The role of cholecystectomy in reducing recurrent gallstone pancreatitis.


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It has been reported that endoscopic sphincterotomy or cholecystectomy can prevent recurrent acute pancreatitis in patients with gallstone-related pancreatitis. However, it is unknown whether cholecystectomy after endoscopic sphincterotomy offers additional benefit in preventing recurrent acute pancreatitis in these patients. In this retrospective study the authors aimed to assess whether cholecystectomy can decrease the incidence of recurrent acute pancreatitis in patients with gallstone-related pancreatitis. Records from 139 patients with gallstone-related pancreatitis were analyzed. Of these, 58 patients had gallbladder stones with concomitant common bile duct stones and 81 patients had gallbladder stones without common bile duct stones. Of the 58 patients who had both gallbladder and common bile duct stones, 37 (63.8%) did not undergo cholecystectomy after endoscopic sphincterotomy (group 1) and 21 patients (36.2%) did undergo cholecystectomy after endoscopic sphincterotomy (group 2). Of the 81 patients who had gallbladder stones but who did not have common bile duct stones, 54 (66.7%) did not undergo cholecystectomy (group 3) and 27 (33.3%) did undergo cholecystectomy (group 4).

At the time of analysis, three patients (8.1%) in group 1 and three patients (14.3%) in group 2 developed recurrent acute pancreatitis. There was no significant difference in the estimated probability of occurrence of recurrent acute pancreatitis over time between group 1 and group 2 (P=0.41). However, there was a significantly higher probability of patients developing recurrent acute pancreatitis over time in group 3 compared with group 4 (6/54 vs. 0/27, respectively; P=0.04).

The authors concluded that in patients with gallbladder stones without common bile duct stones, cholecystectomy can decrease the incidence of recurrent acute pancreatitis. In patients with both gallbladder and common bile duct stones, however, the risk of recurrent acute pancreatitis was not further reduced by cholecystectomy after endoscopic sphincterotomy and complete removal of common bile duct stones.
range, 15-86) were studied. Acute pancreatitis was of biliary etiology in 19 patients (49%). On admission, acute pancreatitis was assessed clinically as severe in 7 patients (18%). A strong correlation was demonstrated between computed tomography severity index and magnetic resonance imaging severity index on admission and 7 days later. Magnetic resonance imaging severity index on admission correlated with the following: the Ranson score, C-reactive protein levels 48 hours after admission, duration of hospitalization, and clinical outcome regarding morbidity, including local and systemic complications. Considering the Ranson score as the gold standard, magnetic resonance imaging detected severe acute pancreatitis with 83% (95% CI: 58-96) sensitivity, 91% (95% CI: 68-98) specificity vs. 78% (95% CI: 52-93) sensitivity and 86% (95% CI: 63-96) specificity for computed tomography. Magnetic resonance cholangiopancreatography after iv. secretin injection showed pancreatic duct leakage in 3 patients (8%). The authors concluded that magnetic resonance imaging is a reliable method of staging acute pancreatitis severity, has predictive value for the prognosis of the disease, and has fewer contraindications than computed tomography. It can also detect pancreatic duct disruption, which may occur early in the course of acute pancreatitis.

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Quantification of pancreatic zinc output as pancreatic function test: making the secretin-caerulein test applicable to clinical practice.

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The secretin-caerulein test is generally considered the gold standard for evaluation of the exocrine pancreatic function. Problems related to enzyme inactivation in the aspirated duodenal juice limit the clinical applicability of the test. Pancreatic zinc, which is mainly secreted as constituent of metalloenzymes, is stable in duodenal juice and easy to quantify. The aim of this study was to analyze the accuracy of the secretin-caerulein-stimulated pancreatic zinc output as pancreatic function test in comparison with the standard secretin-caerulein test. The authors studied 40 consecutive patients with suspected chronic pancreatitis and 28 healthy subjects. A secretin-caerulein test was performed after overnight fast by infusing intravenously secretin (1 U/kg/h) and caerulein (100 ng/kg/h) over 90 min. The duodenal content was continuously aspirated and separated at 15-min intervals and immediately analyzed for pH, bicarbonate, amylase, lipase, elastase, carboxypeptidase A, and zinc. Correlation and concordance between standard secretin-caerulein test and quantification of zinc output and the accuracy of the latter for diagnosing and grading the exocrine pancreatic dysfunction were calculated. The pancreatic zinc output correlated significantly with enzyme and bicarbonate output (r ranging from 0.670 to 0.855; P<0.001). A highly significant concordance was found between the degree of exocrine pancreatic dysfunction based on the standard secretin-caerulein test (bicarbonate and enzymes output) and that based only on zinc output (k=0.831; P<0.001). Quantification of the stimulated pancreatic zinc output has a sensitivity of 97% and a specificity of 91% in the diagnosis of exocrine pancreatic dysfunction. The authors concluded that the determination of pancreatic zinc output during secretin and caerulein stimulation is a simple and accurate method for evaluation of the exocrine pancreatic function. Zinc is stable in duodenal juice, and its determination as a single parameter simplifies the clinical applicability of the secretin-caerulein test.
Values of mutations of K-ras oncogene at codon 12 in detection of pancreatic cancer: 15-year experience.

