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Severe Acute Pancreatitis in Intensive Care

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Abstract **Original Research Article**

Necrotizing or necrotico-hemorrhagic acute pancreatitis (PANH) accounts for 10–25% of all forms of acute pancreatitis (AP). It is characterized by high mortality and morbidity, mainly related to the development of multiple organ failure syndrome and infection of pancreatic necrosis. The main etiologies are biliary lithiasis (45%) and alcohol intoxication (35%). The pathophysiological mechanisms leading to PANH remain unclear. We analyzed 102 cases of PANH admitted to the surgical intensive care unit of the Ibn Rochd University Hospital in Casablanca. The aim of this study was to descriptively analyze the epidemiological, clinical, radiological, therapeutic, and outcome data of these cases. Severity was defined by a Ranson score >3, an APACHE II score >8, the presence of organ failure, and extensive necrosis. The mean age was 52 years, with a female predominance. Biliary etiology was the most frequent (81%). Pain and vomiting were present in 95% and 77% of cases, respectively. Abdominal ultrasound revealed gallstones in 60% of patients, and CT scan showed multiple necrotic collections in 49% of cases. Treatment was mainly supportive, and the mortality rate was 38%. Several prognostic factors were identified: female sex, hemodynamic and/or respiratory failure, high severity scores, infection, and prolonged hospitalization.

Keywords: Acute pancreatitis (AP), Multiple organ failure, Necrotico-hemorrhagic pancreatitis, Necrotizing acute pancreatitis (PANH), Pancreatic necrosis.

INTRODUCTION

PANH is a severe form of acute pancreatitis with a poor prognosis, and mortality may reach up to 80% in ICU patients. Acute pancreatitis is now considered a systemic disease in its severe form. Advances in understanding its pathogenesis and intracellular mechanisms have led to important therapeutic changes.

The diagnostic approach aims to confirm the diagnosis, assess initial severity, and detect complications. Management remains primarily supportive, as no specific treatment exists.

This study analyzes 102 cases to describe the epidemiological, clinical, radiological, and outcome features of severe acute pancreatitis.

MATERIAL AND METHODS

This is a retrospective study including 102 patients admitted to the surgical ICU of the Ibn Rochd University Hospital between January 2010 and December 2015 with severe acute pancreatitis.

Cases were included if severity was confirmed by abdominal CT and defined by high clinical-biological scores (Ranson, APACHE II), organ failure, and extensive necrosis.

RESULTS

The mean age was 52 years (range 24–80), with a peak between 51 and 60 years and a female predominance (73.5%).

Biliary origin was identified in 83 cases (81.37%), while 67.65% had no prior biliopancreatic history.

The most common symptoms were pain (95.1%) and vomiting (77.5%). Physical findings included epigastric guarding (41%) and abdominal distension (16.7%).

At admission:

- 35 patients (34.3%) were in shock
- 41 (40.2%) had respiratory distress
- 29 (28.4%) had neurological disorders
- 39 had renal failure

Abdominal ultrasound (performed in 86 patients) showed:

- Gallstones in 60.5%
- Dilated common bile duct in 13.9%
- Edematous pancreas with necrosis in 41.9%

CT scan (performed in 76 patients) classified 65.8% as Balthazar stage E.

- Metabolic disturbances were dominated by hyperglycemia (80.4%) and renal failure (57.8%).
- Amylase was elevated in 68.6%, while lipase was measured in only 12 patients (elevated in 5).
- Ranson and Imrie scores were calculated in 92 patients: 3 in 58.7% and 66%, respectively

Simplified severity index (IGS):

- <5: 53%
- 6–10: 37.2%
- 10: 9.8%

Treatment included fluid resuscitation, vasopressors, early enteral nutrition, opioid analgesia, and antibiotics when infection was suspected.

Surgical treatment included:

- Cholecystectomy (38 cases)
- Abscess drainage (24)
- Necrosectomy (14)
- Percutaneous drainage (6)

Outcome was favorable in 63 patients (61.76%), with a mean stay of 17 days. There were 39 deaths (38.23%), mainly due to infection (77%).

DISCUSSION

Acute pancreatitis is increasingly common. The necrotizing form accounts for 10–25% of cases, with mortality up to 80%, compared to 10% overall.

Gallstones and alcohol account for 80–90% of etiologies. Prognosis is worse in postoperative pancreatitis and possibly in alcohol-related, hyperlipidemic, or obese patients.

Clinical evaluation is useful for diagnosis but not for assessing severity at admission. Enzyme levels (amylase, lipase) confirm diagnosis.

Ultrasound is useful for identifying etiology but limited for severity assessment. CT scan remains the gold standard for detecting necrosis, ideally performed 2–3 days after symptom onset.

Severity scores (Ranson, Imrie, APACHE II) have moderate accuracy (≈70–85%), with APACHE II being most useful at admission.

Management is primarily medical in ICU settings. Surgery is reserved for infected necrosis or complications, with a trend toward conservative approaches and pancreatic tissue preservation.

Mortality in necrotizing pancreatitis ranges from 25% to 70%. In our study, it was 38%, mainly due to septic shock and multiple organ failure.

Key prognostic factors include age, extent of necrosis, female sex, hemodynamic and respiratory failure, infection, and prolonged hospitalization.

CONCLUSION

Necrotizing hemorrhagic acute pancreatitis (PANH) is a severe form of pancreatitis with a poor prognosis, with an overall mortality rate of 25 حوالي%, which can reach up to 80% in patients admitted to intensive care units.

In our setting, this rate remains high (38%), mainly due to infectious complications. Among the various management strategies, several remain controversial: surgery for sterile necrosis, indications for biliary surgery and endoscopic retrograde cholangiopancreatography (ERCP), early prophylactic antibiotic therapy, selective digestive decontamination, and nutritional support.

Currently, no precise guidelines exist, and no strategy has demonstrated a clear significant advantage. Ultimately, the management of PANH, which is necessarily multidisciplinary, often remains dependent on local practices and institutional experience.

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