PANCREAS ALERTS

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The role of magnetic resonance cholangio-pancreatography in the management of acute gallstone pancreatitis.

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AIM. The aim of this study was to identify whether magnetic resonance cholangiopancreatography (MRCP) can be used selectively in patients with acute gallstone pancreatitis to detect choledocholithiasis, based on liver function tests (LFTs) and ultrasonography appearance. METHODS. All patients admitted between January 2008 and January 2011 with gallstone pancreatitis (amylase >300 U/L) who underwent MRCP were included in the study. LFTs and radiology reports were obtained from the respective computer systems. RESULTS. Overall, 173 patients with acute gallstone pancreatitis underwent MRCP and 30% (52/173) showed choledocholithiasis. The mean bilirubin level was significantly higher in those with choledocholithiasis (46±5 μmol/L *vs*. 36±3 μmol/L, P=0.0388) although there was no significant difference in alkaline phosphatase (276±25 IU/L *vs*. 229±16 IU/L, P=0.1154). However, sensitivity of abnormal bilirubin (>21 μmol/L) for choledocholithiasis was only 62% and specificity was 41%. Sensitivity of abnormal alkaline phosphatase (>140 IU/L) for choledocholithiasis was only 75% and specificity was 37%. There was a significant association between biliary dilatation on ultrasonography and choledocholithiasis on MRCP (P=0.0099) although the sensitivity of biliary dilatation for choledocholithiasis was only 44% and the specificity was 79%. Furthermore, there was no difference in the incidence of choledocholithiasis on MRCP for those patients with persistently deranged LFTs versus those whose LFTs returned to normal (relative risk: 1.07, 95% confidence interval: 0.61-1.89, P=1.00). Overall, 10% of patients with choledocholithiasis on MRCP had entirely normal LFTs on admission and no biliary dilatation or choledocholithiasis on ultrasonography. CONCLUSIONS. All patients with acute gallstone pancreatitis should undergo specific imaging, preferably MRCP, to exclude choledocholithiasis as LFTs and ultrasonography are inaccurate in predicting common bile duct stones.

[Full text]

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Decreasing mortality from acute biliary diseases requiring endoscopic retrograde cholangio-pancreatography: a nationwide cohort study.

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BACKGROUND. The management of acute biliary diseases often involves endoscopic retrograde cholangiopancreatography (ERCP). The effectiveness of ERCP on reducing mortality has not previously been shown. AIMS. To determine whether mortality from acute biliary diseases requiring ERCP has improved over time and to explore factors associated with mortality. METHODS. The authors conducted a cohort study using the Nationwide Inpatient Sample for the years 1998-2008. Hospitalizations for choledocholithiasis, cholangitis and acute pancreatitis involving an ERCP were identified. Multivariate analyses were used to determine the effects of time period, patient factors, hospital characteristics, ERCP procedure features and types of cholecystectomies on mortality, length of stay and costs. RESULTS. From 1998 to 2008, there were 166,438 admissions for acute biliary conditions that met the inclusion criteria, corresponding to over 800,000 patients nationwide. During this interval, mortality decreased from 1.1% to 0.6% (adjusted odds ratio (aOR) 0.7; 95% confidence interval (CI) 0.6-0.8), diagnostic ERCPs decreased from 28.8% to 10.0%, hospitals performing <100 ERCPs per year decreased from 38.4% to 26.9%, open cholecystectomies decreased from 12.4% to 5.8%, and unsuccessful ERCPs decreased from 6.3% to 3.2% (P<0.0001 for all trends). Unsuccessful ERCP (aOR 1.7, 95% CI 1.4-2.2), open cholecystectomy (aOR 3.4, 95% CI 2.7-4.3), cholangitis (aOR 1.9, 95% CI 1.5-2.3), older age, having Medicare health insurance and comorbidity were associated with increased mortality. CONCLUSIONS. In-hospital mortality from acute biliary conditions requiring ERCP in the United States has decreased over time. Reductions in the rate of unsuccessful ERCPs and open cholecystectomies are associated with this trend.

