

Detectable pancreatic lesions common in people at high risk for hereditary pancreatic cancer

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(Medical Xpress) -- A team of scientists led by Johns Hopkins researchers have found that more than four in 10 people considered at high risk for hereditary pancreatic cancer have small pancreatic lesions long before they have any symptoms of the deadly disease.

Moreover, they report, the frequency of the abnormal [precancerous lesions](#) increases with age and that [ultrasound](#) via endoscopy is better than MRI and significantly better than CT scans at finding the lesions.

The researchers say their work signifies some progress in reducing the death rate from hereditary pancreatic cancer, which is generally fatal once the lesions become malignant and symptoms appear. At that point, just 25 percent of those eligible for surgery survive five years, while the rest have a less than 5 percent chance of surviving five years. The general population has a 0.5 percent [lifetime risk](#) of getting pancreatic cancer, while those in high-risk groups included in the study have risks that are 3.5- to 132-fold higher. Researchers say roughly 10 to 15 percent of all pancreatic cancers are hereditary.

“We now know that although these high-risk patients often tend to develop pancreatic lesions, we can detect the lesions, track them over time and remove them before they become cancer,” says Marcia Irene Canto, M.D., M.H.S., a professor of gastroenterology and oncology at the Johns Hopkins University School of Medicine.

Canto and her team — made up of researchers from Johns Hopkins, Mayo Clinic, Dana Farber Cancer Institute, M.D. Anderson Cancer Center and the University of California, Los Angeles — studied 216 asymptomatic adults with a strong family history of pancreatic cancer, primarily those with two close blood relatives who have had the disease and those who have inherited genetic markers known to increase the risk of pancreatic cancer, including BRCA2 gene mutation that has also been linked to breast and ovarian cancers.

Doctors at each medical center performed three types of screening on each participant using CT, MRI and ultrasound conducted via [endoscopy](#). Johns Hopkins screened more than half of the participants. Those interpreting the diagnostic images from any one test were kept unaware of the results of the others to reduce the chance of bias.

CT detected pancreatic abnormalities in 11 percent of the participants, MRI found them in 33.3 percent and endoscopic ultrasound 42.6 percent. Five participants had what doctors determined were pre-cancerous lesions and underwent surgery to remove them. These were lesions that would most likely not have been detected and removed, Canto says.

Canto's team found that the prevalence of pancreatic lesions increases with age, with doctors finding them in just 14 percent of [high-risk](#) subjects under the age of 50, 34 percent of those ages 50 to 59 and 53 percent of those 60- to 69-years old. Those with lesions who did not require surgery were recommended for regular follow up screening to see if the lesions change in size or shape. Not all pancreatic cysts or lesions become pancreatic cancer.

The findings of the study, known formally as CAPS 3 Study, are published in April issue of the journal *Gastroenterology*.

One advantage that endoscopic ultrasound has over MRI and CT, Canto says, is that it can also be used to collect cells from the pancreatic lesions, secretions from the pancreas, and fluid from cysts to facilitate further study. The CAPS 3 study team collected pancreatic juice for biomarker research led by Michael Goggins, M.D., aimed at better detection of pre-cancerous or cancerous lesions in the pancreas. In addition, a Johns Hopkins research team led by Bert Vogelstein, M.D., and Ralph Hruban, M.D., are developing biomarkers from pancreatic cyst fluid that appear to determine the cyst's malignant potential. Recently, they completed genomic sequences of pancreatic cysts that will help biologists understand how they develop and turn cancerous. Researchers hope those findings — in conjunction with those of the new study led by members of Hopkins' Sol Goldman Pancreatic Cancer Research Center — will enable them to find potentially lethal pancreatic cancers before they develop, saving people from a disease that has little hope for cure.

For the endoscopic procedure, a doctor passes a thin, lighted tube from a sedated patient's mouth through the stomach, and into the first part of the small intestine. At the tip of the endoscope is a device that uses sound waves that produce patterns of echoes as they bounce off internal organs. These ultrasonic patterns can help identify tumors that cannot be detected by a CT scan. Using ultrasound to help guide the way, a doctor then inserts a thin needle into the pancreas to remove cells that can be later studied.

Unlike screening for colon cancer, [pancreatic cancer](#) screening is not recommended for the general population. Canto says this is because cysts and other possibly pre-cancerous lesions are far less common in the pancreas than in the colon; because the pancreas is harder to reach than the colon; and because removing [lesions](#) requires extensive surgery, often including part of the pancreas. Potential complications are also more likely.

“Early detection is the way to go,” Canto says. “We need smart screening and individualized treatments based on family history, epidemiology, biomarkers and genetics.”

Provided by Johns Hopkins University

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