

# New NUH study to test stem cells as treatment for liver disease

ILDYKO ANG  
ildyko.ang@mediacorp.com.sg

**SINGAPORE** - The use of stem cell treatment to repair liver cirrhosis, or hardening of the liver, will be tested in a clinical trial here involving 46 patients and costing S\$2.6 million.

The four-year study, which was launched yesterday, came amid a growing waiting list in Singapore for a liver transplant, which is currently the only cure for patients with end-stage liver cirrhosis.

Conducted by a multi-centre team from several restructured hospitals here, the study is led by the National University Hospital (NUH).

Liver failure is one of the top 20 causes of death in Singapore, but many patients are not suitable for a transplant due to factors such as age and surgical fitness.

Out of every five patients doctors see with end-stage liver disease, only one qualifies for a liver transplant, said Dr Dan Yock Young, principal investigator of the clinical trial and senior consultant at NUH's division of gastroenterology and hepatology.

"(A liver transplant) is curative, but it is a complex procedure, and many patients are not suitable for it. For these patients, treatment is limited, but morbidity and mortality rates are high — as high as 50 per cent in one year — and this is probably worse than many (of the) other terminal illnesses we talk about today," he said.

Animal studies conducted over the last five years have shown that stem cells can reconstruct the micro-environment of a normal liver.

"Like how branches are of critical importance in supporting the leaves and fruits of a tree, the endothelial (stem) cells contribute to supporting a nutritious environment for the hepatocyte (liver) cells," Dr Dan explained.

While similar stem-cell studies have been conducted in other centres in Asia, there has been "no definitive evidence" of the benefits of the treatment for liver patients.

The study will recruit 46 patients aged between 40 and 70 years old, and who are at the terminal stages of chronic liver disease, over three years. It is funded by the National Medical Research Council.

During the clinical trial, patients will be divided into a therapeutic group and a control group.

All patients will receive an injection

to stimulate their bone marrow cells as part of the supportive treatment for their liver cirrhosis. However, only patients in the study group will have the stem cells from the bone marrow extracted and deposited directly into their liver for more targeted repair.

Using one's own stem cells will avoid the problem of cell rejection.

The liver tissue will be examined three months later, and an investiga-

tion to compare pre- and post-transplant results will be conducted after a year.

Since invasive surgery is not required for stem-cell therapy, the fatality risk is significantly lowered for the patient. However, other risks such as severe bleeding and infections still remain, given the patients' weakened condition.

NUH also noted that the stem-cell

therapy does not replace liver transplants, and the latter remains the best available treatment for liver cirrhosis.

"It is very painful to turn patients away when we cannot offer them a liver transplant," said Dr Dan, adding that this stem cell therapy will serve as an alternative option.

"We hope that this is a stepping stone to trials for stem cell candidates," he added.

## MORE WAITING FOR A LIVER

● The number of people on the waiting list for a liver transplant has been growing. In June last year, it was reported that there were 54 people on the list, more than double the 24 patients in 2011.