

To come: 1 more option for dialysis

Prototype device promises patients convenience

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THE need to undergo dialysis may, for the first time, no longer hamper kidney patients' freedom of mobility.

An automated wearable device, a prototype, is being developed by an international team of doctors, lecturers and researchers, who last month roped in lecturers from Temasek Polytechnic (TP).

At the moment, the most common treatment method here is haemodialysis, which hooks patients up to dialysis machines for some 12 hours a week only but requires them to make three trips a week to a dialysis centre, said Dr David Lee, a nephrology consultant at the VA Greater Los Angeles Healthcare System.

The Automated Wearable Artificial Kidney (Awak) will instead allow for a "24/7 function".

It is a peritoneal-based device, but does a better job than current peritoneal dialysis, which allows patients to independently circulate dialysis fluid in and out of their body to clean the blood through a tube surgically inserted into the abdomen.

The Awak's advantage — and the source of the extra mo-

bility it offers — is that it does not require the large quantities of the dialysis fluid, or dialysate, that patients need to buy and store for peritoneal dialysis.

Normally, two litres of fluid are needed each time, four times a day. But, the device will be able to recycle dialysate so that patients do not need to manually drain the fluid each time. Hence, the wearability.

The Awak will also prevent protein loss in the patient.

Besides eight lecturers from the engineering, design and applied science schools at TP, Dr Lee and his colleague Dr Martin Roberts has recently enlisted the help of local designer and developer of medical devices Nextwave Biomedical.

The team from Singapore will help in the design and product development of the device.

"This innovation could be even cheaper than current peritoneal dialysis in the long-term because it eliminates the cost of constantly buying dialysis fluid," said Temasek Engineering School lecturer Roy Tang.

A Health Ministry report last year showed that haemodialysis can cost up to \$3,484 per month at a private medical centre, while peritoneal dialysis is less costly at \$2,100.