transplant, which may take several weeks to months to complete. The recipient may also have to see other specialists for opinions on suitability for transplantation.

Who can be a living kidney donor? A living kidney donor must be a healthy individual who fulfills the following criteria:

- At least 21 years of age (but there is no upper age limit)
- Preferably have an established relationship with the potential recipient. For example, parent, sibling, spouse or grandparent
- Able to remain healthy with one kidney
- Have no higher risk of developing kidney failure than a person who has 2 functioning kidneys
- Have no conditions that can be potentially transmitted to the potential recipient for cancer and infection
- No history of drug abuse
- No active mental or intellectual impairment that will make obtaining informed consent difficult

What is the process of evaluation for living kidney donation?

A potential living kidney donor must be healthy and active enough to live with only one kidney for the rest of his or her life.

As a result, the evaluation process for a potential living kidney donor is complicated and may take several weeks to months before a decision is made on whether the potential donor can actually donate or not.

During the evaluation, the potential donor will undergo a series of blood, urine and X-ray tests to check for kidney, liver and heart function, as well as the presence of infection and cancer. An interview with the patient by the doctors will confirm the suitability of the person to donate a kidney.

There will also be reviews conducted by a medical social worker, psychiatrist, transplant surgeon and the Transplant Ethics Committee.

What are the risks of being a living kidney donor? The risks of donating a kidney include the risk of major surgery and the risks of living with one kidney for the rest of the donor's life. Among the important risks of nephrectomy are death, bleeding and infection. However, death resulting from kidney donation is extremely rare. Current research indicates that donation does not shorten one's life, impair the ability to have children nor increase the risk of developing kidney disease or other health problems.

After donation, the kidney donor can continue to lead an active, normal life with one kidney. A donor can work, drive, exercise and participate in sports but contact sports are not recommended.

What is the success rate of kidney transplantation? Kidney transplantation is not a cure but another form of treatment for patients with end-stage kidney failure. Apart from a successful transplant surgery, the patient will also need to take anti-rejection drugs for as long as the kidney transplant is functioning to prevent rejection. Unfortunately, the patient may experience potential side effects from these drugs of which infections and cancer are the most important to look out for.

Apart from ensuring that the patient is fit for a kidney transplant, the patient also needs to undergo a series of close follow-up in the clinic, take regular blood tests and other medications, which are required to keep the patient healthy after transplant. The patient will also need to adopt a healthy lifestyle by adopting a healthy diet and doing regular exercises.

Failure to do so may result in the patient becoming ill or going back to dialysis due to kidney transplant failure. If there is another donor available, it is possible for the patient to receive a second transplant but this may incur a higher risk of rejection.

Important things to know about organ and tissue donation

The Human Organ Transplant Act (HOTA) allows for the kidneys, liver, heart and corneas to be recovered in the event of death from any cause for the purpose of transplantation. Singapore Citizens and Permanent Residents above 21 years of age and of sound mind are included under HOTA unless they have opted out.

The Medical (Therapy, Education and Research) Act (MTERA) allows for the sale at $17. Please call +65 6326 4492 to find out more.

For more information about this programme, please contact:

Renal Transplant Section
Singapore General Hospital
Tel: +65 6326 4492
Fax: +65 6326 5549
Email: kidney.transplant@sgh.com.sg
Website: www.sgh.com.sg/transplant

For more information about SingHealth Transplant, please contact:

SingHealth Transplant
Tel: +65 6326 5195
Fax: +65 6320 0730
Email: singhealth.transplant@singhealth.com.sg
Website: www.singhealth.com.sg/transplant

Living Donor Kidney Transplant
FOR RECIPIENT

Process of evaluation

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Living donor conceived twice after donating a kidney to her mother.

Living donor conceived twice after donating a kidney to her mother.

Where to donate a kidney?

Kidney transplantation is not a cure but another form of treatment for patients with end-stage kidney failure. Apart from a successful transplant surgery, the patient will also need to take anti-rejection drugs for as long as the kidney transplant is functioning to prevent rejection. Unfortunately, the patient may experience potential side effects from these drugs of which infections and cancer are the most important to look out for.

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Important things to know about organ and tissue donation

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The Medical (Therapy, Education and Research) Act (MTERA) allows for any person above 18 years of age to pledge to donate their organs/tissues, or any body part or the whole body for the purpose of transplantation, education or research upon death. In the case where a person has not made a pledge under MTERA before passing away, the family members would no longer be entitled to donate the organs and/or tissues or whole body of their loved ones under MTERA upon their death if they wish to do so. For more details on

HOTA and MTERA, log on to www.liveon.sg or contact the National Organ Transplant Unit at +65 6326 4390.

My LifeBook is an easy to read book written by experts from SGH Department of Renal Medicine that provides more information on kidney transplant procedures, complications as well as post-transplant care for patients. The book is for sale at $17. Please call +65 6326 5195 to find out more.

For more information about this programme, please contact:

Renal Transplant Section
Singapore General Hospital
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Fax: +65 6326 5549
Email: kidney.transplant@sgh.com.sg
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Website: www.singhealth.com.sg/transplant
Living Donor Kidney Transplant

FOR RECIPIENT

SGH Kidney Transplant Programme

Set up in 1970, the Singapore General Hospital (SGH) renal transplant team now performs 40 to 60 deceased and live donor kidney transplants a year. To address the growing need for donor kidneys, the team has since tarted performing ABO Blood Group incompatible transplants and utilised donated organs from older persons. The team performed its first dual kidney transplant in 2009.

