New treatment holds promise for resistant lung cancer

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A new chemotherapy regimen appears to produce minimal side effects in patients with lung cancer that has not responded to previous therapy, paving the way for additional research to determine if the new regimen also helps shrink tumors, according findings to be presented by Fox Chase Cancer Center researchers at the AACR Annual Meeting 2013 on Tuesday, April 9.

"I'm very optimistic that we will show this protocol helps lung cancer patients who have run out of other options," says study author Hossein Borghaei, MS, DO, director of Thoracic Medical Oncology at Fox Chase. "For this patient population, we are in desperate need of new treatments."

All of the patients included in the study had non-small cell lung cancer, the most common form of lung cancer. In the U.S., more patients die of lung cancer than any other cancer. All had tried at least one other treatment, but their tumors had continued to grow.

Once patients fail to respond to one therapy, additional treatments are less likely to work, says Borghaei. For patients with treatment-resistant lung cancer, there is often little hope. But in the labs of Fox Chase, researchers have found evidence that a new combination of existing chemotherapy drugs could have an effect on these types of tumors.

The first drug, Tarceva (erlotinib), blocks a pathway many tumors use to grow. The drug works particularly well in lung tumors that carry a

mutation which accelerates that particular pathway. None of the patients included in the study carried this mutation, but research suggests they may still see some benefit from Tarceva.

The other drug, Alisertib (MLN8237), prevents chromosomes from splitting normally during cell division, causing cells to die. Since tumors depend on cell division to grow, the drug is being investigated in a number of different types of cancer.

If the drugs work better together than apart in lung tumors, that would make sense, says Borghaei. "What we've found through many years of research is that it's often better to combine chemotherapy drugs that target different aspects of cancer than to use either alone."

To test this theory, Borghaei and his colleagues gave four different doses of the drugs to 10 patients—the first stage of clinical testing that determines the maximum dose that people can safely tolerate.

Encouragingly, the side effects were "manageable," says Borghaei. One person experienced hair loss and lower counts of blood cells that fight infection, but has not developed any infections, he says. Other patients reported some mild fatigue, "but nothing out of the ordinary that would make us say this is an intolerable regimen," he says.

Although the research is not far enough along to know if the treatment works, 2 patients' tumors stopped growing while taking the drugs. Three patients have unfortunately died, but only after they'd stopped the treatment because their tumors didn't respond.

Borghaei cautions that in such early stages of the research, it's too soon to tell if the treatment works. "Both patients whose tumors stabilized were given the maximum dose of both drugs, and I hope that once we progress in the trial and treat more patients at the maximum doses, we

will see more responses," he says. "I want everyone to respond."

Provided by Fox Chase Cancer Center