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New tool developed to help guide pancreatic cyst treatment

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As a result of improved imaging technology, pancreatic cysts are increasingly diagnosed in asymptomatic individuals who undergo scans for other reasons. And while most of these cysts follow a benign course, a small but significant number are either malignant at the time of diagnosis or have the potential to develop into pancreatic cancer during a patient's lifetime.

The dilemma for both patient and clinician is determining which cysts to leave alone and which to surgically remove. Existing treatment guidelines don't clearly address many treatment options beyond the removal of part of the pancreas — a major undertaking for an asymptomatic lesion.

Now, a UCLA-Veterans Affairs research team has developed an evaluation tool to help guide asymptomatic pancreatic cyst treatment. Published in the February issue of the journal *Gastroenterology*, the tool takes into account overall health, age, cyst size, surgical risk and patients' views about quality of life.

"Surgery may not be the best initial approach for all patients diagnosed with a specific pancreatic cyst. The new tool may help with decision-making and mapping out a treatment plan," said study author Dr. Brennan Spiegel, director of the UCLA-VA Center for Outcomes Research and Education at the David Geffen School of Medicine at UCLA and the VA Greater Los Angeles Healthcare System.

The diagnosis of asymptomatic cysts has increased fivefold over the past decade, due partly to an aging population and to improved diagnostics. Current imaging techniques — including computed tomography (CT), magnetic resonance imaging (MRI) and endoscopic ultrasound, in which a small camera is inserted down the throat and into the stomach and small bowel to image the pancreas — combined with pancreatic cyst fluid analysis, offer an 80 percent accuracy in cyst diagnosis.

"Pancreatic cysts are most often diagnosed in an older population, and although many are benign, these must be carefully tracked, since a small percentage can develop into pancreatic cancer," said study author Dr. James J. Farrell, associate professor of digestive diseases at the Geffen School of Medicine and director of UCLA's Pancreatic Diseases Program.

Using decision-analysis software, the research team evaluated a set of hypothetical patients ranging in age from 65 to 85 with a variety of asymptomatic pancreatic cysts, ranging in size from half a centimeter to greater than 3 cm and located in the head of the pancreas, the most common site for branch duct cysts.

The evaluation tool compared four competing treatment strategies: surgical removal of the cyst, annual non-invasive imaging surveillance with MRI or CT, annual endoscopic ultrasound and no treatment.

While the tool takes into account patient age, health, cyst size and surgical risk, it also considers whether the patient values overall survival, no matter the quality of life, or if he or she prefers balancing quantity and quality of life by pursuing less invasive medical measures, which may lead to shorter survival but a better quality of life.

The researchers found that to maximize overall survival, regardless of the quality of life, surgical removal was the dominant strategy for a cyst

greater than 2 cm, despite the patient's age or other health issues — this is smaller than the 3 cm threshold supported by current treatment guidelines for surgical intervention. Surveillance was the dominant strategy for any cyst less than 1 cm, which is similar to current guidelines.

For patients focused on optimizing both quantity and quality of life, either the "do nothing" approach or surveillance strategy appeared optimal for those between the ages of 65 and 75 with cysts less than 3 cm. For patients over age 85, non-invasive surveillance dominated if quality of life was important, most likely because surgical benefits are often outweighed by the poor quality of life experienced post-operatively in this population.

"The evaluation tool offers greater insight into not only key risk factors for deciding pancreatic cyst treatment but also what patients want and value," said study author Dr. Benjamin M. Weinberg, a gastroenterologist in the division of digestive diseases at UCLA's Geffen School of Medicine and the department of gastroenterology at the VA Greater Los Angeles Healthcare System.

The researchers noted that data and information on how to use the new evaluation tool are available in the study manuscript, and that the tool is ready for use by clinicians.

Future research aimed at further understanding the disease process, exploring the rate at which benign cysts turn malignant, and delineating the natural history of a malignant cyst that doesn't undergo treatment may also help improve management of pancreatic cysts, the researchers said.

"We are learning more and more about the development and treatment of pancreatic cysts," said study author Dr. James S. Tomlinson, assistant

professor of surgical oncology at UCLA's Geffen School of Medicine and the department of surgery at the VA Greater Los Angeles Healthcare System. "The more prognostic tools available to assist both the clinician and the patient in the complex decision-making associated with cystic disease of the pancreas, the more appropriate the management of this disease."

The researchers noted that current management of pancreatic cysts remains uncertain and challenging.

To date, no prospective randomized trials have been carried out for this disease. To optimize individual care, clinicians need evidence-based guidance to help select between competing strategies.

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