (apple shape) can lead to serious problems including high blood pressure, increased risk of developing diabetes, elevated cholesterol and can cause your kidney not to work well. Eating a healthy diet with appropriate portions and limiting excess high fats and sweets can help to limit unwanted weight gain. Regular exercise when advised by your doctor can help to control your weight.

Cholesterol: Some transplant medications may increase the risk of high blood cholesterol levels. Limit total fat intake, especially saturated and trans fats. Medication may be needed in addition to diet changes if cholesterol level is too high.

Vitamins/herbs: check with your dietitian, pharmacist or doctor before starting any vitamins or herbal products, as they are generally not needed.

Food safety: people on anti-rejection medications are at increased risk of infection. Proper food handling and hand washing helps to prevent food-borne illness. Buffets and salad bars are not recommended as it can increase the risk of food contamination and food-borne illness. Meat, poultry, fish and eggs should be fully cooked.

Grapefruit, grapefruit juice and pomegranate: should be strictly avoided as they can cause blood levels of anti-rejection medications to get too high.

These are general nutrition guidelines following a kidney transplant. Your individual diet may change depending on your blood work. Your transplant team will advise you if you need to make changes to your diet.

GOING HOME AFTER YOUR TRANSPLANT

Clinic Follow up

In the first four weeks post op, patients will jointly be seen by a transplant surgeon and nephrologist, following which they will be seen in the nephrology clinic as per the below recommended schedule.

Time period	Clinic attendance
Month 1	2-3 times weekly
Month 2	1-2 times weekly
Month 3	1-2 times weekly
Months 4-6	Every 2-4 weeks
Months 6-12	Every 4-6 weeks
Month 12 onwards	Every 3-6 months

Outpatient tests

Urine sample

You may be asked to provide a urine sample at some of your clinic visits. This happens more in the beginning of your transplant.

Blood testing

Every clinic visit you will need to have your blood tested. This is very important to see how well your kidney is working. Blood tests need to be done by 9:30 a.m. for the tacrolimus level result to come back that day.

Remember DO NOT take your cyclosporine or tacrolimus before the blood test.

After your blood tests, take your anti-rejection drugs as you were last told. Wait for the clinic to call if a dose adjustment is needed, if you don't have a phone call continue to take your usual dose.

Kidney biopsy

Kidney biopsies are the best way to know what is going on in your kidney. Kidney biopsies may be done if there are concerns about how your kidney is working (high creatinine level or protein in the urine, for example).

Ureteric stent removal

This will be booked for you with Urology at four to six weeks post-transplant.

Emotions

Your kidney disease may have been treated with diet, medications, and dialysis. Transplant is another way to treat it. Having a kidney transplant is a change in your life and your family members' lives and brings new things to learn so that you stay healthy. It is a time when it is normal to be hopeful and anxious at the same time. You may notice changes in your lifestyle that can be a source of stress for you and your family. Some people experience disappointment, increased worry, frustration and sadness.

Medication costs

Medication costs after a transplant are an important part to consider, it would be best to discuss this with the transplant coordinator and insurer.

Transportation to clinic

Some practical things you should know include getting to and from your daily clinic appointments when you are discharged from hospital following your transplant.

Remember, you run a great risk of getting an illness by associating with groups of people, so you should not plan to take public transport for these appointments immediately after transplant. We advise you not to drive for minimum of six weeks post-transplant.

VACCINATION

Routine Immunizations

Inactivated vaccines are generally considered to be safe following solid organ transplantation. Live organism vaccines must be avoided following solid organ transplantation given the potential for active infection.

All transplant patients should receive the following immunisations routinely at conventional intervals:

- Influenza (avoid intranasal vaccine) - annual
- Meningococcus C & Hemophilus influenza B
- Pneumococcal vaccine - once every five years

Examples of live vaccines which are to be avoided are:

- BCG
- Chickenpox - Varicella
- Measles
- Mumps
- Polio [oral live vaccine] Polio - oral live vaccine - replace with inactivated vaccine
- Rubella
- Yellow fever (get certificate of exemption for Kenya & Tanzania)
- Rotavirus
- Varicella zoster (shingles)
- Intranasal live attenuated influenza vaccine

Other vaccines [killed, toxoid or component vaccines] are suitable and are given in conventional dosage and regimens, examples of inactivated vaccines are:

- Cholera (check and confirm inactivated vaccine)
- Diphtheria
- Haemophilus [HIB]
- Hepatitis B
- Influenza
- Meningococcus C
- Pertussis
- Pneumococcus [Pneumovax]
- Rabies
- Tetanus
- Typhoid (injection)
- Japanese encephalitis
- Human papilloma vaccine (HPV)

COVID-19

Transplant patients are at high risk of COVID-19 and subsequent complications due to the immunosuppressed state. Patients should be fully vaccinated with a DHA approved vaccination prior to transplantation. If they are eligible for a booster they should also have a booster shot prior to transplantation. Vaccines will have a better protective effect if taken prior to transplantation.

Post-transplant, we recommend patients to wait at least three months before having a COVID-19 vaccine or annual flu vaccine.



RESOURCES AND OTHER POST-TRANSPLANT RELATED INFORMATION

For more information

This booklet is an introduction to your life with a kidney transplant. It may not answer all your questions. If you have any questions about what you have read in this book, please feel free to discuss them with your doctor or transplant coordinator.

We hope to make your transplant experience as easy as possible. The Transplant Programme team is here to help you.

Along with this booklet, you may wish to enhance your knowledge by accessing below recommended sites on the internet.

Recommended websites

https://www.kidney.org/atoz/atozTopic_Transplantation
<https://www.nhsbt.nhs.uk/organ-transplantation/kidney/>
<https://www.myast.org/patient-information/resources-transplant-patients>

A good website will list:

- The owner or sponsor
- Their credentials and qualifications
- Information on how to contact them
- The date information was last updated

Please be wary of incorrect medical information online. Check with the Transplant team if you have any questions.