Blood proteins may identify vulnerability of pancreatic cancers to avastin

June 7 2011

(Medical Xpress) -- Tiny tumor proteins circulating in blood may be used to identify which pancreatic cancer patients would benefit from the drug Avastin, researchers at Duke University Medical Center have found.

The findings, reported Monday at the annual meeting of the American Society of Clinical Oncology in Chicago, could explain why bevacizumab (marketed by Roche as Avastin) did not provide clinical benefit for pancreatic cancer patients during clinical trials. Those studies showed it failed to extend lives when prescribed randomly compared to placebo.

But a more targeted approach based on tell-tale blood markers could improve results, particularly if a simple blood test could pinpoint who stands to benefit from the drug and who should forego it, said Andrew Nixon, PhD, MBA, an assistant professor of medicine at Duke University Medical Center.

"The answer is in the blood -- it's there -- and these preliminary results suggest this approach may help determine which patients should or should not get a treatment," said Nixon, who is lead author of the study.

Avastin works by stemming the growth of new blood vessels in tumors, effectively starving them. It has been approved by the U.S. Food and Drug Administration to fight colorectal, kidney, glioblastoma and non-small cell lung cancers, but against other cancers, Avastin has not had as

much success.

In a study reported last year, researchers at Duke and elsewhere reported that Avastin did not extend the lives of patients with advanced pancreatic cancer when added to the chemotherapy agent gemcitabine, which has been the main drug used against the disease.

Pancreatic cancer remains the fourth leading cause of cancer-related death in the United States, and is often not caught until it has spread. An estimated 43,140 people in the U.S. are diagnosed with pancreatic cancer annually, and fewer than 2 percent survive five years with advanced malignancies, according to the National Cancer Institute.

New therapies are urgently needed, Nixon said: "Pancreatic cancer remains a difficult disease to both detect and treat."

Even as the negative findings were reported for the combination of Avastin and gemcitabine, Nixon and colleagues were developing laboratory approaches and statistical methods to hunt for blood proteins in 328 patient blood samples that might correspond to Avastin's success or failure.

Several proteins were identified, and three were found to be potentially predictive of a pancreatic cancer patient's overall survival on the combination therapy compared to chemotherapy alone. The blood markers are signals associated with blood vessel growth and inflammation (vascular endothelial growth factor-D, stromal cell-derived factor-1β and angiopoietin-2).

"The blood is an important place to search for clues since it captures what's happening in the tumor as well as how the body is responding," Nixon said.

Nixon said the Duke team hopes its work will lead to the development of a blood test that could help steer patients to the right treatment. He said the group is now studying other cancers and therapies using similar approaches.

The study's principal investigator and senior author is Herbert I. Hurwitz, MD, associate professor of medicine at Duke.

Provided by Duke University