

S'pore team finds way to spot cancer early

Study of colorectal cancer patients identifies genetic link to its spread

By **SAMANTHA BOH**

SCIENTISTS here have identified key genetic features associated with the spread of cancer in the colon or rectum to the liver, which could aid early detection and improve chances of a cure.

Colorectal cancer is the most common form of cancer in men and second most common in women in Singapore. Among them, the liver is often the most probable and first site of cancer recurrence.

A study of 18 colorectal cancer patients in Singapore found that the mutated genes in their colon tumour were largely identical to those in the liver tumour that develops subsequently.

Hence the genes can be used as a sort of thumbprint for customised diagnostic blood tests for individual patients, to better monitor cancer recurrence.

Dr Iain Tan, co-lead author of the study and consultant medical oncologist at the National Cancer Centre Singapore (NCCS), said the finding offers the chance of a cure to patients with liver metastasis – cancerous tumours that have spread to the liver from somewhere else in the body – through early detection.

Chances of survival are around 40 per cent when the tumour is detected when still isolated within the liver.

There is currently no cure for people with late-stage liver metastasis where tumours have spread extensively outside the liver, although improvements in treatment have increased the median lifespan beyond two years.

“If we detect it when it is at one particular location, then we can take out the tumour, and there is still a possibility of cure,” said Dr Tan, also a clinician scientist at the Genome Institute of Singapore (GIS).

Colorectal cancer patients typically face a relapse of their cancer between one and three years after surgery to remove the tumour,

colorectal cancer patients who suffer a recurrence develop cancer which involves the liver.

The customised blood tests will improve on the current blood tests that use tumour markers, which are substances found at higher-than-normal levels in the blood, urine or body tissue of some people with cancer.

These tumour markers have a risk of false positive and false neg-

ative results. This is because they are less specific, and might not be produced only by cancer cells, explained Dr Tan. At the same time, the cancer might not always produce these tumour markers.

In contrast, using mutated genes specific to each patient as markers is more accurate because only cancer cells would produce them. “With this finding, we know what we are looking for, we

have a strategy,” said Dr Tan.

The 18-month study was a collaboration between NCCS, GIS, the Singapore General Hospital, Duke-NUS Graduate Medical School, the National University of Singapore and the Cancer Science Institute of Singapore. It concluded last year. Among the patients studied, 750 genes were measured, where each individual’s cancer was discovered to have a

unique set of around 15 key genetic mutations each.

Dr Tan said the team has been awarded a grant from the National Medical Research Council and is conducting clinical studies.

The team expects to conduct clinical trials by early next year and hopes to make an impact on liver metastasis diagnosis in five years.

✉ samboh@sph.com.sg