[Full text]

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Acute pancreatitis associated with molecular targeted therapies: a retrospective review of the clinico-radiological features, management and outcome.

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AIM. To study the presentation, radiological features, management and outcome of acute pancreatitis detected on imaging in patients receiving molecular targeted therapy (MTT). MATERIALS AND METHODS. In this IRB-approved, HIPAA-compliant retrospective study, search of the radiology database from January 2005 through September 2012 revealed 91 cancer patients with radiologic evidence of acute pancreatitis. Of these, 15 patients receiving MTT (7 women, 8 men; mean age 59 years, range 25-84 years) and fulfilling the criteria of acute pancreatitis without any confounding factors were included. Imaging at initial diagnosis of pancreatitis and subsequently were reviewed by three radiologists in consensus; clinical presentation, management, and outcome were documented from the medical record. RESULTS. Eleven patients had focal and four had diffuse pancreatitis. The tail of the pancreas (n=6) was the most common site of focal pancreatitis. Of the 14/15 patients who underwent CT, modified CT severity index was 2 in 12 patients and 4 in 2 patients. One patient (1/15) who underwent only FDG-PET/CT showed focal pancreatitis. None of the patients had pancreatic necrosis or peripancreatic collections. Findings resolved in all the patients after discontinuation of MTT, except in one patient who died of progressive disease. No radiological or surgical interventions were required in any of the patients. Findings recurred in 4/9 patients (44%) in whom MTT was restarted. CONCLUSION. MTT-associated pancreatitis is usually mild, focal, and managed conservatively with discontinuation of MTT. The imaging findings are subtle and in our study, pancreatitis recurred in 44% of patients after restarting MTT.

[Full text]

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Prediction of malignancy in cystic neoplasms of the pancreas: a population-based cohort study.

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AIM. Pancreatic cystic neoplasms (PCNs) are being detected with increased frequency. The aims of this study were to determine the incidence of malignancy and develop an imaging-based system for prediction of malignancy in PCN. METHODS. The authors conducted a retrospective cohort study of patients ≥18 years of age with confirmed PCN from January 2005 to December 2010 in a community-based integrated care setting in Southern California. Patients with history of acute or chronic pancreatitis were excluded. Malignancy diagnosed within 3 months of cyst diagnosis was considered as pre-existing. Subsequent incidence of malignancy during surveillance was calculated based on person-time at risk. Age- and gender-adjusted standardized incidence ratio (SIR) was calculated with the non-cyst reference population. Recursive partitioning was used to develop a risk prediction model based on cyst imaging features. RESULTS. The authors identified 1,815 patients with confirmed PCN. A total of 53 (2.9%) of patients were diagnosed with cyst-related malignancy during the study period. The surveillance cohort consisted of 1,735 patients with median follow-up of 23.4 months. Incidence of malignancy was 0.4% per year during surveillance. The overall age- and gender-adjusted SIR for pancreatic malignancy was 35.0 (95% confidence interval 26.6-46.0). Using recursive partitioning, we stratified patients into low (<1%), intermediate (1-5%), and high (9-14%) risk of harboring malignant PCN based on four cross-sectional imaging features: size, pancreatic duct dilatation, septations with calcification as well as growth. Area under the receiver operator characteristic curve for the prediction model was 0.822 (training) and 0.808 (testing). CONCLUSIONS. Risk of pancreatic malignancy was lower than previous reports from surgical series but was still significantly higher than the reference population. A risk stratification system based on established imaging criteria may help guide future management decisions for patients with PCN.

[Full text]

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A population-based study of severity in patients with acute on chronic pancreatitis.

