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Lung Cancer Health Center

Gene Test Spots Early Lung Cancers

Approach Could Detect Tumors When They're Much More Treatable

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WebMD Medical News

Reviewed by Louise Chang, MD

April 4, 2006 (Washington) -- A test that characterizes tumors by their unique genetic fingerprint may soon help doctors to spot lung cancers earlier, when they're much more treatable, researchers report.

If it pans out in future studies, the test could help extend the lives of thousands of lung cancer patients, says researcher Avrum Spira, MD, of Boston University Medical Center.

Currently, fewer than one in five people diagnosed with lung cancer survive for five years, he says.

The bleak outlook is in part due to the fact that more than 85% of lung cancers aren't diagnosed until they have already spread beyond the lung.

"We believe this test can move up when we make the diagnosis and has the potential to change the course of the disease," Spira tells WebMD.

The research was presented at the annual meeting of the American Association for Cancer Research.

Test Piggybacks on Conventional Bronchoscopy

The new test looks for a unique 80-gene signature that can distinguish with a high degree of accuracy which people have lung cancer and which do not, Spira says.

Currently, doctors can refer a person for a procedure called bronchoscopy to investigate suspicious lung lesions that might be seen on an X-ray. A thin, flexible, lighted tube is inserted into the nose and snaked down through the windpipe and into the lower airways of the lungs. Cells are collected and sent to the pathologist for analysis.

The new test piggybacks on the bronchoscopy. A little brush is attached to the scope. As the tube advances, the brush picks up cells lining the windpipe, much like a broom collects dust.

Genetic analysis of cells from the upper airways complements conventional analysis of lower airway cells, Spira explains.

"We are not subjecting people to an extra procedure," he says. "These patients were suspect for having cancer, and they were already undergoing the bronchoscopy. As part of the procedure, we took additional samples from a more accessible airway."

Piggyback Approach Spots 95% of Cancers

The researchers tested the dual approach on 152 former and current smokers who had been referred for bronchoscopy due to suspicious X-ray findings.

Bronchoscopy alone identified 50% of smokers with early or late lung cancers. By itself, the genetic signature pinpointed 80% of people who eventually developed lung cancer. But the combination of bronchoscopy plus the gene test spotted about 95% of them.

Where bronchoscopy was weakest, the genetic profiling was strongest. Conventional bronchoscopy detected only 36% of early cancers still confined to the lung that are highly responsive to treatment. The genetic signature picked up 90%

of them.

Not Tested in Nonsmokers

The researchers don't know if the technique will help the 10% to 12% of lung cancer patients who have never smoked because it hasn't been tested in them.

Angelo DeMarzo, MD, a cancer specialist at Johns Hopkins Kimmel Cancer Center in Baltimore, notes that the test is not yet ready for general use.

"But it looks very promising," he tells WebMD. "This is the type of test you want to see developed for people at high risk of cancer."

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