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Test helps reduce risk of death in advanced lung cancer

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Researchers at the University of Colorado Cancer Center have developed a test that identifies key biomarkers in advanced lung cancer that helped reduce the risk of death by 36 percent over a 30- month period in a recent clinical trial.

"We are moving from a one-size-fits-all model to more personalized medicine in lung cancer," said University of Colorado School of Medicine Professor Fred R. Hirsch, MD, Ph.D., a Cancer Center investigator who developed the test along with colleague Wilbur Franklin, MD. "This is a completely new paradigm in treating cancer."

The test was developed in 2003 when Hirsch and his colleagues created a scoring system ranging from 0 to 400 that identified patients with the highest levels of the protein Epidermal Growth Factor Receptor (EGFR). Those scoring over 200 had a better prognosis.

A clinical trial held in Europe known as the FLEX-study, found that 30 percent of the advanced lung cancer patients who took part had high levels of the EGFR protein identified by the University of Colorado Cancer Center test.

The trial consisted of 1,125 advanced lung cancer patients separated into two groups. One group received standard chemotherapy while the other had chemotherapy along with the drug cetuximab, an antibody that attaches to EGFR receptors atop lung cancer cells and often inhibits their growth.

The results were announced two weeks ago at the 2011 European Multidisciplinary Cancer Conference in Stockholm.

Using the Cancer Center test, the trial showed that Caucasian patients with an over expression of EGFR and treated with chemotherapy and cetuximab had a 36 percent reduction in deaths compared to the other group.

Cetuximab, or Erbitux, is primarily used to fight colo-rectal and head and neck cancers.

Hirsch, who discussed the study results at the Stockholm conference, said the test is another step toward finding the best, most effective therapy for each patient.

"With this personalized medicine we can identify subgroups of patients that can get better effects from certain drugs," he said. "In some cases there is a potential for a cure. Right now the cure rate for advanced lung cancer is two to three percent at best. This is a huge improvement but everything is based on the selection criteria."

The CU School of Medicine is a prominent leader in lung cancer research. D. Ross Camidge, MD, Ph.D., clinical director of the Thoracic Oncology Program at the University of Colorado Hospital and a Cancer Center investigator, has helped develop effective drug treatments for patients with the ALK gene rearrangement, an abnormality that occurs in three to five percent of lung cancer patients.

Hirsch is currently leading a clinical trial with colleagues in the Southwest Oncology Group that is similar to the European study. He hopes it will further validate the predictive value of the test in relation to using cetuximab in patients with advanced lung cancer. The study (SWOG 0819) has 550 participants and expects 1,500 total.

Hirsch's research laboratory specializes in identifying biomarkers which can predict benefits from new cancer drugs and place the right patients with the right therapy.

More information: The results of the European trial are expected to be published in an upcoming edition of *The Lancet Oncology*.

Provided by University of Colorado Denver