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Saving failing kidneys

An estimated 13,000 kidney patients are undergoing dialysis in Malaysia, causing an immense drain of resources. Can a dietary approach delay the need for dialysis? TEE SHIAO EEK writes.

AT FIRST, all he had was high blood pressure. Then one day, Tang Yun Sang was told that he had end-stage renal failure and had to resort to the dialysis machine to “wash” the waste products out of his body.

End-stage renal failure is the final stage of chronic kidney disease, where dialysis or kidney transplant are the only options left to save the patient’s life.

Unbeknownst to Tang, his kidneys had gradually failed over time, and now they cannot perform the functions necessary to keep him alive, like remove wastes, regulate electrolytes and produce hormones.



Tang Yun Sang, an end-stage renal failure patient, says that the cost of dialysis is a big burden to him and his family.

High blood pressure and diabetes are the two most common causes of chronic kidney disease. Other causes include conditions like glomerulonephritis, polycystic kidney disease and kidney stones.

Tang now has to undergo dialysis at a private hospital in Cheras, Kuala Lumpur, three days a week, for at least four hours each time. He feels guilty about his children and sister having to sacrifice their time to drive him to the hospital and back.

Worst of all, his dialysis treatment is costing him about RM4,000 a month at the hospital, an unbearable burden for a retiree with no pension, medical insurance or SOCSO. As an “old man with no income”, he is hoping that Hospital Serdang will accept him as a patient so that his medical expenses will be reduced.

Tang is resigned to his indeterminate fate of dialysis. “Even if you regret also, no point. At my age, anytime

you can say 'bye-bye,'" says the 67-year-old grandfather.

Every year in this country, 2,500 people join the ranks of end-stage renal failure patients. If this upward trend is not checked, we will soon have a nation of people hooked up to dialysis machines, waiting for kidney transplants or simply waiting for death.

Wasting away

There are toxic waste products in your blood all the time, the result of your body breaking down tissues and food.



Dr Hrishikesh Kulkarni...
'Keto-acids are actually more useful, cheaper and more efficient to retard the progression of renal disease.'

Fortunately, you have a very efficient set of kidneys, the bean-shaped organs in your abdomen, which process about 1,500 litres of blood every day to filter out these waste products and extra water. These are then eliminated from the body as urine.

In someone with chronic kidney disease, the essential filtration organs fail to carry out their duty, and the elimination of waste products is reduced.

"These waste products tend to accumulate in the body", resulting in uraemic symptoms that hamper the patient's quality of life, says Prof Michel Aparicio, Emeritus Professor of Nephrology from University of Bordeaux 2, France.

Tang says that he used to feel fatigued all the time, before he was diagnosed with end-stage renal failure. He was actually experiencing one of the uraemic symptoms, which also include weakness, nausea, vomiting and loss of appetite.

If Tang had known then what his fatigue meant, he could have been diagnosed earlier, with Stage III chronic disease.

At this stage, dialysis is not necessary yet, and dietary changes, namely protein restriction, can slow down the progression of the disease to end-stage.

Reducing protein

The practice of protein restriction was introduced more than a century ago.

Protein is an important nutrient in our diet, as it builds tissues, helps our bodies grow and maintains our muscles.

But in kidney disease, protein becomes the bad guy. The damaged kidneys have to work extra hard to excrete the waste products of protein metabolism, worsening the kidney failure.

In patients with Stage II and III kidney failure, low-protein diets are recommended to reduce the burden on the kidneys and slow the progression of the disease.

Patients are advised to reduce their daily protein intake from food, to give their failing kidneys a rest from having to excrete the high amounts of waste products from protein metabolism.

