

Blood test for lung cancer may be possible

A simple blood test may be able to detect lung cancer in its earliest stages with unprecedented accuracy, according to new research to be presented at American Thoracic Society's 2008 International Conference in Toronto on Tuesday, May 20.

The possibility of developing a non-invasive test to distinguish cancerous from benign lesions in the lungs has enormous implications, not just for the world of medicine, but for every individual patient who has gone through the harrowing experience of having to wait for conclusive biopsy results after preliminary testing.

“CT screening results in the detection of lung nodules in 20 to 60 percent of subjects,” said Anil Vachani, M.D., assistant professor of medicine at the University of Pennsylvania. “This high false-positive rate requires patients to undergo extensive follow-up investigations, such as serial CT scans, PET scans or biopsies. This test may be able to obviate the need for such things if it is developed into a large scale diagnostic tool.”

Because lung cancer is a very diverse disease, screening for it can be very difficult. The researchers hoped to identify a stable and consistent way of determining the presence of lung cancer by testing for the gene expression of white blood cells.

Rather than screening for factors released by the incipient tumor into the blood stream, the test Dr. Vachani and colleagues used looked at gene expression in the subject's own circulating white blood cells. “We found that the types of genes present in these cells could tell us whether or not cancer was present,” explained Dr. Vachani.

To test the accuracy and validity of the method, the researchers recruited 44 patients with early stage lung cancer and 52 control subjects who were matched for age, smoking status, gender and race. They then used a number of genetic arrays to determine the best targets for detecting the presence of cancer. They found that a 15 gene array had the highest accuracy, at 87 percent.

“These findings suggest that lung cancers interact with circulating white blood cells and change the types of genes that are active in these cells. This finding can be potentially used to develop a non-invasive diagnostic test for patients suspected of having lung cancer,” said Dr. Vachani. “A diagnostic test that could more accurately determine the risk of cancer in patients would be extremely valuable and have very important economic implications by reducing unnecessary surgery, biopsies and repeated imaging tests.”

“We are planning to perform validation studies to further evaluate the utility of this approach for diagnosing lung cancer in a larger population, concluded Dr Vachani. “If our results are encouraging, we would like to test this in a prospective clinical trial.”

Source: American Thoracic Society

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