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Mayo Clinic reports new findings on noninvasive test for pancreatic cancer

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Pancreatic cancer has one of the highest mortality rates of any of the major cancers, and of the 43,000-plus Americans diagnosed with the disease each year, more than 94 percent die within five years of diagnosis. One reason for this high number of deaths is a lack of effective screening tools for catching the disease early. Now, in an effort to try to gain the upper hand on this deadly form of cancer, Mayo Clinic researchers believe they have found a new way to test for pancreatic cancer with DNA testing of patients' stool samples. The research was presented at the 2011 Digestive Disease Week conference, held May 7 in Chicago.

"We know with colon cancer that we can detect some molecular signatures of cancers and pre-cancers, and we were interested in trying to determine if we could do the same thing, specifically with a stool test, for pancreas cancer," says John Kisiel, M.D., Mayo Clinic gastroenterologist, who presented the study's findings.

The study focused on detecting methylations in stool samples of 127 patients, 60 diagnosed with pancreatic cancer and 67 who were not diagnosed with cancer. Methylation is a type of DNA modification strongly associated with cancers and pre-cancers. The research team wanted to test if they could reliably detect any types of methylated genes in the stool samples of those in the study group who had already been diagnosed with pancreatic cancer.

"We found that a marker was reliably detected in both tissue samples

and in the stools of pancreatic cancer patients, and that it compared favorably with another kind of marker - the mutation of a gene called KRAS," says Dr. Kisiel. "When we looked at those two markers together, the combined accuracy of both markers was significantly better than with either marker alone." Overall, the methylated marker (called BMP3) and the mutated KRAS genes were detected in 70 percent of those in the study who had pancreatic cancer.

The screening detected the markers regardless of the stage of cancer or the location of the cancer within the pancreas. These findings may lead to more early detection of pancreatic cancer, which could significantly increase the survival rate for those who have the disease. The stool tests are also noninvasive, and samples can be collected by patients at home and sent to their doctor, without an office or clinic visit.

Ultimately, the researchers hope to expand on this initial study to create effective stool screenings for all the cancers that affect the gastrointestinal tract. "We now can reliably detect a methylation marker in stool that we know is present in curable stage cancers and similar markers have been found in pre-cancers," says Dr. Kisiel. "This is going to lead us to try to test additional patient tumor specimens for additional diagnostic markers of this type so that we can develop a panel of markers that could cover all the cancers and pre-cancers throughout the GI tract."

Provided by Mayo Clinic