

# Once kidneys fail, the options are transplant and dialysis

When kidneys fail, patients need an alternative way to rid their bodies of waste, salt and excess liquid.

The best option is to have a transplant, as that will give the patient the best quality of life and the longest survival rate.

According to the Singapore Renal Registry Annual Report 2022, 93.5 per cent of transplant patients survive more than five years, and 84.8 per cent are still alive 10 years after a transplant.

In comparison, 56.9 per cent of patients on dialysis live five years or more, and 29.6 per cent survive beyond 10 years.

For transplant, a kidney can come from either a live or dead donor. The wait for a dead kidney donor is slightly more than nine years. In 2023, 39 people received such kidneys. Another 49 people were given a kidney from a live donor.

As at end-2022, there were 7,745 people on haemodialysis (HD), 1,133 on peritoneal dialysis (PD) and 1,611 people living with a donated kidney.

Experts said that PD is often the better option.

Dr Chua Horng Ruey, who heads the division of nephrology (kidney care) at the National University Hospital, said PD puts less stress on the body as it provides a gradual and slower toxin clearance compared to HD.

"Patients on PD will do better if they retain some degree of residual kidney function. PD will complement what's left of the patient's own kidney function."

But the majority of kidney failure patients in Singapore opt for HD, in spite of the pain of inserting needles every time they do dialysis, as they are more comfortable having someone else in charge of the procedure. They worry about doing PD on their own, although nursing support is given by hospitals and the National Kidney Foundation, among others.

In HD, fat needles are inserted into an artery and a vein, usually on the arm, so blood can be removed from the body, cleaned by the dialysis machine and returned. This takes about four hours. Patients usually do it three times a week at a dialysis centre.

In PD, about two litres of a solu-



Mr Kenneth Ng, 44, undergoing peritoneal dialysis earlier in March. Since starting his dialysis in July 2023, he has gone on short trips overseas. He is also resuming his active lifestyle. ST PHOTO: NG SOR LUAN

tion is inserted into the abdominal cavity, to slowly extract the waste from the tiny blood vessels in the peritoneum, the membrane that lines the abdominal cavity. The solution is introduced and drained out through a permanent catheter that has been surgically implanted near the belly button.

There are two forms of PD.

Automated peritoneal dialysis (APD) is carried out overnight for eight to 10 hours. The patient is hooked onto a machine, which changes the solution in the abdominal cavity several times a night.

Continuous ambulatory peritoneal dialysis (CAPD) is done manually three or four times a day. The patient connects an external catheter to the catheter in the abdomen. The solution that is already in the abdomen is drained into an empty bag, after which a fresh solution is placed in the abdominal cavity.

Dr Chua said PD is more cost-effective, as it is done by the patient or caregiver, and not at a dialysis centre. He added that it would be good if more people opted for PD rather than HD as it is both better for the patient and cheaper for the nation.

The renal registry said the risk of death was 1.5 times higher for patients on PD compared to those on HD, but added that it was likely because patients doing PD tend to

be older or sicker, as it is a "gentler therapy" recommended for them.

For example, people with heart conditions are often not suitable for HD. Patients on HD are also switched to PD when their veins and arteries are no longer suitable for HD.

The registry added: "The disparity in survival between HD and PD has narrowed over the years as the survival of HD patients remained stable while the survival of PD patients significantly improved."

The one-year survival for PD has gone up from 85.4 per cent in 1999 to 2004, to 94 per cent in 2017 to 2022.

Quoting the findings of an American-European study, the registry said: "Long-term mortality risk was historically higher among PD patients, but over time, the reduction in mortality risk has been greater for PD compared to HD, such that the long-term survival of HD and PD patients (is) now similar."

Dr Yeo See Cheng, head of renal medicine at Tan Tock Seng Hospital, said many research studies "have shown that the survival rate on PD is comparable to HD, and that PD provides additional flexibility and improved quality of life, compared to HD".

PD offers patients a better quality of life as they do not need to go to a dialysis centre three times a week and no needles are involved.

There are also fewer food restrictions as the dialysis is done daily, so there is less time for waste to build up in the blood.

Dr Sheryl Gan, a senior consultant in renal medicine at the Singapore General Hospital, noted that "PD has a survival advantage compared to HD in the early period of dialysis and can preserve residual urine function better than HD".

Better quality of life was the deciding factor for Mr Kenneth Ng, 44, who started on PD in July 2023.

