

What you need to know about kidney transplants

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What do kidneys do for us?

Kidneys have many roles in the body. They:

- Filter waste products from the blood and maintain electrolyte balance
- Remove unwanted chemicals and drug by-products and toxins from the blood
- Eliminate these substances and excess water in the form of urine
- Secrete many hormones that help regulate our blood pressure, our absorption of calcium from our food and our production of red blood cells

Nephron is the smallest functional unit of kidney, and there are several million nephrons in each kidney. When a certain set of nephrons are damaged permanently, it cannot be regenerated by the body naturally and the remaining nephrons have to take over the function.

What damages kidneys?

Some people are more likely to develop progressive loss of kidney function and/or kidney failure than others. They mostly have one or more of following conditions that puts them at greater than normal risk:

- Diabetes mellitus – type 1 or 2
- High blood pressure – especially if severe or uncontrolled
- Glomerular disease (a disease that attacks the kidney function which filters blood) - such as glomerulonephritis that damage the nephrons
- Severe injury or burns
- High blood pressure – especially if uncontrolled and severe
- Intrinsic diseases of kidney such as glomerular and tubular diseases (which affect the filtration of blood) – e.g. glomerulonephritis, tubulointerstitial nephritis
- Backflow of urine from urinary bladder to kidneys (vesicoureteral reflux)
- Massive crush injury, trauma or burns
- Major surgical procedure
- Diseases of the heart and major blood vessels that compromise blood flow to the kidneys

- Congenital (inherited) diseases of the kidney – e.g., polycystic kidney disease (cystic and enlarged kidneys), congenital malformations
- Chemicals such as toxins and certain drugs
- HIV infection
- Liver failure
- Rejection of previous kidney transplant
- Autoimmune diseases (wherein the body produces antibodies and destroys its own tissues)

If there is extensive damage, the kidneys may lose their function leading to kidney failure.

Kidneys can fail rapidly, which is usually caused by a sudden severe illness. Acute renal failure is usually reversible once the underlying condition is resolved.

Kidneys can also fail slowly over a period of time (months to years) if there is an underlying chronic disease like diabetes or hypertension. If kidney failure occurs, usually both kidneys fail at the same time.

What are the common signs and symptoms?

Different symptoms may be encountered depending upon the cause and severity of kidney failure.

As kidneys can compensate for the mild to moderate impairment of function, usually there are minimal or no symptoms in early stages of the disease.

Most of the patients present with symptoms in severe form of kidney failure, i.e., when there is extensive damage to the kidneys.

Commonly presenting complaints are:

- Easy fatiguability
- Loss of appetite
- Nausea and vomiting
- Oliguria i.e. decreased urination
- Pruritis
- Easy bruisability
- Bleeding
- Muscle and joint pains
- Altered mentation
- Bone pain or fractures
- Pallor (as a result of anemia)

There are multiple complications associated with chronic kidney disease which can have a profound negative impact on patient's quality of life, such as :

- Fluid retention due to lack of production of urine
- Hypertension resulting from chemical imbalances and fluid overload
- Anemia due to lack of production of erythropoetin (kidney hormone that produces red blood cells)

- Breathing trouble due to pulmonary edema and congestive heart failure caused by retention of fluid in the lungs (<http://www.emedicinehealth.com/script/main/art.asp?articlekey=106623>)
- Bone disease due to lack of production of vitamin D, leading to depletion of calcium
- Ulcers in stomach
- Bleeding problems due to platelet dysfunction
- Damage to the nerves
- Increased susceptibility to infections
- Fatigue and sleep disorder

How to prevent or slow down the progression of kidney failure?

- Control of the underlying condition that caused the kidney failure is often the key to prevent or slow down the progression. But most of the time extensive kidney damage has already taken place by the time of diagnosis. Once the kidney failure ensues, there occurs gradual deterioration of residual kidney function over a period of time.
- Persons with underlying risk factors for kidney failure should be regularly in touch with their health care provider, follow the instructions for proper control and maintain a healthy lifestyle.
- Regular monitoring and aggressive treatment of chronic conditions such as diabetes and hypertension is essential for preservation of kidney function and prevention of complications.

