Recurrent Episodes of Acute Pancreatitis Present to the ED with More Severe Disease by CT than First-Time Acute Pancreatitis

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Introduction

While the cornerstones of diagnosis of acute pancreatitis are the clinical presentation and elevated pancreatic enzymes, CT scan is commonly used to confirm the diagnosis and to estimate the severity of the disease. Current risk stratification tools do not consider whether acute pancreatitis is recurrent or fist-time as a marker of severity. Greater awareness of the severity of recurrent acute pancreatitis could expedite more aggressive efforts to avoid future morbidity and mortality.

Objective

To determine differences in disease severity in patients with first-time versus recurrent acute pancreatitis presenting to the Emergency Department.

Methods

This study is a retrospective chart review at a single academic urban emergency department from 2012-2016. Charts were reviewed by a trained abstractor using structured data collection sheets which included data elements such as a history of acute pancreatitis and the results of an abdominal CT scan. Data abstraction was confirmed for interrater reliability. CT Scans were graded using the Modified CT Severity Index (MCTSI) which grades acute pancreatitis by the presence of inflammation, fluid accumulation, necrosis or extra-pancreatic findings.

Inclusion criteria:
- Clinical symptoms of pancreatitis
- Age greater than or equal to 18 years
- ED diagnosis of Acute Pancreatitis
- An abdominal CT scan within 24 hours of triage

Exclusion criteria:
- Traumatic mechanism
- Pregnancy

Pancreatic inflammation	
0: normal pancreas	
2: intrinsic pancreatic abnormalities with or without inflammatory changes in peri-pancreatic fat	
4: pancreatic or peri-pancreatic fluid collection or peri-pancreatic fat necrosis	
Pancreatic necrosis	
0: none	
2: 30% or less	
4: more than 30%	
Extra-pancreatic complications	
2: one or more of pleural effusion, ascites, vascular complications, parenchymal complications and/or gastrointestinal involvement	
Total score	
Total points are given out of 10 to determine the grade of pancreatitis and aid treatment:	
0-2: mild	
4-6: moderate	
8-10: severe	

Table1. Modified CT Severity Index (MCTSI)

Results

In total, 283 patients were included in the study. Of these, 110 patients presented with recurrent acute pancreatitis and 173 patients presented with first-time acute pancreatitis. The mean ages for first time and recurrent pancreatitis were 53.5 and 51.7, respectively. Females represented 45.8% of patients in the first-time pancreatitis group and 37.6% in the recurrent pancreatitis group. Patients with first-time pancreatitis reported a mean triage pain score of 7.3 while those with recurrent pancreatitis had a mean triage score of 8.5. The ICU disposition was 18.1% for first-time pancreatitis and 8.2% for recurrent pancreatitis.

	First Time	Recurrent	P Value
Pain Score	7.3	8.5	0.16
Received Opiates	74.7%	96.5%	0.22
Median IV Opiates (Morphine mg equivalents)	5	10	<0.01
ICU Dispo	18.1%	8.2%	0.22
Total Hospital LOS (days)	4.0	3.8	0.82
Median MCTSI	1.43	2.09	<0.001
MCTSI 0 (n, %)	68, 41%	24, 28%	
MCTSI 2 (n, %)	81, 49%	41, 48%	
MCTSI 4 (n, %)	13, 8%	13, 15%	
MCTSI 6 (n, %)	4, 2%	6, 7%	
MCTSI 8 (n, %)	0, 0%	1, 1%	

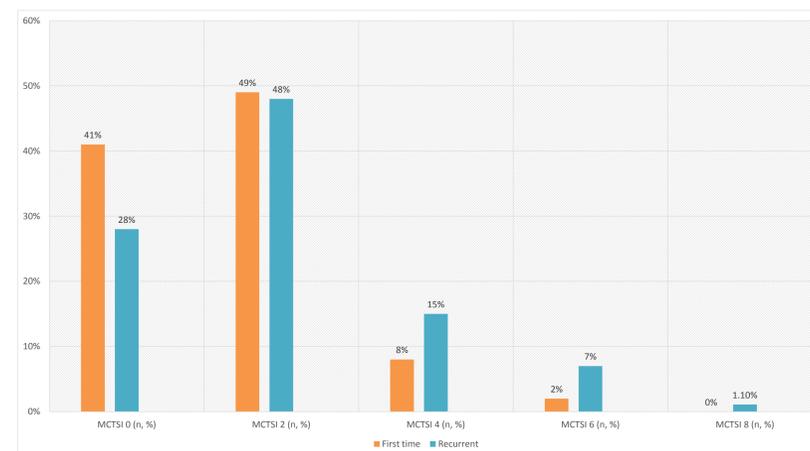Table 1. ED patients with acute pancreatitis

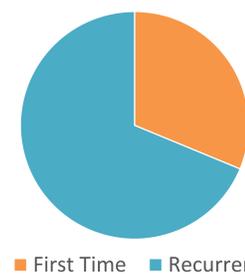Figure 1. Differences in MCTSI between first time and recurrent pancreatitis

Figure 2. Percentage of patients with an MCTSI score indicating of necrosis, inflammation or extra-pancreatic manifestations

Discussion

In our study, ED patients with recurrent acute pancreatitis were more likely to present with more severe disease per abdominal CT than those experiencing a first-time episode of acute pancreatitis. Our study contrasts with current guidelines that recommend that CT scans should not be performed in the first 48 hours because of delayed presentation of complications. However, we found that 10% of patients with first-time acute pancreatitis and 24% of patients with recurrent acute pancreatitis had a MCTSI score greater than or equal to four at ED presentation which indicates signs of necrosis, inflammation or extra-pancreatic manifestations. These findings have the potential to change management including increased need for antibiotics for cases of infected pancreatic necrosis and increased need for procedures such as surgical debridement or interventional radiology to drain infected pseudocysts.

Conclusion

In conclusion, ED patients with recurrent acute pancreatitis are more likely to present with a more severe episode of acute pancreatitis than patients presenting with first-time acute pancreatitis as measured by CT scan of the abdomen.

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