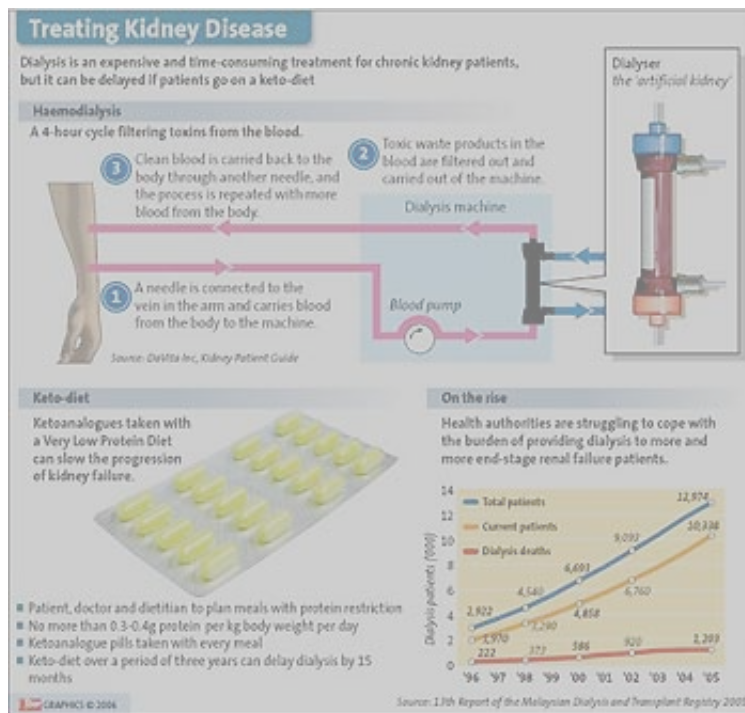
According to Prof Lin Shanyan, chief of the Division of Nephrology in Fudan University Huashan Hospital, China, the average Asian person probably consumes between 1.2g and 1.4g of protein per kg body weight per day.

In a low-protein diet, the protein intake is reduced to no more than 0.8g/kg body weight/day. As kidney failure progresses, as it is bound to, the protein intake can go down to 0.6g, or even to 0.3-0.4g (called a Very Low-Protein Diet, VLPD).

According to Prof Aparicio, it has been calculated that each 0.2g decrease in protein intake slows down the progression of kidney failure by 29%.

“Low-protein diet is a very realistic, effective and efficient way to retard progression of chronic kidney disease. It is comparable to even the most advanced way to treat CKD (with) drugs like ACE inhibitors or angiotensin receptor blockers,” Prof Lin explains.

“Those on low-protein diet could delay the time to dialysis, and even when they enter dialysis, they survive much longer than those who did not receive low-protein diet.”



Patients may not be compelled to believe this, especially when it comes to putting the prescription to practice. Popping a pill is easier than saying no to *Hainanese* chicken, beef *rendang* and fried fish.

But for Prof Lin, there are no two ways about it. “Low-protein diet is very critical to caring for your kidney condition. You have to do it. Patients cannot say that they don’t believe in it. If you don’t believe it, you are going to die,” he says frankly.

“People should always remember that chronic kidney disease is a progressive disease – once you neglect it, it will definitely progress to end-stage renal disease,” he adds.

Dialysis vs low-protein diet

Then came dialysis. With the advent of this method to remove waste products from the blood, the low-protein diet took a backseat.

“When the dialysis machine appeared in the beginning of the 1960s, it was, of course, a revolution. A lot of nephrologists thought that dietary restrictions were not necessary because the machine was here,” Prof Aparicio relates.

However, nobody predicted that dialysis would be able to prolong patients’ lives for so long. “Some patients are on dialysis treatment for more than 30 years,” he notes.

Good news for the patients, but bad news for their bankbook. Dialysis is an expensive treatment, and multiplied over two or three decades, puts patients like Tang in a tight fix.

Although they can go to charity dialysis centres for subsidised or free treatments, this form of aid is actually crippling the government, NGOs, charitable organisations and corporations who are desperately pumping in money to support these centres.

Furthermore, when a person goes on dialysis, he/she has a 25% chance of dying in that year. Delaying the initiation of dialysis would not only save money, but also save lives as well.

This dilemma has brought physicians back full circle to the low-protein diet. Unfortunately, this method has its limitations as well.