What is end-stage kidney failure?

Healthy kidneys are required to remove excess minerals, fluids and toxins from the body. They also produce hormones like erythropoietin (to make blood) and vitamin D (to keep the bones strong). When a patient develops end-stage kidney failure, minerals, fluids and toxins will build up to harmful levels. There will also not be enough erythropoietin and vitamin D, which in turn will cause anaemia and bone diseases.

When a patient develops end-stage kidney failure, the patient will either require dialysis or a kidney transplant to remain healthy enough and survive.

What is kidney transplantation?

Kidney transplantation is the preferred form of treatment for patients with end-stage kidney failure. It involves the transfer of a kidney from one person (the donor) into another person with end-stage kidney failure (the recipient).

How is kidney transplant surgery performed?

Kidney transplantation is a surgical procedure that involves transferring a donor’s kidney into the lower pelvis of the recipient, which is the lower part of the abdomen. The donor’s kidney blood vessels are connected to the recipient’s blood vessels and the donor’s kidney ureter is connected to the recipient’s bladder. In most cases, the recipient’s own kidneys are left in place.

Kidney Transplant

What are the benefits of a living donor versus a deceased donor kidney transplant?

• Fewer restrictions on physical activities
• Improved sexual function and fertility
• Ability to return to work with increased mobility
• Improved survival due to the incomplete removal of toxins and fluids such as cardiovascular disease.

However, a successful kidney transplant would have enough function to remove toxins and excess fluids. Furthermore, it will also produce its own erythropoietin and vitamin D. As a result, patients with a successful kidney transplant live longer than patients who remain on dialysis. Therefore, they are healthier and the risks of cardiovascular disease are lower. After a successful kidney transplant, patients may benefit from:
• Improved sexual function and fertility
• Return of strength and energy
• Improved social and emotional health
• Ability to return to work with increased mobility
• Improved quality of life
• Fewer restrictions on physical activities

Nonetheless, all patients with end-stage kidney failure are suitable for transplantation since they have to be strong enough for transplant surgery and to withstand the side effects of anti-rejection drugs that weaken the immune system. Patients who are not suitable for transplant will need long-term dialysis.

What are the types of kidney transplantation?

In order to receive a kidney transplant, there must be a living donor who could be either a deceased or living person. In order to receive a kidney from a living donor, there must be a living donor who is willing, able to give informed consent and is otherwise medically and psychologically suitable to donate one of his or her own kidney. The living donor does not need to be genetically related to the potential recipient.

What are the benefits of a living donor versus a deceased donor kidney transplant?

• If the living donor is a family member of the recipient, the tissue match between the donor and recipient is better which reduces the risk of rejection.
• If the living donor is not a member of the family of the recipient, there is the luxury of time to do a detailed assessment of the tissue match and choose the most suitable treatment regimen to prevent rejection.

Unlike a deceased donor, a living donor should be completely healthy at the time of donation. As a result, the chances of the living donor kidney transplant functioning immediately after surgery is higher than that of a deceased donor kidney transplant.

A living donor kidney transplant is an elective procedure which can be done at a time convenient for both the donor and recipient. Deceased donor kidney transplant may happen anytime and is an emergency procedure, which can be done at a time convenient for both the donor and recipient.

The recipient of a living donor kidney transplant feels relatively healthy and can live longer. Unfortunately, not all toxins and excess fluids can be removed and the patient still requires medications such as erythropoietin injections and vitamin D capsules (erythropoietin and vitamin D are produced by the kidneys). In the long term, the patient on dialysis can develop further complications due to the incomplete removal of toxins and fluids such as cardiovascular disease.

In-compatible living kidney donor transplantation refers to kidney transplants that are performed between donors and recipients who do not share similar blood groups or tissue types. In order to perform incompatible living kidney donor transplantation, the recipient will need to receive additional anti-rejection drugs as well as undergo an additional procedure called plasmapheresis to remove proteins called antibodies that can cause immediate rejection of the incompatible donor’s kidney. As a result, incompatible living kidney donor transplantation is more expensive and requires the patient to stay on dialysis for a longer period of time. The risks of rejection and infection are also higher but these risks may be relatively smaller compared to the risks of getting more ill during the long wait for a deceased kidney donor transplant.

Who is eligible as a recipient?

A patient has to fulfil the following criteria to be eligible for a living donor kidney transplant:
• No history of active cancer
• No ongoing infection
• No history of significant or untreated cardiovascular disease such as heart failure, heart attack, stroke, poor blood circulation in the legs
• No ongoing or severe liver disease such as cirrhosis
• No history of not following up with treatments and appointments
• No history of drug abuse and mental diseases
• No other heart condition, which the kidney specialist feels would make the patient an unsuitable candidate

There is no age limit to receive a living donor kidney transplant but elderly patients older than 65 years should preferably receive kidneys from older donors. The recipient will have to undergo a series of blood tests, X-rays and other investigations to ensure suitability for