

Common Comorbidities to Predict Occurrence of Pseudocysts in Patients Admitted for Pancreatitis

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Background: Pancreatitis is a common indication for admission in the United States, often caused by alcohol or gallstones. Resultant damage from acute or chronic pancreatitis can form a pseudocyst, a collection of leaked pancreatic fluid. The risk for formation of these pseudocysts has been estimated to be anywhere from 2% to 15% in acute pancreatitis and 20% to 30% in chronic pancreatitis. Our project aimed to understand risk factors to formation of these pseudocysts.

Methods: A retrospective analysis of the National Inpatient Sample 2001-2013 database where patients with a primary diagnosis of acute and chronic pancreatitis were extracted using International Classification of Diseases, Ninth Revision (ICD-9) codes. Comorbidities including HIV, Hypothyroidism, Obesity, Vitamin D Deficiency, Hypertension, and COPD were identified with their respective ICD-9 codes. A multivariable logistic regression analysis using demographic data was used to create an adjusted logistic regression on the listed comorbidities with a <0.001 .

Results: After adjusting for age, race, gender, median income, and insurance payors, the role of common comorbidities was assessed to evaluate an odds ratio for a co-diagnosis of pancreatic pseudocyst. HIV (OR 0.81), Hypothyroidism (OR 0.84), and Obesity (OR 0.70) were observed to be protective against pseudocyst occurrence. Vitamin D Deficiency (OR 1.18), Hypertension (OR 1.06), and COPD (1.12) were observed to be risk factors for pseudocyst occurrence.

Conclusion: Though there is no clear link between certain comorbidities and the pathway to formation of a pseudocyst, those comorbidities with an effect on the immune system i.e HIV or Obesity, it appears there are less cases of pseudocysts. Vitamin D has been shown to be a risk factor against pancreatic cancer, in our study Vitamin D deficiency also was seen to have higher risk of pseudocyst formation. Further research needs to be performed to evaluate pathophysiology of the pseudocyst formation.

Table 1. Presence of Pseudocyst in Patients with Common Comorbidities

Variable	P-Value	Odds Ratio (95% CI)
HIV		
Not Present	Reference	
Present	.000*	0.81 (0.77-0.86)
Vitamin D Deficiency		
Not Present	Reference	
Present	.000*	1.18 (1.09-1.28)
Diabetes Mellitus		
Not Present	Reference	
Present	.468	1.00 (0.99-1.01)
Hypertension		
Not Present	Reference	
Present	.000*	1.06 (1.05-1.07)
Hypothyroidism		
Not Present	Reference	
Present	.005	0.84 (0.82-0.86)
COPD		
Not Present	Reference	
Present	.000*	1.12 (1.10-1.14)
Obesity		
Not Present	Reference	
Present	.000*	0.70 (0.69-0.71)

* significance level $p < 0.001$