What is the treatment of kidney failure?

Once the kidney failure is diagnosed, the patient usually requires some form of renal replacement therapy either in the form of **Dialysis or Kidney Transplant**.

Dialysis is the process of removal of waste products accumulated in the body as a result of the failure of kidneys to excrete them. It can be carried out in two ways:

- **Hemodialysis** – when filtration of blood is done by an external machine and filtered blood is transfused back in the body.
- **Peritoneal dialysis** – is carried out by placing a catheter inside the abdomen and using peritoneal membrane as a filter to extract the toxins from body.

Kidney transplant involves two surgical procedures in which a new kidney is taken from a donor, either alive or deceased, and is transplanted into the body of the patient with kidney failure. The transplanted kidney takes over the function and filters the blood in normal way. Also, to prevent the rejection of the new kidney by the body, certain immunosuppressive medicines are given.

The best treatment option for an individual patient is based on medical history, comorbid illnesses and personal needs. This decision is taken by the patient in consultation with his treating doctors. Many patients start on some form of dialysis based on their medical background and eventually receive a kidney transplant. Others remain on dialysis for a lifetime without ever being eligible for kidney transplant.

Kidney transplant is not the treatment for every patient with kidney failure and involves extensive medical, surgical, psychosocial and psychiatric evaluation to determine suitability. Before going through the battery of tests, patient needs to discuss with treating physician regarding suitability for kidney transplant.

Who is eligible for kidney transplant?

Assessment for kidney transplant is a very meticulous process:

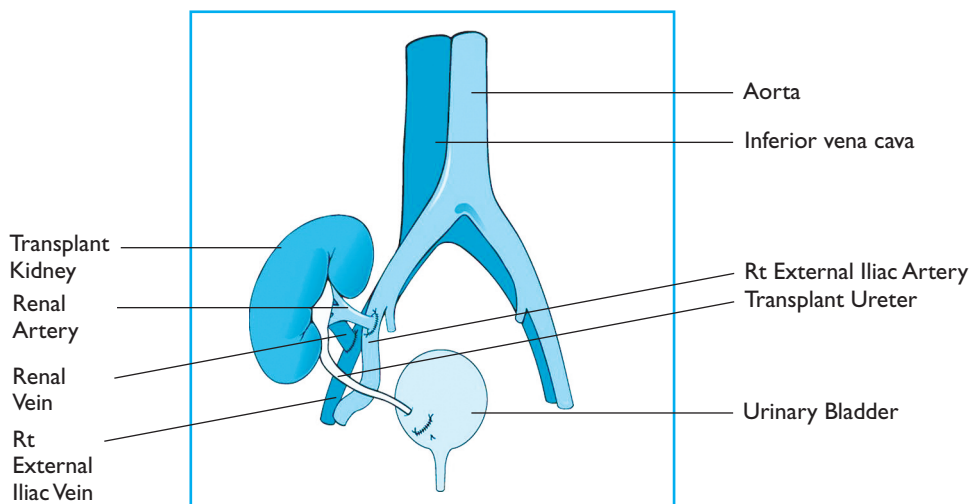
- It may require multiple visits to transplant centre for tests and evaluations over a period of weeks to months.
- The rationale behind this assessment is to evaluate the risk / benefit of transplant for the patient. It assesses whether the patient can withstand major surgery, his/her suitability for immunosuppressive medicines and the potential for adjustment to the new organ based on patient circumstances.

The medical team for transplant assessment includes:

- Transplant Nephrologists
- Transplant Surgeons
- Transplant coordinators
- Social workers and other health care providers

The patient and his/her family members are interviewed for:

- Relevant medical, surgical, family, treatment and personal history. Special emphasis is laid on any modifiable risk factors identified to improve the outcome of transplant.



What happens right after the surgery?

