Scientists discover way to stop pancreatic cancer in early stages

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CV Rao, Ph.D., is a researcher at the Peggy and Charles Stephenson Oklahoma Cancer Center at the University of Oklahoma Health Sciences Center in Oklahoma City. Credit: OU Medicine

Cancer researchers at The Peggy and Charles Stephenson Oklahoma Cancer Center have found a way to stop early stage pancreatic cancer in research models – a result that has far-reaching implications in chemoprevention for high-risk patients.

The research already has sparked a clinical trial in California, and the FDA-approved drug, Gefitinib, should be in clinical trials at OU's cancer center and others nationwide in about a year. The research appears in the latest issue of *Cancer Prevention Research*, a journal of the American Association for Cancer Research.

C.V. Rao, Ph.D., and his team of researchers were able to show for the first time that a drug used in current chemotherapy for later stages of pancreatic cancer had a dramatic effect if used earlier.

With low doses of Gefitinib, which has no known side effects at this level, scientists were able to not only stop pancreatic cancer tumors from growing, but after 41 weeks of treatment, the cancer was gone.

"This is one of the most important studies in pancreatic cancer prevention," Rao said. "Pancreatic cancer is a poorly understood cancer and the focus has been on treatment in the end stages. But, we found if you start early, there will be a much greater benefit. Our goal is to block the spread of the cancer. That is our best chance at beating this disease."

The Oklahoma cancer center research team said the finding points to an effective way to stop pancreatic cancer before it reaches later stages of development where the survival rate drops below 6 percent.

Currently, most pancreatic cancer is not identified until the later stages. However, research is moving closer to the development of an early detection test for pancreatic cancer. When that is in place, Oklahoma cancer center researchers believe they now have a method to target the cancer before it spreads.

Rao said OU officials and researchers will meet with other centers, including M.D. Anderson, whose specialists called the research "provocative," to discuss a pilot study in early 2011. Researchers hope to begin a Phase II clinical trial at the centers within 18 months. A Phase I trial is not required since the drug already has approval for human use from the U.S. Food and Drug Administration.

The clinical trials will focus on at-risk patients, particularly those with an inflammation of the pancreas called pancreatitis. The drug also could

help other high risk populations, including patients with a family history of pancreatic cancer and American Indian populations or others with Type 2 diabetes.

Gefitinib works by targeting signals of a gene that is among the first to mutate when pancreatic cancer is present. By targeting the signal for tumor growth expressed by the mutated gene, researchers were able to stop the cancer's procession.

"This gene is the key in 95 percent of cases of pancreatic cancer. It is our best target," Rao said. "By targeting this gene, we can activate or inactivate several other genes and processes down the line."

Rao said the drug also could be effective in lung and colorectal cancer, but it is not known if it would work as well as in pancreatic cancer. The OU College of Pharmacy is assisting in the development of drugs and imaging techniques needed to further test Gefitinib with patients.

Provided by University of Oklahoma