Introduction:

Acute pancreatitis is a common condition with the potential to cause significant morbidity and mortality. Most patients with acute pancreatitis suffer only a mild attack, without local or systemic complications as defined by the Atlanta criteria.[1] Approximately 20% of patients, however, will suffer a severe attack with associated morbidity and a mortality rate between 17% and 39%. [2-5] Patients with severe pancreatitis can develop pancreatic necrosis. [6] In 40% to 70% of these patients, the pancreatic necrosis will become infected. [7] Infected pancreatic necrosis requires adequate debridement and drainage via surgical or radiologic means. [8-10] Failure to adequately control infected pancreatic necrosis results in an almost 100% mortality because of overwhelming organ failure.19,20

It is generally considered that delayed rather than early intervention is preferable in those with pancreatic necrosis. [11-13] It is also widely accepted that sterile necrosis in the absence of significant symptoms does not require routine debridement, [8, 10] but most authorities still recommend urgent debridement for infected necrosis, as delays to intervention are associated with increased mortality. [4, 1014,15]

Techniques for management of infected pancreatitis include radiology-guided drain placement with or without serial debridement [16], minimal access techniques via laparoscopy [17-19] or endoscopy [20-22] and open surgical necrosectomy. To date, there are few studies evaluating the current management of infected pancreatic necrosis in the United States.

Methods:

This multicenter retrospective observational trial will be performed using database support provided by the American Association for the Surgery of Trauma. Participating institutions will identify patients with infected pancreatic necrosis. Patients with infected pancreatic necrosis requiring treatment (percutaneous, endoscopic, laparoscopic or open debridement) over the age of 17 will be included in the study. Necrotizing pancreatitis will be classified per the Atlanta criteria [1].

Patient protected health information will not be collected – the patients will be anonymized at the participating institution. Patient demographics, laboratory values, imaging studies, etiology of pancreatitis, timing and number of interventions, antimicrobial therapy and duration, complications including multisystem organ dysfunction (MODS), diabetes and need for pancreatic enzyme replacement will be collected. Sepsis will be defined per the Society of Critical Care Medicine (SCCM) criteria and MODS will be classified using the modified Marshal scoring system [23].

Statistical analysis will be performed with SAS 9.4 (SAS Corp., Cary NC) and if applicable as a two sided test on a 5% level of significance. Chi square analysis and Fisher’s exact test will be used to evaluate qualitative parameters. For analysis of quantitative parameters, the Mann-Whitney-U test will be used. A multivariate logistic regression analysis will be performed to outcomes.

Data collection points:

Patient demographics: age, gender, etiology of pancreatitis (alcoholic, biliary, iatrogenic, drug related, hypertriglyceridemia related or idiopathic), duration of symptoms at diagnosis, microbiology, MODS score, presence or absence of sepsis

CT imaging findings: presence of necrosis, location, percentage involvement of the pancreas, percentage with evidence of infection (gas)

Number and timing of catheter based interventions

Number and timing of endoscopic based interventions

Number and timing of laparoscopic based interventions

Number and timing of open necrosectomy

Complications: Erosion/bleeding, Sepsis, persistent MODS (defined as > 48 hours), pancreatic insufficiency (defined as need for enzymatic supplementation), diabetes

Outcome: Alive/dead, and discharge location (home, rehabilitation, skilled nursing facility, morgue)

Anticipated results:

It is anticipated that over the 5-year study period, an increasing percentage of procedures will have been performed minimally invasively. Moreover, outcomes of the minimally invasive approach, including the development of complications, pancreatic insufficiency and mortality will likely improve with the increased use of minimally invasive approaches.

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