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The authors aimed to summarize progress in the study of K-ras gene studies in pancreatic cancer and its potential clinical significance in screening test for early detection of pancreatic cancer, and to differentiate pancreatic cancer from chronic pancreatitis in recent decade. Literature search (MEDLINE 1986-2003) was performed using the key words K-ras gene, pancreatic cancer, chronic pancreatitis, and diagnosis. Two kind of opposite points of view on the significance of K-ras gene in detection early pancreatic cancer and differentiation pancreatic cancer from chronic pancreatitis were investigated.

The presence of a K-ras gene mutation at codon 12 has been seen in 75-100% of pancreatic cancers, and is not rare in patients with chronic pancreatitis, and represents an increased risk of developing pancreatic cancer. However, the significance of the detection of this mutation in specimens obtained by needle aspiration from pure pancreatic juice and from stools for its utilization for the detection of early pancreatic cancer and differentiation pancreatic cancer from chronic pancreatitis remains controversial.

The authors concluded that the value of K-ras gene mutation for the detection of early pancreatic cancer and differentiation pancreatic cancer from chronic pancreatitis remains uncertain in clinical practice. Nevertheless, K-ras mutation screening may increase the sensitivity of fine needle aspiration and ERCP cytology and may be useful in identifying pancreatitis patients at high risk for developing cancer, and as a adjunct with cytology to differentiate pancreatic cancer from chronic pancreatitis.

Phase II study of external irradiation and weekly paclitaxel for nonmetastatic, unresectable pancreatic cancer: RTOG-98-12.


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Unresectable cancer of the pancreas was treated with the combination of weekly paclitaxel and external beam irradiation in an effort to improve palliation and extend life expectancy.

One hundred twenty-two patients were entered in a multicentered protocol. Thirteen patients were either ineligible, cancelled, or had delinquent data, thus providing 109 for analysis. Unresectable cancer was based on imaging studies (computed tomography or magnetic resonance imaging), all had histologic proof of adenocarcinoma, and none had evidence of metastatic disease or peritoneal seeding. Image-guided radiotherapy treatment consisted of 50.4 Gy in 28 fractions over 5.5 weeks with coplanar anterior/posterior and lateral ports. An initial dose of 45 Gy was given to fields covering the primary tumor plus the regional peripancreatic, celiac, and porta hepatitis lymph nodes. A cone down field was used for the last three fractions to encompass the gross tumor volume with a 1- to 1.5-cm margin. Paclitaxel was administered weekly with irradiation in a dosage of 50 mg/m^2 as a 3-hour infusion. The median age was 63 and 53% were female.

The Karnofsky performance status was greater than or equal to 80 in 81%. Eighty percent were classified T3 or 4; 20% had N1
disease. The primary tumor was located in the pancreatic head in 65%. Eighty-five percent received all six cycles of paclitaxel per protocol, whereas 93% received irradiation with acceptable protocol variation. Field placement, total dose, fractionation, and overall treatment time were given per protocol in greater than or equal to 90%. Acute toxicity (worst per patient) occurred in 39% with grade III (35% of these were asymptomatic neutropenia), 5% with grade IV, and one patient died of infection during the fourth cycle of chemotherapy (grade V). The median follow-up time for alive patients is 20.6 months (range 5-30). The median survival is 11.2 months (95% CI: 10.1-12.3) with estimated 1- and 2-year survivals of 43% and 13%, respectively. External irradiation plus concurrent weekly paclitaxel is well tolerated when given with large-field radiotherapy. The median survival is better than historical results achieved with irradiation and fluoropyrimidines. These data provide the basis for a new Radiation Therapy Oncology Group trial using paclitaxel and irradiation combined with a second radiation sensitizer, gemcitabine, now under way.

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The relative biologic effectiveness of carbon-ion beams at 3 different linear energy transfer values (13, 50, and 80 keV/microm) accelerated by the Heavy Ion Medical Accelerator in Chiba on human pancreatic cancer cell lines differing in genetic status was determined. The relative biologic effectiveness values were calculated as D10, the dose (Gy) required to reduce the surviving fraction to 10%, relative to X-rays. The authors also investigated apoptosis and the relationship between D10 and the cell cycle checkpoint using morphologic examination and flow cytometry analysis, respectively. The relative biologic effectiveness values calculated by the D10 values ranged from 1.16 to 1.77 for the 13-keV/microm beam and from 1.83 to 2.46 for the 80-keV/microm beam. A correlation between the D10 values of each cell line and intensity of G2/M arrest was observed. In contrast, linear energy transfer values did not clearly correlate with induction of apoptosis. These results suggest that carbon-ion beam therapy is a promising modality. Elucidation of the mechanisms of G2/M arrest and apoptosis may provide clues to enhancing the effects of radiation on pancreatic cancer.

Effects of carbon-ion beams on human pancreatic cancer cell lines that differ in genetic status.

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