

## Original Research Article

# Management of patients with acute pancreatitis at Al-Karama teaching hospital

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## ABSTRACT

**Background:** Acute pancreatitis is an acute inflammatory condition. It's not an uncommon disease, in both the developed and developing countries, causes high morbidity and mortality, and inflicts a heavy economic burden. Severe acute pancreatitis is present in up to 25% of patients with acute pancreatitis, with considerable mortality. Changes in the management of acute pancreatitis in the last 2 decades contributed to reduce the mortality. The aim of this study was to review the diagnosis and management and outcomes of patients with acute pancreatitis of patients with acute pancreatitis in Al- Karama teaching hospital.

**Methods:** This prospective study included 63 patients with acute pancreatitis in surgical and medical wards in Al-Karma teaching hospital from the 1<sup>st</sup> October 2014 to 30<sup>th</sup> September 2017.

**Results:** 63 patients with acute pancreatitis were included 35 male and 28 female patients with upper abdominal pain in which the diagnosis was not confirmed by CT or serum amylase or by CRP are not included in this study. Age and gender had no significant relations to outcome. Medical therapy is the mainstay, with supportive therapy consisting of controlled volume resuscitation and enteral feeding. Minimally invasive drainage and debridement play a role in managing infective pancreatic necrosis but in general should not be used until at least 4 weeks after the acute illness.

**Conclusions:** Acute pancreatitis is a benign abdominal disorder in up to 85% of cases. In the remaining 10%-15% of cases the disorder is life threatening with management of the disorder requiring admission to an intensive care unit with cardiovascular, respiratory, and renal monitoring and support.

**Keywords:** Epidemiology, Medical treatment, Pancreatitis, Surgical treatment

## INTRODUCTION

Acute Pancreatitis (AP) is an acute inflammatory disorder of the pancreas caused by an intracellular activation of pancreatic digestive enzymes. It is considered as one of the most common diseases of the gastrointestinal tract, leading to tremendous emotional, physical, and financial human burden with high morbidity and mortality.<sup>1</sup> In about 85 - 90% of patients, with acute pancreatitis is self-limiting and subsides spontaneously within (4-7) days. Specific treatment for acute pancreatitis currently does not exist and management is still supportive, with therapy aimed at reducing pancreatic secretion, replacing fluid

and electrolytes losses and analgesia. All patients with severe acute pancreatitis who have one (or more) organ failures (e.g. circulatory, pulmonary or renal) should be managed in an intensive care unit with mechanical ventilation, inotropic agents and renal replacement therapy being used to manage organ failure.<sup>2</sup>

Intense pancreatitis is an incendiary malady of the organ that relates to minimal or no fibrosis of pancreas. Patients with intense pancreatitis create extra difficulties such that sepsis, shock, and respiratory and renal failure, bringing resulting in considerable morbidity and mortality.<sup>3</sup> The annual incidence of acute pancreatitis in Native

Americans is 4 per 100,000, in whites is 5.7 per 100,000 while in blacks is 20.7 per 100,000. The risk for African-Americans aged 35-64 years is 10 times higher than for any other group.<sup>4</sup> Etiologies of acute pancreatitis include cholelithiasis-associated pancreatitis accounts for approximately 45% of cases of acute pancreatitis and ethanol abuse accounts for 35%, other causes account for 10%, and in up to 10% no cause may be found (i.e. idiopathic pancreatitis).<sup>5,6</sup>

Alcoholic pancreatitis often occurs in patients less than 40 years of age and is predominantly a male disease. Clinical presentation of acute pancreatitis includes epigastric abdominal pain, which may radiate through to the back, chest, flanks or lower abdomen, is the predominant symptom of acute pancreatitis. It is usually gradual in onset, constant and boring in nature and may be mild or severe. The pain may be relieved if the patient sits forward or the legs are drawn up. Nausea and vomiting occur in 90% of cases.<sup>7</sup>

The revised Atlanta classification of acute pancreatitis is an international multidisciplinary classification of the severity of acute pancreatitis, updating the 1992 Atlanta classification. It was initially revised in 2012 and then further updated in 2016.<sup>8</sup> There is no adequate data in Iraq about the extent of such surgical emergency. The aim of this study was to review the diagnosis and management and outcomes of patients with acute pancreatitis of patients with acute pancreatitis in Al-Karama teaching hospital.