Supplementing low-protein diet

The low-protein diet is a double-edged sword. It lessens the burden on the kidneys, but also induces malnutrition, which will worsen kidney failure.

When protein was reduced beyond a certain limit (less than 0.6g/kg body weight/day) in patients, they developed malnutrition and a lot of complications, and died, explains Prof Aparicio.

On the other hand, Dr Hrishikesh Kulkarni, Medical Director for Fresenius Kabi Asia-Pacific, points out that if patients eat normal amounts of protein, they will not get malnourished, but their kidney failure will advance.

“So no matter where we go, we are caught on the horns of a dilemma – there is an inexorable progression towards end-stage renal failure,” Dr Hrishikesh notes.

In the early 1970s, scientists found a solution: essential amino acids without nitrogen.

Called ketoanalogues (or keto-acids), these amino acids do not create waste products, so they do not produce an added burden on the kidneys. But they are still converted into useful proteins in the body.

“Now the patient has proteins but does not have (the waste products of protein). This is how keto-acids retard the progress of renal disease,” says Dr Hrishikesh, whose company specialises in clinical nutrition, including oral amino acids such as keto-acids.

Now chronic kidney disease patients are able to go down to that Very Low-Protein Diet of 0.3-0.4g/kg body

weight/day, and take several keto-acid pills with their meals to supplement their protein intake.

The effects are amazing. A keto-diet (VLPD and keto-acids) over a period of three years can delay the initiation of dialysis by 15 months – and that’s a conservative estimate. Prof Aparicio’s experience tells him that patients can even be on keto-diets for as long as 13 years, without the need for dialysis!

“Keto-acids also improve most of the metabolic disorders, such as bone disease, insulin resistance, anaemia and cardiovascular disease, that are related to chronic kidney disease,” he adds.

Yet keto-acids and low-protein diets are still treated like the poor relations of treatments like dialysis and transplant.

“I think that it’s difficult for patients and physicians (to follow dietary prescriptions), because they need a dietitian to survey the patient,” Prof Aparicio speculates.

Many other patients point to the cost of keto-acid pills as a prohibitive factor. Ooi Teng Sun, a 69-year-old chronic kidney disease patient, is on a keto-diet. He says that he is beginning to “feel the pinch” when it comes to bearing the cost of the medication.

“It costs me about RM800-900 a month for my kidney and diabetes medication. In this situation, I find it a bit difficult. All my savings are used up,” admits the retiree, who works contract jobs, but has not had a job since early this year.

Despite having successfully maintained his kidney function with the keto-diet, Ooi is actually considering stopping the medication. His doctor has tried to deter him, advising him that the cost of maintaining his life would be heavier than the present cost of the medication.

However, if “things don’t go my way, I can’t help it,” he shrugs.

Perhaps if Ooi met Tang, he would have a change of heart. The former’s RM800-900 a month is small change compared to the dialysis patient’s RM4000.

“The money spent on keto-acids is much less than the money that will be spent on complications and (dialysis). We cannot just look at it (the cost), but we should look at the whole picture,” says Prof Lin.

The whole picture is riddled with dollar signs. “Dialysis is very expensive, not just in terms of the treatment itself, but in terms of other medications that are necessary, cost of setting up access to dialysis, and cost of lost days of productive labour (from patient and accompanying persons).

“The greatest cost is the cost of human resources, because putting a patient on dialysis means bringing death closer to him/her,” says Dr Hrishikesh.

In a Cinderella analogy, he compares dialysis and kidney transplant to the two favourite, but ugly, daughters, whom the physicians love. “Keto-acids are actually more useful, cheaper and more efficient, (but) they are treated like Cinderella. We’re waiting for the prince.”

In the meantime, nephrologists in the keto camp are urging patients to believe in the effectiveness of a low-protein diet to delay or prevent dialysis.

Tang never had this choice. “What can I do? My kidneys are not functioning anymore, so whatever I eat and drink becomes poison in the body. Unless I don’t drink or eat anything ? I have to depend on this machine,” he says matter-of-factly. **Related Stories:**

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