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AIM. The objectives of this study were to evaluate the severity of patients with acute pancreatitis (AP) on chronic pancreatitis (CP) and compare this to patients with AP without CP. METHODS. The Maryland Health Services database was queried for all adult inpatient discharges with a primary diagnosis of AP from 1994 to 2010. Acute pancreatitis on CP and AP without CP were defined by the presence of the associated diagnosis code for CP. Severity was defined as organ failure, intensive care unit stay, or mortality. RESULTS. Acute pancreatitis on CP accounted for 13.7% of all AP discharges (9,747/70,944). The proportion of AP-on-CP discharges doubled during the study period (8.8% to 17.6%; P<0.0001). When compared with patients with AP without CP, AP-on-CP patients were younger, were more likely to be male and black, had higher rates of alcohol and drug abuse, and had less severe disease with lower rates of mortality, organ failure, need for mechanical ventilation, and intensive care unit stay. Among AP-on-CP patients, significant predictors of severity included advanced age, weight loss, and 2 or more comorbidities. CONCLUSIONS. Patients with AP-on-CP have less severe disease than do those with AP without CP. Weight loss, advanced age, and comorbidity increase the risk of severity in patients with AP on CP.

[Full text]

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Reported findings on endoscopic ultrasound examinations for chronic pancreatitis: toward establishing an endoscopic ultrasound quality benchmark.

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AIM. Endoscopic ultrasound (EUS) quality benchmarks for pancreatic disease previously focused on maintaining thresholds of diagnostic accuracy for fine-needle aspiration and measuring complications. We aimed to evaluate quality indicators when performing EUS specifically for the diagnosis of chronic pancreatitis (CP). METHODS. Using a single-center EUS database, the authors identified patients who underwent an EUS since 2001 specifically for the indication of (1) suspected CP, (2) exclusion of CP, or (3) established CP. Each EUS report was evaluated for the number of parenchymal and ductal criteria as per minimal standards terminology criteria. RESULTS. Two hundred eighty-six EUS examinations performed by 4 endosonographers were included. The mean number of reported evaluated parenchymal criteria was 2.44 (median, 2), and that of ductal criteria was 2.41 (median, 2). There was a difference among endosonographers in terms of mean number of total criteria reported evaluated (P<0.001): endosonographer 1: 3.9 (n=174 examinations), endosonographer 2: 6.8 (n=86 examinations), endosonographer 3: 6.2 (n=13 examinations), and endosonographer 4: 2.5 (n=11 examinations). However, there was no difference between endosonographers in the number of total (parenchymal and ductal) criteria found. CONCLUSIONS. There was a discrepancy among endosonographers when reporting which EUS findings were evaluated in patients undergoing EUS specifically to diagnose CP.

[Full text]

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Use of diffusion-weighted MRI to differentiate chronic pancreatitis from pancreatic cancer.

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AIM. The purpose of this study was to compare diffusion-weighted MRI (DWI) and conventional (non-DWI) MRI sequences in differentiating mass-forming chronic pancreatitis from pancreatic cancer. MATERIALS AND METHODS. A retrospective cohort study included 36 patients who underwent pancreatic resection for pancreatic cancer (n=13) and chronic pancreatitis (n=23) after preoperative MRI with DWI. Two independent reviewers assessed the DW images for signal intensity and apparent diffusion coefficient (ADC) values. Four weeks later, they reviewed the other MR images for size of mass, double-duct sign, pancreatic duct cutoff, and perivascular soft-tissue cuffing. A score for conventional MRI was given with 1 meaning definitely benign and 5 meaning definitely malignant. Univariate and multivariate analyses and receiver operating characteristic (ROC) curve analysis were performed with surgical pathologic examination as the reference standard. RESULTS. The only finding that differentiated the two groups was the presence of a well-defined mass, favoring the diagnosis of cancer (P=0.02, P<0.01). There was no significant difference between the two groups in signal intensity on DW images (P=0.82, P=0.85) or ADC (P=0.51, P=0.76). Double-duct sign, pancreatic duct cutoff, and

perivascular soft-tissue cuffing were not useful in differentiating the two groups. The areas under the ROC curve were 0.873 and 0.878 for the conventional MRI scores, compared with 0.602 and 0.552 for ADC measurements (P=0.02, P=0.008). CONCLUSION. The addition of DWI to conventional MRI does not facilitate differentiation of pancreatic cancer from chronic pancreatitis.

[Full text]

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Does extensive genotyping and nasal potential difference testing clarify the diagnosis of cystic fibrosis among patients with single-organ manifestations of cystic fibrosis?

