Ethanol Injections Can Ablate Pancreatic Cysts

BY MITCHEL L. ZOLER
Philadelphia Bureau

PHILADELPHIA — Endoscopic injection of ethanol into pancreatic cysts may be an effective alternative to surgery for eliminating premalignant lesions, based on results from a randomized pilot study with 42 patients.

"The big question is whether alcohol injection will prevent development of pancreatic cancer over the long term," Dr. William R. Brugge said at the annual meeting of the American College of Gastroenterology.

It's also unclear whether patients with newly discovered cysts might fare even better if they're simply monitored annually by CT or MRI to allow early detection of cases in which pancreatic cysts progress to cancer.

The major downside of endoscopic alcohol injection of pancreatic cysts is that some alcohol may enter the pancreas and cause pain. In the study conducted by Dr. Brugge and his associates, two of the patients treated with an alcohol injection developed pancreatitis, although in both cases the inflammation was mild and self-resolving, lasting for about 24 hours, said Dr. Brugge, director of endoscopy at Massachusetts General Hospital, Boston.

The primary advantage of alcohol ablation is that it is minimally invasive, which makes it well suited for older patients, who are the ones most likely to have mucinous cystic lesions in the pancreas. Most patients with pancreatic cysts are currently diagnosed incidentally when they have a CT scan for another reason, such as diverticulitis.

MASSACHUSETTS GENERAL HOSPITAL PHOTOGRAPHY DEPARTMENT

"Alcohol injection ... is effective for getting rid of pancreatic cysts," Dr. William R. Brugge said.

During October 2004 to June 2007, the study enrolled 42 patients with pancreatic cysts; their average age was 69 years. Under endoscopic ultrasound guidance, a biopsy needle was introduced endoscopically to aspirate fluid from the largest cyst in each patient. The average diameter of the target cysts was 19 mm, with a range of 10-40 mm. Analysis of the aspirate identified 35 of the cysts as benign mucinous cysts, four as pancreatic cystic tumors, and three as pseudocysts.

The patients were then randomized to treatment with an injection of either 80% ethanol (25 patients) or saline (17 patients); an average of about 2 cc of fluid was placed into each cyst. Following injection, the fluid was immediately removed from each cyst, and the status of the cyst was assessed using ultrasound. All patients were then offered an immediate second round of cyst lavage, this time exclusively with 80% ethanol, although not all patients agreed to receive a second injection. The study's primary end point was the outcome of the treated cysts as determined by ultrasound imaging or by CT imaging done 3 months after treatment.

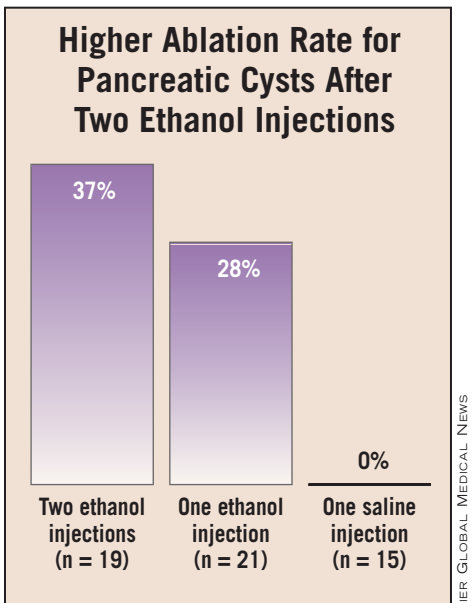
Overall, 15 patients received a single injection of saline, and none of these cysts had ablated at follow-up. Twenty-one patients were assessed after a single ethanol lavage, and six of their cysts disappeared (28%). Nineteen patients received two ethanol injections, and in seven cases (37%), the treated cysts were completely ablated by the ethanol treatment, Dr. Brugge reported. The only adverse events linked with ethanol treatment were the two cases of mild, transient pancreatitis.

The effect of the ethanol treatment was further explored by a surgical resection of the cysts from four patients soon after treatment. Three of these patients had been treated with ethanol; in two cases, a pathology assessment showed 50%-75% ablation of the epithelium lining the cyst, and in the second case the pathology examination showed complete epithelial ablation. The specimen obtained from the saline-treated patient showed no ablation.

"The results demonstrate the safety and efficacy of alcohol injection. There is little doubt that this approach is effective for getting rid of pancreatic cysts," Dr. Brugge said in an interview.

But the long-term effect of treatment on the development of pancreatic cancer is unclear. The next step will be a randomized study with a 5-year follow-up to see if the treatment has a beneficial effect on cancer incidence, he said.