## METHODS

Between the 1<sup>st</sup> October 2014 and 30<sup>th</sup> September 2017, data about 63 successive patients with acute pancreatitis were collected prospectively at Al-Karama teaching hospital. Information included clinical presentation (history and examination) and examination (U/S, a rise for S. amylase will be more than 3 times the upper typical

limit, frequently serum lipase, CT examine). In all cases, a plain abdominal film and erect chest x-ray was taken to exclude other respiratory and acute abdominal conditions.

Inclusion criteria comprised of being adult above 18 years old, not having any associated surgical emergencies and who consented to participate in this study. Any patient who was managed at ICU and not able to give consent were excluded. Case definition of acute pancreatitis necessitated presence of characteristic abdominal pain, elevated level of serum amylase or lipase level 3 or more times and changes consistent with acute pancreatitis on imaging.

On patient's admission, data involved age, gender, time, delay from pain onset until admission, APACHE-II score and or Ranson's score. On discharge, data were collected by inspection of hospital's records including severity stratification, aetiology, outcome, staying duration in the hospital and in an intensive care unit (ITU), endoscopy and imaging as well as operative findings. In accordance with the Atlanta criteria, severe outcomes were defined as organ failures and/or local complications. Length of hospital stay and number of deaths were recorded. In an abdominal ultrasonography ought to further bolster to make to performed on record those vicinity of cholelithiasis for alternately without ductal dilatation.

Data was analyzed regarding the cause of acute pancreatitis and method of treatment. All data entered and analyzed using SPSS software version 21.

## RESULTS

In this prospective study 63 patients were collected between October 2014 and September 2017 in whom acute pancreatitis was identified. Patient's characteristics were 35 (55.6%) men and 28 (44.4%) women. Mean age was 53.2 years (range 25-78). Mean age of EP was 50 (25-78) and of NP was 56.5 (35-78) (Table 1).

**Table 1: Summarized patients characteristics with acute pancreatitis.**

No (%)	Edematous pancreatitis no (%)	Necrotizing pancreatitis no (%)
Female	16 (25.4%)	12 (19%)
Male	13 (20.6%)	22 (35%)
Mean age (range)	50 (25-78)	56.5 (35-78)
Mean ranson score (range)	1.9 (0-7)	3.9 (0-8)
Mean APACHE II score (range)	6.3 (1-16)	12.6 (5-28)
Mean hospital stay in days (range)	15 (2-18)	17.1 (11-20)
Hospital death	0	11 (1.7%)

Hemorrhagic pancreatitis removed from new classification (the revised Atlanta classification of acute pancreatitis). Therefore, was not reported. Distribution of patients with acute pancreatitis in both types of acute pancreatitis was higher in the last year but this increase is

more prominent in (NP) than in (EP). Distribution of patients with edematous pancreatitis (EP) according to age group and gender. It was found that highest no. of patients in the age group 50-59 years for both male and female. Distribution of patients with necrotizing

pancreatitis (NP) according to age group and gender. It was found that highest number of patients in the age group 40-49years for both male and female as shows in the Table 2.

**Table 2: Distribution of edematous pancreatitis patients (EP) necrotizing pancreatitis (NP) according to age-group and sex.**

Age group	EP		NP	
	Male	Female	Male	Female
20-29	1	0	0	0
30-39	0	0	2	2
40-49	3	5	7	4
50-59	6	5	5	3
60-69	2	4	6	1
70-79	1	2	2	2
Total	13	16	22	12

Pain was found in all patients 100%, followed by nausea and vomiting which were found in 63% of patients, while the lowest symptom was jaundice which was found in only 2% of patients, as shows in Table (3).

