

Painless, cheaper way to diagnose bladder cancer

■ BY JUDITH TAN

DOCTORS here may have found a way of detecting bladder cancer through a simple urine sample, instead of the current method of having an invasive scope exam.

If the team is successful, the test will not only be cheaper and far less painful, but it could also be more effective, as early studies have shown it to be 100 per cent sensitive. By comparison, a cystoscopy has only 33 per cent sensitivity, the study found.

The researchers from the National University Health System and the National University of Singapore (NUS) received a \$400,000 grant to start clinical trials for their method, which is called non-invasive urinary metabonomic diagnosis of bladder cancer.

The researchers put urine samples from 24 bladder cancer patients and 51 patients without the condition through a series of gases, heat and cold and monitored the concentrations of a set of metabolites – the by-products of the body in reaction to toxins in foods and the environment.

Dr Eric Chan, assistant professor with the department of pharmacy at the science faculty of NUS and one of the researchers, said the tests could “clearly distinguish the presence of the cancer based on the metabolic profiles”.

Cystoscopy, in which a flexible fibre-optic tube is inserted into the urethra to examine the bladder, is very uncomfortable, said Professor E. Kesavan, head of the department of urology at the National University Hospital (NUH). “It is also relatively expensive as the procedure has to be repeated every three to 12 months, depending on the patient’s risk of recurrence,” added the senior consultant, who has 20 years of experience in treating the cancer.

The bladder is a reservoir for urine from the kidneys. Cancer can result if the cells lining the bladder develop abnormally. Bladder cancer is the 10th most common cancer in men here, and is about five times more common in men than in women.

The most common symptom is the passing out of bloodstained urine but it is usually not painful. If bladder cancer is suspected, the doctor will arrange for

a cystoscopy and a biopsy or removal of a small amount of tissue from the lining of the bladder.

Prof Kesavan said treatment depends on the stage of the cancer, the type of bladder cancer, and the patient’s age and general health. “Surgery is recommended for most early bladder cancers and the five-year survival rate is good at 95 per cent,” he added.

Dr Chan said the study was inspired by a documentary on dogs in Britain and the United States trained to detect cancer from urine samples of patients with breast and lung cancer.

“The cancer cells release biochemical substances not produced by normal cells and these dogs detect them by sniffing. They were able to identify the cancer in the samples with near-perfect accuracy,” he said.

This inspired the team to look at the chemical extracts within the urine samples that attracted the dogs in the documentary.

A study carried out between December 2008 and August last year on 24 patients who had the cancer and 51 who did not found the method to be 100 per cent accurate.

Dr Chan added that the results also showed the potential of assessing which stage the cancer is at.

The findings were published online by the *Journal of Proteome Research*, an American peer-reviewed scientific journal, in March this year.

The Singapore team’s \$400,000 grant – by the National Medical Research Council – is part of the more than \$60 million the council disburses in grants a year for hospitals and tertiary institutions to carry out research.

The researchers are recruiting 100 patients with bladder cancer and 100 patients without to kick-start the trial.

Dr Chan said: “We managed to get 18 bladder cancer patients to sign up. It is a slow process but we are confident we will be able to get more.”

Ultimately, the team hopes to develop laboratory equipment as good as the sniffer dogs.

Those who would like to volunteer for the clinical trial may call NUH’s urology department on 6772-5087 between 9am and 5pm from Monday to Friday.

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