Pancreatic cysts are relatively common in people older than age 65, with a prevalence rate of about 3%. At one time, these cysts were thought to be mostly benign, but more recently, research has determined that many are premalignant and hence require either regular surveillance or ablation, Dr. Brugge said. ■



ELSEVIER GLOBAL MEDICAL NEWS

Scoring Method Predicts Death, Transplant in Liver Failure

BY ROBERT FINN
San Francisco Bureau

A scoring method that combines bilirubin and lactate values with the specific etiology of acute liver failure better predicts death or the need for transplant than do existing methods, Dr. Johannes Hadem and his colleagues reported.

The new scoring method, known as the bilirubin-lactate-etiology (BiLE) measure, has a sensitivity of 79% and a specificity of 84% for predicting death or the need for transplant if the patient's score is above 6.9. These sensitivity and specificity values are significantly better than are other measures including the Model for End-Stage Liver Disease (MELD) and the Simplified Acute Physiology Score III (SAPS-III), according to Dr. Hadem of Hannover (Germany) Medical School, and his colleagues (Clin. Gastroenterol. Hepatol. 2008;6:339-45).

The BiLE score is simple to calculate and is especially suited to bedside use immediately after ICU admission, the investigators wrote. But because of the diversity of acute liver failure etiologies in different regions of the world, the BiLE score will need to be validated in other centers and with other patient cohorts.

To develop the BiLE score, the investigators conducted a retrospective analysis of 102 ICU patients from a single institution who fulfilled the diagnostic criteria for acute liver failure. Of those, 39 survived for at least 8 weeks without the need for orthotopic liver transplant (OLT), 18 died without OLT, 5 died following OLT, and 40 survived following OLT. In all, 79 of the patients (77%) survived to week 8.

For the purposes of the study, patients with hepatic dysfunction were diagnosed with acute liver failure if they had hepatic encephalopathy, acute-onset increase of the International Normalized Ratio (INR) above 1.5, and the absence of signs of chronic liver disease during the clinical and ultrasound examinations.

There was no predominant etiology for acute liver failure among the patients in the study. Cryptogenic acute liver failure was the etiology in 21 patients, acute hepatitis B in 18, acetaminophen ingestion in 16, Budd-Chiari syndrome in 9, phenprocoumon toxicity in 7, idiosyncratic drug reactions in 5, *Amanita phalloides* ingestion in 5, Wilson's disease in 5, hepatitis A in 4, ischemic hepatitis in 4, and halothane reaction in 3. The remaining 5 patients had etiologies classified as "other."

In comparing patients who survived with those who died or required OLT, the investigators found that 15 different laboratory values and other characteristics showed statistically significant differences. Multivariate linear regression revealed that bilirubin and lactate levels were the most predictive of survival.

Patients who survived without transplantation had a mean bilirubin level of 103 micromol/L, vs. 263 micromol/L in the liver transplantation or death group. Similarly, patients who survived without transplantation had a mean lactate level of 2.9 mmol/L, vs. 4.7 mmol/L in the liver transplantation or death group.

Patients with cryptogenic acute liver failure, Budd-Chiari syndrome, or phenprocoumon toxicity were more likely to die or require transplant, while those with acetaminophen toxicity were more likely to survive without the need for transplant.

The investigators designed the BiLE score empirically. To bring bilirubin and lactate into the same range of values, the equation calls for dividing bilirubin concentrations in micromol/L by 100. To this figure, one adds the lactate concentration in mmol/L and then adds or subtracts a value depending on the etiology. (See box.)

Using a cutoff value of 6.9 to predict death or the need for transplant, the BiLE score achieved a sensitivity of 79%, a specificity of 84%, a positive predictive value of 89%, and a negative predictive value of 71%. Sensitivity was 100% in patients with cryptogenic acute liver failure.

In contrast, lactate alone with a cutoff of 3.5 mmol/L achieved a sensitivity and specificity of 59% and 66%, respectively. The MELD score with a cutoff of 32 achieved a sensitivity and specificity of 65% and 69%, respectively, and the King's College Criteria achieved a sensitivity and specificity of 58% and 82%, respectively.

The investigators stated that they had no conflicts of interest to report. ■

Calculation of the BiLE Score

The calculation method for the BiLE score is as follows:

Bilirubin (micromol/L)/100 + lactate (mmol/L)
+ 4 (in the case of cryptogenic acute liver failure, Budd-Chiari syndrome, or phenprocoumon toxicity)
– 2 (in the case of acetaminophen toxicity)
+ 0 (in the case of other etiologies)

BiLE scores above 6.9 are predictive of death or liver transplantation.