**Table 3: Distribution of patients with edematous pancreatitis (EP) and necrotizing pancreatitis (NP) according to causes.**

Cause	EP (NO.)	%	NP (NO.)	Total (No)
Biliary	17	58%	14	31 (49%)
Alcohol	2	7%	5	7 (11%)
Undefined	6	21%	14	20 (32%)
Post ERCP	2	7%	0	2 (3%)
Trauma	2	7%	1	3 (4.8%)

Distribution of patients with edematous pancreatitis (EP) and necrotizing pancreatitis (NP) according to causes. The causes of acute pancreatitis in this study was biliary in 31 patients (49%) patients, alcohol over-indulgence in 7 patients (11%), blunt trauma in 3 patients (4.8%). Post-endoscopic retrograde cholangiopancreatography (ERCP) 2 patients (3%) and other or undefined in 20 patients (32%) despite the ultrasound scan (U/S) and/or the computed tomography (CT) scan. It seems that biliary cause was the most common cause in both types. There significant association between type of management and the prognosis  $\chi^2=59.19$ ,  $df=6$ ,  $p\text{-value} < 0.05$  showed among the (18) patients those who were treated conservatively without cholecystectomy (11) improved an eventfully while (4) patients had complication but improved after (4) weeks and (3) patient died from organs failure.

Those who were treated conservatively but underwent laparoscopic cholecystectomy were (14) patients improved un-eventfully in less than four weeks, (2) patients develop complication but improved after (4) weeks, while (5) patients treated conservatively needed open cholecystectomy and only (1) patient have complication but improved after (4) weeks and (1) patient die after (2) months due to diabetic- ketoacidosis in the medical wards. Surgical intervention was indicated in (22) patients (35%). Different techniques were applied "Open packing", "Planned relaparotomies", "closed over drains", and the pancreatic cavity irrigation" between (22) patients who treated surgically (8) patients improved within two weeks, (7) patients complicated by (fistula and bleeding) but improved after (4) weeks and (7) patients died from multiple organs failure as shows in Table 4.

**Table 4: The outcome of management with acute pancreatitis.**

Prognosis				
Management	Improved an eventfully	Complicated but improved after 4 weeks	Died	Total
Conservative without cholecystectomy	11	4	3	18
Conservative with lap. cholecystectomy	14	2	0	16
Conservative with open cholecystectomy	5	1	1	7
Surgical	8	7	7	22
Total	38	14	11	63

CT scanning with IV contrast has become the gold standard for detecting and assessing the severity of pancreatitis.

In this study CT-scan had been done for (48) patients with acute pancreatitis, there were 22 patients (35%) with edematous pancreatitis (EP) and 26 patients (41%) with necrotizing pancreatitis (NP), fifteen patients developed

organ failure (23.8%) but mechanical ventilation was required by only eight patients of them. There were eleven patients (17.5%) with acute pancreatitis died (10) patients of them died after the surgical management for severe cases. The median staying days in hospital was 16days (range 2-25), and (6) patients (9.5%) were treated in ICU with a median staying of eight days (range 1-22) while the median staying days in mild cases was (6) days (range 4-8). Multiple organ failure was not found in

patients with edematous pancreatitis but only one patient (1.6%) with single organ failure showed pulmonary insufficiency.

## DISCUSSION

In this cohort study, author collected 63 patients with acute pancreatitis (28 female and 35 male), hospital stay was more in (NP) than (EP) and this is because it is more severe and more complications developed in (NP) than (EP) anyhow these complications include only short term complications (develop within 8 weeks of admission).

In our hospital, the estimation of diagnosis was similar to that in UK that delayed diagnosis is considered as an indication of under diagnosis, the high diagnosis rate within 48 hours in Wessex indicates that under diagnosis is perhaps less common such as that S. amylase result is currently a part of the routine abdominal pain evaluation. However, in our hospital, we do not have such facility yet, so our diagnosis may be an underestimate one.

Bank S et al, in their review stated that in the last 20 years, the causes of mortality rate decrease were: the early identification of severity with prompt treatment, nutritional support improvement, angiography, ERCP and antibiotics use.<sup>9</sup> In their prospective observational study, Buter A et al revealed that in the mortality rate was about (50%) in organ failure patients that persisted for over than 48 hours. By contrast, patients with organ failures treated in the R.C.U. that resolved within two days had a zero mortality rate.<sup>10</sup>

In this study the mortality rate was 11 patients (17.5%) in comparable to the mortality rate of Büchler P et al, (mortality rates of about 15% was reported) but it is much different from mortality rate of Claus et al, who reported mortality rate of (0.7%) in his study on 145 patients while De Campos T et al, in Brazil reported a mortality rate of 25% in his study.<sup>11,12</sup> In this study, the mortality rate was high as compared to international studies because large number of patients are referred patients from other hospital due to disease severity, and the limited number of R.C.U. bed available while Wessex hospital used to refer critically ill patients to more specialized center.

