One blood test may be able to spot five cancers

Local experts hail discovery of DNA ‘signature’ by US scientists, but test cannot specify type of cancer

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Scientists in the United States have identified a DNA “signature” in blood that indicates the presence of five different cancers and this could mark a breakthrough in diagnosis of the disease.

It could mean being able to screen for bladder, breast, colon, pancreatic and prostate cancers with just one blood test.

Breast, colon and prostate are among the most common cancers in Singapore, while bladder and pancreatic cancers are difficult to detect.

The discovery by researchers at the US National Human Genome Research Institute (NHGRI) was published this month in the journal Of Molecular Diagnostics.

According to the US National Institutes of Health (NIH), tumour DNA in a person with cancer typically comprises between 1 and 10 per cent of all DNA in his bloodstream.

The researchers noted that when 10 per cent of the circulating DNA contains the tumour signature, the detection rate is quite good.

Dr Laura Einitski, a senior investigator at NHGRI, said the next step is to get blood samples from people with such cancers to determine the accuracy of cancer detection when there are low levels of tumour DNA.

The team also found evidence that such “signatures” exist for many more types of cancers, some of which are difficult to diagnose at early stages.

Dr Einitski’s group will collaborate with the NIH’s National Cancer Institute to test blood from women with ovarian cancer to see if the new test leads to better detection.

Professor Kanaga Sabapathy, head of cellular and molecular research at the National Cancer Centre Singapore, called it “an astounding discovery” that could have a huge impact on how cancer screening is done in the future.

He said: “There are no biomarkers that can reliably detect the presence of cancers in unsuspected individuals, and cancer screenings are not yet able to cover the full cancer spectrum in entirety... This study brings us closer in the dream pursuit of non-invasive tests that can be used for the detection of multiple cancers in a healthy individual using a simple blood test.”

Professor Chng Wee Joo, director of the National University Cancer Institute Singapore, agreed that the discovery is potentially useful, but he has some concerns.

As the test does not specify what type of cancer is indicated, a positive result could lead doctors to search the whole body for cancer.

He added that, with a highly sensitive test, when it is positive, doctors may not be able to proceed immediately, leading to patient anxiety.

“You still have to wait till you have a detectable tumour before you can do a biopsy to confirm the tumour type and start treatment.”

Both cancer experts agree it will take several years of work before such a blood test is available for use.

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