MedicalXpress

Driver of non-small cell lung cancer, FGFR1, also in 23 percent of small cell lung cancer

April 20 2015

Significant new treatments are available or in clinical trials for non-small cell lung cancer. The same explosion in treatment options is not true for the disease's cousin, small cell lung cancer, the less common and more aggressive form of the disease. Results presented by the University of Colorado Cancer Center at the American Association for Cancer Research Annual Meeting 2015 show the presence of a known driver of non-small cell lung cancer in small cell lung cancer, implying that promising treatments in development for the first may be applicable to the second form of the disease as well.

"There is an unmet need in small cell lung cancer. There have been no significant new therapies developed in 20 years," says Fred R. Hirsch, MD, PhD, associate director for international programs at the University of Colorado Cancer Center and CEO of the International Association for the Study of Lung Cancer.

One promising new strategy in the treatment of non-small cell lung cancer is the inhibition fibroblast growth factor receptor (FGFR), which helps to signal uncontrolled, cancerous growth in about 21 percent of non-small cell lung cancers. Results presented by Hirsch and colleagues at AACR 2015 show positivity for FGFR1 amplification, mRNA and/or protein expression in 17 of 75 patient samples (22.7 percent) of small cell lung cancer tumors.

"The presence of FGFR1 as a driver mutation in small cell lung cancer implies that we could repurpose drugs that target this amplification in

non-small cell lung cancer for the small cell form of the disease," Hirsch says.

Small cell lung cancer accounts for 10 to 15 percent of all lung cancers, with 5-year survival rates less than half that of non-small cell lung cancer. Because small cell lung cancer shows symptoms much later than non-small cell lung cancer, it is usually diagnosed much later in the course of the disease, commonly after it has metastasized to other parts of the body, and thus many patients die within weeks or months of diagnosis.

The study identifies a subset of patients with small cell lung cancer with potentially over activated FGFR1 pathways as evidenced by FGFR1 gene amplification, increased FGFR1 mRNA levels, and high protein expression.

"This clearly demonstrates that FGFR1 is important in a subgroup of small cell lung cancers. I would say this will lead to a clinical trial of drugs targeting FGFR in small cell lung cancer," Hirsch says. "The progress of existing drugs targeting FGFR1 means that we could be much closer to offering treatment options to people with small cell lung cancer than if we had been forced to start with a new compound."

Provided by University of Colorado Denver