A DIFFERENTIATED SURGICAL APPROACH IN ACUTE PANCREATITIS: OUTCOME PREDICTION AND TREATMENT OPTIMIZATION

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Background:

Acute pancreatitis (AP) is a life-threatening abdominal emergency with increasing incidence and significant morbidity and mortality. Severe forms often involve necrotizing pancreatitis, with up to 30–70% mortality in infected cases. Current surgical approaches remain controversial, particularly in choosing between open and minimally invasive techniques during different disease phases. This study aimed to develop and evaluate a differentiated, evidence-based surgical strategy to improve outcomes in patients with severe AP.

Methods:

A prospective observational study was conducted involving 261 patients treated for acute pancreatitis between 2018 and 2023. Patients were stratified into groups based on the presence of aseptic (n=107) or infected necrosis (n=75). Treatment modalities included conservative therapy, minimally invasive procedures (video-laparoscopy, ultrasound-guided percutaneous drainage), and open surgery. Disease severity and therapeutic outcomes were assessed using APACHE II and SOFA scores before and after intervention. ERCP with endoscopic sphincterotomy (EST) was applied in cases of biliary AP.

Results:

Minimally invasive approaches demonstrated significant benefits in patients with aseptic necrosis, reducing mortality to 6.2% compared to 17.2% in the open surgery group. In infected necrosis, open surgery achieved better outcomes (mortality 19.1%) than minimally invasive treatment (27.3%). Early endoscopic interventions in biliary AP effectively relieved ductal hypertension and reduced progression to necrosis. SOFA and APACHE II scores improved more rapidly in patients undergoing minimally invasive procedures in the early disease phase, while open interventions proved superior in late septic stages with extensive necrosis.

Conclusion:

A phase-specific, differentiated surgical approach significantly improves treatment outcomes in acute pancreatitis. Minimally invasive methods are optimal during early aseptic stages, offering lower mortality and reduced postoperative complications. Open surgery remains necessary in managing late-stage infected necrosis. Integrating clinical severity scores allows for better prediction of outcomes and surgical decision-making. These findings support an individualized, evidence-based treatment algorithm for acute pancreatitis management.