

## Executive Summary: Management of the Critically Ill Patient with Severe Acute Pancreatitis

Acute pancreatitis represents a spectrum of disease ranging from a mild, self-limited course requiring only brief hospitalization to a rapidly progressive, fulminant illness resulting in the multiple organ dysfunction syndrome (MODS) with or without accompanying sepsis. This consensus statement focuses on the management of the critically ill patient with severe acute pancreatitis (SAP). An international consensus conference was held in April 2004 to develop guidelines for the management of the critically ill patient with SAP. These guidelines differ from those previously published by focusing on the challenges of caring for the patient with severe pancreatitis in the critical care environment. Evidence-based recommendations were developed by a jury of ten persons representing surgery, internal medicine, and critical care after conferring with experts and reviewing the pertinent literature to address the six questions concerning the management of patients with severe acute pancreatitis. There were a total of twenty-three recommendations developed in response to these questions to provide guidance to critical care clinicians caring for the patient with SAP. This executive summary lists the six questions and summarizes some of the jury's recommendations. The full report of the jury is available in published form in *Critical Care Medicine* and provides all twenty-three recommendations along with the rationale for each question, a summary of the evidence used to develop the recommendations, and the level of evidence associated with each recommendation.

### 1. WHEN SHOULD THE PATIENT ADMITTED WITH ACUTE PANCREATITIS BE MONITORED IN AN ICU OR STEPDOWN UNIT?

We recommend close clinical observation of patients with pancreatitis regardless of their venue of care. These patients usually require early and aggressive fluid resuscitation. They are at risk for the early development of organ dysfunction as a result of inadequate resuscitation and the systemic and local complications of pancreatitis. Clinical monitoring should focus on intravascular volume assessment (e.g., physical examination, urine output, and acid-base status) and pulmonary function (e.g., hypoxemia). Disease-specific scoring systems and global illness severity scores may be useful adjuncts to identify patients at high risk of complications; however, these models should not replace frequent serial clinical assessments.

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We recommend that in the presence of diagnostic uncertainty at the time of initial presentation, a CT scan of the abdomen (with intravenous contrast in the absence of contraindications) be performed after adequate fluid resuscitation to confirm the diagnosis of pancreatitis, and to rule out alternate diagnoses. An admission CT scan may also serve as a baseline for future scans. We also recommend that CT to identify local complications be delayed for 48 to 72 hours when possible, as necrosis might not be visualized earlier.

### 2. SHOULD PATIENTS WITH SEVERE ACUTE PANCREATITIS RECEIVE PROPHYLACTIC ANTIBIOTICS?

We recommend against the routine use of prophylactic systemic antibacterial or antifungal agents in patients with necrotizing pancreatitis in light of inconclusive evidence and divided expert opinion. Subsets of patients who benefit from prophylactic antibiotics may be identified by further investigation. We recommend against the routine use of selective decontamination of the digestive tract in the management of necrotizing pancreatitis. However, further investigation of this promising strategy in SAP is warranted.

### 3. WHAT IS THE OPTIMAL MODE AND TIMING OF NUTRITIONAL SUPPORT FOR THE PATIENT WITH SAP?

We recommend that enteral nutrition be used in preference to parenteral nutrition in patients with SAP. Enteral nutrition should be initiated after initial resuscitation. The jejunal route should be used if possible. We also recommend parenteral nutrition only be used when attempts at enteral nutrition have failed despite a 5- to 7-day trial.

### 4. WHAT ARE THE INDICATIONS FOR SURGERY IN ACUTE PANCREATITIS, WHAT IS THE OPTIMAL TIMING FOR INTERVENTION, AND WHAT ARE THE ROLES FOR LESS INVASIVE APPROACHES INCLUDING PERCUTANEOUS DRAINAGE AND LAPAROSCOPY?

We recommend sonographic- or CT-guided fine needle aspiration with gram stain and culture of pancreatic or peri-pancreatic tissue to discriminate between sterile and infected necrosis in patients with radiologic evidence of pancreatic necrosis and clinical features consistent with infection.

We recommend against debridement and/or drainage in patients with sterile necrosis. We recommend pancreatic debridement or drainage in patients with infected pancreatic necrosis and/or abscess confirmed by radiologic evidence of gas or results of fine needle aspirate. The gold standard for achieving this goal is open operative debridement. Minimally invasive techniques including laparoscopic and/or percutaneous interventions might be effective in selected patients.

We recommend that, whenever possible, operative necrosectomy and/or drainage be delayed at least 2 to 3 weeks to allow for demarcation of the necrotic pancreas. However, the clinical

picture (severity and evolution) should be the primary determinant of the timing of intervention.

### 5. UNDER WHAT CIRCUMSTANCES SHOULD PATIENTS WITH GALLSTONE PANCREATITIS UNDERGO INTERVENTIONS FOR CLEARANCE OF THE BILE DUCT?

In the setting of obstructive jaundice (or other evidence of acute obstruction of the biliary and/or pancreatic tract) and acute pancreatitis due to suspected or confirmed gallstones, we recommend that urgent endoscopic retrograde cholangiopancreatography (ERCP) should be performed within 72 hours of onset of symptoms. If ERCP cannot be accomplished because it is not technically feasible or available, alternative methods of biliary drainage must be considered. In the absence of obstructive jaundice, but with SAP due to suspected or confirmed gallstones, we recommend that ERCP be strongly considered.

### 6. IS THERE A ROLE FOR THERAPY TARGETING THE INFLAMMATORY RESPONSE IN THE PATIENT WITH SAP?

General supportive measures used in the critically ill should be employed in patients with SAP, as these interventions might play an important role in attenuating the inflammatory response. Thus, we recommend the use of early volume resuscitation and lung protective ventilation strategies for patients with acute lung injury. Once the presence of infection is documented or highly suspected and the patient with SAP meets the definition of severe sepsis, we recommend that management according to current sepsis guidelines be initiated. These therapies include the use of recombinant activated protein C and low-dose corticosteroids for vasopressor-dependent shock. However, we recommend that careful consideration be used prior to the administration of recombinant activated protein C based upon the theoretical but unproven concern of retroperitoneal hemorrhage. However, we recommend against the use of other immune-modulating therapies targeting inflammatory mediators in SAP, such as anti-tumor necrosis factor- $\alpha$  therapy and leixipafant.

### FUTURE RESEARCH

There are several aspects of care in patients with SAP that require further evaluation in the form of well designed clinical trials. Specifically, the benefits of prophylactic intravenous or oral antimicrobial therapy need to be further assessed. The merits of enteral over parenteral nutrition require reevaluation in the context of strict glycemic control. The consequences of gastric versus jejunal feeds should be tested in further randomized trials. Given the many uncertainties about the pathophysiology of pancreatitis and the promising value of novel therapies in animal models, we recommend that research continue in these areas. Application of antiinflammatory mediator therapy in small human trials before progressing to larger international cooperative trials is paramount to the development of innovative treatment approaches. The formation of collaborative research networks that prioritize clinical questions and collaboratively conduct multicenter studies would help to generate high quality evidence in sufficiently powered studies to help improve the management of patients with SAP.

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