

# BMI as Major Preoperative Risk Factor for Intraabdominal Infection After Distal Pancreatectomy: an Analysis of National Surgical Quality Improvement Program Database

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# Disclosure

No commercial relationships to  
disclose

# Background

- Left or distal pancreatectomy (DP) is a surgical procedure performed for the management of benign and malignant pancreatic tumors, neuroendocrine tumors, and chronic pancreatitis.
- The most common complication following DP is a pancreatic fistula, or leak, which is reported to occur in 5-60% of patients, varying widely based on the definition used
- Many attempts have been made to elucidate risk factors for pancreatic fistula, with suture closure of the pancreatic remnant, operating room time, patient pre-operative albumin, traumatic indication, additional organ resection, BMI >30kg/m<sup>2</sup>, and pancreatic stump thickness all identified in at least one study as risk factors for pancreatic leak following distal pancreatectomy.

# Background

- A general definition of pancreatic fistula is an abnormal communication between the pancreatic ductal epithelium and another epithelial surface containing pancreas derived, enzyme-rich fluid.

# Objective

The objective of our study is to determine preoperative and intraoperative risk factors for mortality, reoperation, major complications and organ space infection after distal pancreatectomy.

# Study Design

- A retrospective review of the ACS National Surgical Quality Improvement Program
- Utilized Participant User Files from 2005-2012, to create a database of 6500+ patients
- Patients undergoing distal pancreatectomy were identified in the NSQIP database by Current Procedural Terminology (CPT) code

# Study Design

- Complications included in analysis are mortality, organ space surgical site infection (OSSSI), reoperation, and serious morbidity (major complication). OSSSI was used as a surrogate for pancreatic leak
- Univariate analysis was performed utilizing all preoperative and intraoperative risk factors mentioned above. Those factors that were significant on univariate analysis were then entered into multivariate analysis
- P values less than 0.05 were considered statistically significant

# Results- Mortality

- Overall 30-day mortality in this cohort of 6598 patients was 0.9% (n=48), which included both initial postoperative hospitalization and after discharge
- On multivariate analysis, age greater than 65, dialysis dependence, intraoperative transfusion requirement and preoperative albumin level less than 3 g/dL were found to be independently statistically significant risk factors for postoperative mortality

# Results- Reoperation

- Overall reoperation rate was 3.8% (n=250)
- On multivariate analysis OR time and RBC transfusion requirement were the only variables found to be independently associated with need for reoperation

# Results- Major complications

- Major complications described as serious morbidity in the NSQIP database are defined as any of the following cardiac arrest, myocardial infarction, pneumonia, progressive renal insufficiency, acute renal failure, DVT/pulmonary embolism, return to the operating room, deep incisional SSI, organ space SSI, systemic sepsis, unplanned intubation, urinary tract infection and wound disruption
- Overall major complication rate for the sample was 21.9% (n=1445)

# Results- Organ Space Infection

- Overall organ space infection rate was 8.7% (n=573)
- Multivariate analysis of the significant variables on univariate analysis demonstrated that BMI greater than 30 kg/m<sup>2</sup>, RBC transfusion requirement and OR time were all independently associated with increased risk of pancreatic leak with an organ space infection

# Conclusion

- Pancreatic leak is a major complication of distal pancreatectomy
- BMI > 30 kg/m<sup>2</sup> is the only preoperative risk factor that increases the rate of pancreatic leak
- Counseling patients on weight loss efforts prior to undergoing surgery may affect pancreatic leaks
- Additionally, recognizing patients at increased risk for pancreatic leak preoperatively may warrant alternate methods of stump closure including biologic reinforced mesh