He starts the dialysis in the late evening while watching TV, then rolls the dialysis machine which is placed on a trolley into his bedroom when it is time to sleep, without disrupting the dialysis.

He is not diabetic, and found out his kidneys were failing only after a severe bout of food poisoning in 2019. Doctors still do not know what caused his kidneys to fail.

For the next three years, Mr Ng made drastic changes to his lifestyle, including becoming a vegetarian to reduce his intake of protein, which could cause his kidneys to deteriorate faster. But by early 2023, his doctors said he seriously needed to think about dialysis.

He checked out both forms, and opted for APD to clear the waste from his blood overnight.

Mr Ng, who works with the Singapore Red Cross and runs its day activity centre in Jurong, said: "With APD, I can continue working. I can also travel."

He said he loves to travel. While it takes a bit of planning, he can continue his PD without the machine by carrying the solutions with him or arranging for them to be delivered to his destination, and performs the dialysis manually, three to four times a day.

Since starting his dialysis in July 2023, he has taken a short trip to Bangkok, as well as several short trips to Malaysia. He is now thinking of a longer holiday in Taiwan.

He is also resuming his active lifestyle, which includes hiking Bukit Timah Hill and going on slow jogs. But he has yet to return to playing badminton, as he is afraid it might dislodge the catheter in his abdomen.

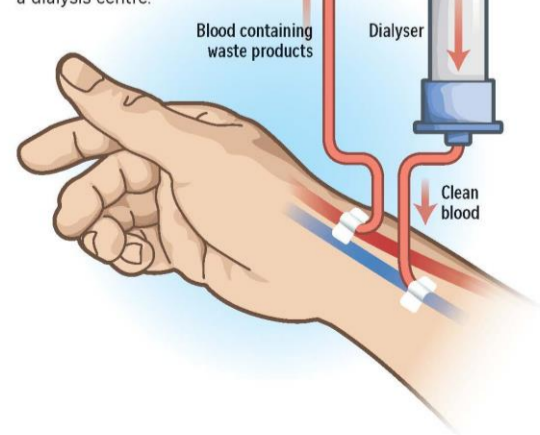
Salma Khalik

## Dialysis methods

When kidneys fail, dialysis serves as a substitute by removing waste products, excess salt and fluid from the blood. There are two forms of dialysis.

### HAEMODIALYSIS

- A fistula is surgically created in the arm to allow for easy dialysis, where blood is extracted, cleaned by the dialysis machine and returned to the body.
- The entire process takes about four hours. Most patients do this three times a week at a dialysis centre.



### PERITONEAL DIALYSIS (PD)

- 1 About two litres of a solution is inserted into the abdominal cavity through a catheter that has been surgically implanted.
- 2 Over several hours, the solution absorbs waste, salt and excess fluid from the blood vessels in the peritoneal membrane that lines the abdominal cavity, before it is drained out.

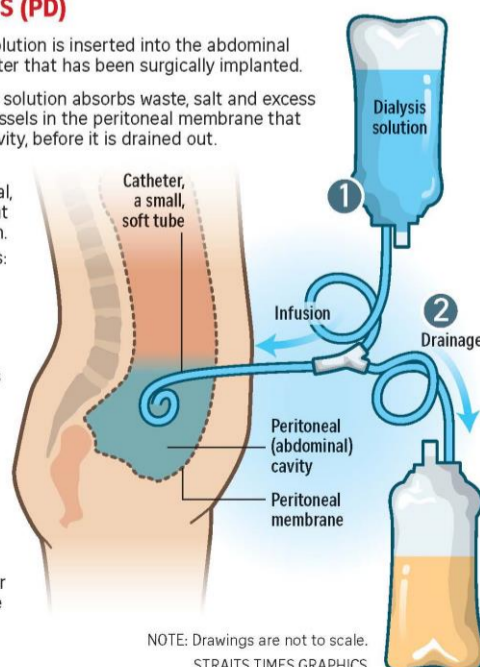
- With PD, patients can go about their daily life as normal, though with the added weight of the liquid in their abdomen.
- PD can be done in two ways:

#### Overnight through automated peritoneal dialysis

The patient is hooked to a machine for eight to 10 hours a night for the solution to be changed several times.

#### Three to four times a day through continuous ambulatory peritoneal dialysis (CAPD)

CAPD uses gravity to drain the used solution and fill the peritoneal cavity with another two litres of solution, with the exchange process taking about 30 minutes.



NOTE: Drawings are not to scale.  
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