GO EARLY FOR RENAL TRANSPLANTATION

Compared to dialysis, kidney transplant is associated with better quality of life, lower risk of death, fewer dietary restrictions and lower treatment cost, says Dr. Krishna Mohan R, Senior Consultant Urologist and Renal Transplant Surgeon. Director & Ceo Metromed Institute For Advanced Urology & Renal Transplant
A kidney transplant is a surgical procedure to place a healthy kidney from a living or deceased donor in a person whose kidneys no longer function properly. The first truly successful transplant was performed on December 23, 1954, at Brigham Hospital, Boston, by Joseph Murray, J. Hartwell Harrison, John P. Merrill and others. The procedure was done between identical twins Ronald and Richard Herrick, which reduced problems of an immune reaction. For this and later work, Dr. Murray received the Nobel Prize for Medicine in 1990. The recipient, Richard Herrick, died eight years after the transplantation.

Kidneys are two bean-shaped organs located on each side of the spine just below the rib cage, each about the size of a fist. Their main function is to filter and remove waste, minerals and fluid from the blood by producing urine. End-stage renal disease occurs when the kidneys have lost about 90% of their ability to function normally. Common causes of end-stage kidney disease include diabetes, chronic uncontrolled high blood pressure, chronic glomerulonephritis, polycystic kidney disease and urinary stone disease.

Only one donated kidney is needed to replace two failed kidneys, making living-donor kidney transplantation an option. A successful transplant involves working closely with the transplant team. Members of the transplant team would include the patient being an important part of the transplant team, family members of the patient, the transplant surgeons, nephrologist, transplant coordinator, social worker and dietitian. Of course, it involves doctors from various fields during the pre-operative work-up.

Get a transplant before you need to start dialysis, which is called a pre-emptive transplant. It allows you to avoid dialysis altogether. Getting a transplant not long after kidneys fail (but with some time on dialysis) is referred to as an early transplant. Some research shows that a pre-emptive or early transplant, with little or no time spent on dialysis, can lead to better long-term health. It may also allow you to keep working, save time and money, and have a better quality of life. Kidney patients of all ages, from children to seniors can get a transplant done. The patient must be healthy enough to have the operation and must also be free from cancer and infection.

A kidney donor can be living or deceased, related or unrelated to the patient. The transplant team will consider several factors when evaluating whether
a donor kidney will be a good match for the patient.

Tests to determine whether a donated kidney may be suitable include blood typing, tissue typing and cross-match. It is preferable to get a kidney from a donor whose blood type matches or is compatible. If blood type is compatible, the next step is a tissue typing test called Human Leukocyte Antigen (HLA) typing. The third and final matching test involves mixing a small sample of recipient’s blood with the donor’s blood in the lab. The test determines whether antibodies in recipient’s blood will react against specific antigens in the donor’s blood. A negative cross-match means they are compatible and it is less likely to reject the donor kidney.

SPECIAL PROGRAMMES FOR LIVING DONOR TRANSPLANTATION
Many patients have relatives or non-relatives who wish to donate a kidney but are not able to because their blood type or tissue type does not match. In such cases, the donor and recipient are said to be ‘incompatible’.

LIVE DONOR AND DECEASED DONOR WAITING LIST EXCHANGE
This program is a way for a living donor to benefit a loved one, even if their blood or tissue types do not match. The donor gives a kidney to another patient who has a compatible blood type and is at the top of the kidney waiting list for a ‘deceased donor’; kidney. In exchange, that donor’s relative or friend would move to a higher position on the deceased donor waiting list, a position equal to that of the patient who received the donor’s kidney.

PAIRED EXCHANGE KIDNEY TRANSPLANT (‘FAMILY SWAP’)
This program is another way for a living donor to benefit a loved one even if their blood or tissue types do not match. A ‘paired exchange’; allows patients who have willing but incompatible donors to ‘exchange’; kidneys with one another—the kidneys just go to different recipients than usually expected. That means that two kidney transplants and two donor surgeries will take place on the same day at the same time.

BLOOD TYPE INCOMPATIBLE KIDNEY TRANSPLANT
This is a program that lets patients receive a kidney from a living donor who has an incompatible blood type. A special process called plasmapheresis, which is similar to dialysis, is used to remove these harmful antibodies from the patient’s blood.

POSITIVE CROSS-MATCH AND SENSITIZED PATIENT KIDNEY TRANSPLANT
This program makes it possible to perform kidney transplants in patients who have developed antibodies against their kidney donors—a situation known as ‘positive cross-match’. Patients receive medications to reduce their antibody level or they may undergo plasmapheresis treatments to remove the harmful antibodies from their blood.

Kidney donor can be a live donor or a deceased donor. Donor nephrectomy can be carried out by open procedure, laparoscopic, 3D laparoscopic, robotic or through single port procedure or by transvaginal retrieval of organ. Even the recipient surgery can be done in various ways such as open procedure, laparoscopic or robotic procedure. If the new kidney fails, dialysis can be resumed or even a second transplant can be considered.

To prevent our body from rejecting the donor kidney, medications are needed to suppress the immune system which reduces the immunity making body more vulnerable to infection, for which anti-bacterial, anti-viral and anti-fungal medications need to be administered.

Compared to dialysis, kidney transplant is associated with better quality of life, lower risk of death, fewer dietary restrictions and lower treatment cost. In addition, fertility (the ability to conceive children) tends to increase. Men who have had a kidney transplant have fathered healthy children, and women with kidney transplants have had successful pregnancies.
NEW TREATMENT SHOWS PROMISE TO CURE KIDNEY DISEASE

Researchers have found a potential treatment for polycystic kidney disease, a genetic disorder that causes the kidneys to swell with multiple cysts and can eventually lead to organ failure.

The study published in the journal Nature Communications shows an approximately 50 per cent reduction in kidney size in afflicted mice following treatment. The drug is now in early clinical trials on human subjects, the researchers said.

Autosomal dominant polycystic kidney disease (ADPKD) affects about 12 million people worldwide, with half developing end-stage kidney disease by the age of 60, according to the study.

"Once the kidneys have failed, the only options for survival are dialysis or a kidney transplant, a large percentage of ADPKD patients on dialysis die each year while waiting for a donated kidney," said Indian origin researcher and study senior author Vishal Patel, Associate Professor at the University of Texas Southwestern Medical Centre.

According to the study, the new treatment showed no evidence of toxicity in animals or human cell tests. It is preferentially delivered to kidneys rather than the liver after being administered.

"We earlier showed that levels of a tiny RNA fragment called microRNA-17 are increased in models of ADPKD. "MicroRNA-17 interferes with the normal function of other, beneficial RNAs, causing kidney cysts to grow. RGLS4326, as the new drug is called in development, works by blocking the harmful microRNA-17," Patel added.

"Our current results relating to brain network indirectly support our previous findings by showing that the positive effects of regular tea drinking are the result of improved brain organisation brought about by preventing disruption to interregional connections," he added.

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