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BACKGROUND. The phenotypic spectrum of cystic fibrosis (CF) has expanded to include patients affected by single-organ diseases. Extensive genotyping and nasal potential difference (NPD) testing have been proposed to assist in the diagnosis of CF when sweat testing is inconclusive. However, the diagnostic yield of extensive genotyping and NPD and the concordance between NPD and the sweat test have not been carefully evaluated. METHODS. We evaluated the diagnostic outcomes of genotyping (with 122 mutations included as disease causing), sweat testing and NPD in a prospectively ascertained cohort of undiagnosed patients who presented with chronic sino-pulmonary disease (RESP), chronic/recurrent pancreatitis (PANC) or obstructive azoospermia (AZOOSP). RESULTS. Two-hundreds and two patients (68 RESP, 42 PANC and 92 AZOOSP) were evaluated; 17.3%, 22.8% and 59.9% had abnormal, borderline and normal sweat chloride results, respectively. Only 17 (8.4%) patients were diagnosable as having CF by genotyping. Compared to sweat testing, NPD identified more patients as having CF (33.2%) with fewer borderline results (18.8%). The level of agreement according to kappa statistics (and the observed percentage of agreement) between sweat chloride and NPD in RESP, PANC and AZOOSP subjects was “moderate” (65% observed agreement), ”poor” (33% observed agreement) and ”fair” (28% observed agreement), respectively. The degree of agreement only improved marginally when subjects with borderline sweat chloride results were excluded from the analysis. CONCLUSIONS. The diagnosis of CF or its exclusion is not always straightforward and may remain elusive even with comprehensive evaluation, particularly among individuals who present at an older age with single-organ manifestations suggestive of CF.

[Full text]

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The relationship between lymphatic vascular density and vascular endothelial growth factor A (VEGF-A) expression with clinical-pathological features and survival in pancreatic adeno-carcinomas.

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BACKGROUND. Pancreatic cancer is a rare tumor with an extremely low survival rate. Its known risk factors include the chronic use of tobacco and excessive alcohol consumption and the presence of chronic inflammatory diseases, such as pancreatitis and type 2 diabetes. Angiogenesis and lymph-angiogenesis, which have been the focus of recent research, are considered prognostic factors for cancer development. Knowing the angiogenic and lymphangiogenic profiles of a tumor may provide new insights for designing treatments according to the different properties of the tumor. The aim of this study was to evaluate the density of blood and lymphatic vessels, and the expression of VEGF-A, in pancreatic adenocarcinomas, as well as the relationship between blood and lymphatic vascular density and the prognostically important clinical-pathological features of pancreatic tumors. METHODS. Paraffin blocks containing tumor samples from 100 patients who were diagnosed with pancreatic cancer between 1990 and 2010 were used to construct a tissue microarray. VEGF expression was assessed in these samples by immunohistochemistry. To assess the lymphatic and vascular properties of the tumors, 63 cases that contained sufficient material were sectioned routinely. The sections were then stained with the D2-40 antibody to identify the lymphatic vessels and with a CD34 antibody to identify the blood vessels. The vessels were counted individually with the Leica Application Suite v4 program. All statistical analyses were performed using SPSS 18.0 (Chicago, IL, USA) software, and P values <=0.05 were considered significant. RESULTS. In the Cox regression analysis, advanced age (P=0.03) and a history of type 2 diabetes (P=0.014) or chronic pancreatitis (P=0.02) were shown to be prognostic

factors for pancreatic cancer. Blood vessel density (BVD) had no relationship with clinical-pathological features or death. Lymphatic vessel density (LVD) was inversely correlated with death (P=0.002), and by Kaplan-Meyer survival analysis, we found a significant association between low LVD (P=0.021), VEGF expression (P=0.023) and low patient survival. CONCLUSIONS. Pancreatic carcinogenesis is related to a history of chronic inflammatory processes, such as type 2 diabetes and chronic pancreatitis. In pancreatic cancer development, lymphangiogenesis can be considered an early event that enables the dissemination of metastases. VEGF expression and low LVD can be considered as poor prognostic factors as tumors with this profile are fast growing and highly aggressive.

[Full text]