You can anticipate the following :

- **Spend about 5-7 days in hospital.** Your condition will be monitored continuously by a team of doctors and nurses to detect any complications. Usually the new kidney starts producing urine immediately, but in some cases it may take several days. Until the new kidney takes over the function, you may require more dialysis sessions. You will feel some pain or soreness at the incision site while you are recovering.
- **Frequent follow-ups in hospital.** A close follow-up in the transplant clinic is required after the discharge from hospital for few months. This is required to keep track of kidney function and monitor levels of various antirejection drugs in the blood.
- **Continue lifelong medications.** The antirejection medicines are required to be continued and monitored for the rest of your life to prevent rejection of the new kidney.

Life after transplant

Home care

To some patients, the time period immediately after the kidney transplant can be quite stressful. During this time, one is recuperating from a major surgery and is apprehensive about the kidney function along with fear of rejection.

- It is very important to take antirejection and other medicines regularly as per the dosage and instructions given by transplant team. Patients should keep track of medicines as improper or missed dosages can hamper the function of the new kidney.
- It is very important that the patient and his / her support group must keep following up with their transplant team.
- Patients will be asked to keep a log of urine output, temperature and blood pressure at home.

Continuous improvements and advances in the antirejection medications have led to improved outcomes of kidney transplants. However, episodes of kidney rejection are common which can be reversed by timely diagnosis and intervention. So it is imperative for you to remain vigilant and in constant touch of your transplant team so that rejection can be detected and managed appropriately.

Complications

- Rejection
- Infection
- Cancers: Due to immunosuppression certain cancers such as skin cancers, lymphomas (<http://www.emedicinehealth.com/script/main/art.asp?articlekey=15321>) kaposi sarcoma, (<http://www.emedicinehealth.com/script/main/art.asp?articlekey=2627>) carcinoma in situ of the uterine (<http://www.emedicinehealth.com/script/main/art.asp?articlekey=2686>) cervix, vulval and perineal cancers are seen more frequently in kidney transplant recipients.

- (<http://www.emedicinehealth.com/script/main/art.asp?articlekey=5292>) Relapse of underlying kidney disease: In some kidney transplant recipients, relapse of the original disease in the transplant may cause it to fail prematurely.
- Diabetes
- High cholesterol levels
- Osteoporosis or weakening of bones

Women who want to get pregnant are advised to wait for up to two years after the transplant. Although many women with kidney transplant have successfully completed their pregnancies to term, there is an increased incidence of fetal and maternal complications along with kidney rejection.

How to detect the kidney rejection?

Kidney rejection is one of the major concerns as a recipient. If not taken care of in a timely manner, it can destroy the kidney function permanently. You can take special care to look for the following signs of rejection:

- Persistent high blood pressure not controlled with usual medication
- Swelling of feet, legs, face and weight gain (water retention)
- Decreased urine output

If you notice any of the below mentioned symptoms, immediately rush to the hospital emergency room:

- Abdominal pain
- Fever
- Pain, swelling or redness over the transplant site
- Difficulty in breathing

Follow-up appointments

The transplant team will be keeping a watch for the following problems during every follow-up appointment.

- **Rejection** – Antirejection drugs will continue as a lifelong regimen as the risk of kidney rejection is always there. The drug dosages may be altered over time but the patient should by no means miss doses or stop taking drugs.
- **Infections** – Patients on immunosuppressive medications are more prone to infections but they do not often present with the usual signs and symptoms of infection. This delays the diagnosis and treatment.
- **Hypertension** – It is very important to keep the blood pressure under control after the transplant as it can damage the new kidney.
- **Diabetes** – Many antirejection medicines cause new onset diabetes. It can also make pre-existing diabetes harder to control.

- **High blood cholesterol** – Antirejection medicines often cause high blood cholesterol levels.
- **Relapse of kidney disease** – Certain types of kidney diseases can relapse in the transplanted kidney.
- **Cancers** – Certain types of cancers are more common in patients with a kidney transplant.
- **Bone disease** – Steroids given to transplant patients increase the risk of osteoporosis. They may also cause avascular necrosis of the hip joints.
- **Pregnancy** – Woman should avoid planning for pregnancy for at least two years after the transplant. She should speak with her doctor about birth control. Some transplant medications can harm an unborn baby.