Recently we have noticed a raise in the diagnosis of acute pancreatitis in this hospital especially in the last year, this is may be due to increase in the incidence of gallstones and biliary diseases (which is believed to be the main causes of acute pancreatitis) and change in pattern of gallstones diseases to affect male and young age group also may be due to the improvement in the community general condition as well as the advanced diagnostic facilities.

The attack of acute pancreatitis (EP) in both male and female are more common among patients in their forties but it also peak in fifties specially in male patients, this peaks may be due to the peak of gall stones incidence in

patients in their forty and fifty, or the raise of acute pancreatitis in male patients in their forties may be due to alcohol consumption.

The causes of acute pancreatitis in this study was biliary in 31 patients (49.2%), alcohol overindulgence in 8 patients (12.6%), trauma in 3 patients (3.2%). endoscopic retrograde cholangiopancreatography (ERCP) 2(3%) and other or undefined in 20 patients (30.2%) despite the ultrasound scan (U/S) and/or the computed tomography (CT) scanning. Gallstones is the commonest cause of both types of acute pancreatitis in this study as well as to a study done in KSA by Professor Singal et al. While alcohol is less common cause in our study as compared to Ravi Kant et al, but alcohol was found to be more common in NP than EP.<sup>13</sup> This may be because alcoholism is less common problem in our community than in the west.

Claus Niederau et al, found that alcoholic pancreatitis represents (54.5%) and biliary in (26.2%) of patients (other causes, 18.6%), which is believed to be a cause of the highly prevalence of men's acute pancreatitis.<sup>11</sup> Lankisch PG et al reported that alcoholic AP patients were more severe than the other people, particularly those who arrive to the hospital in less than 24-hour period because of severe pain.<sup>14</sup> Diagnosis of these alcoholic patients may be difficult due to an abnormal baseline serum amylase at time of admission. Serum lipase, which is more specific than S. amylase, is the key for AP diagnosis in these patients. Lipase is usually increased in alcoholic patients and the diagnosis is confirmed despite normal amylase results. In such conditions, CT scan can be necessary.<sup>14</sup> Acute pancreatitis without prominent cause is present in 21% in EP and 38% in NP, according to Lankisch PG et al. While in this study its (30.2%) and this may be because of lack of some investigation, as DNA analysis or toxicology screening study.<sup>14</sup> Also it has been found that trauma and post ERCP acute pancreatitis causes only mild type of pancreatitis anyhow this much depends on the severity of trauma itself and on the operator.

Upper abdominal pain is the main symptom of presentation, it was present in all patients in this study and represents the 1<sup>st</sup> clue for diagnosis, anyhow the severity and pattern of pain greatly vary between patient and another. Nausea and vomiting are also common in patients with acute pancreatitis.

There is a significant association between type of management and the prognosis  $X^2=59.19$ ,  $df = 6$ ,  $p\text{-value} < 0.05$ . The treatment of acute pancreatitis is either conservative or surgically. In this study, author found that morbidity and mortality were higher among surgically treated patients.

Kelly TR et al, selected (165) acute gallstone-associated pancreatitis patients to early surgery (within 48 hours after their admission) or delayed surgery (over 48 hours after



their admission). Their results showed that the early surgery was correlated with a much greater morbidity (83 vs 48% respectively) and mortality rate (18 vs 12% respectively) in severe pancreatitis patients compared to the delayed surgery.<sup>15</sup>

In their research, Saez J et al, out of the 363 patients AP patients and recorded (31.3%) mortality rate. They demonstrated that most systemic complications after surgical treatment of acute pancreatitis were related to mortality.<sup>16</sup> The high mortality rate could be attributed to the high mean age of (69) years and the high necrosis number of patients (55.2%). Kong L et al, retrospectively studied surgically-treated (94) severe acute pancreatitis patients and found 54% with necrosis and (23.4%) of deaths. They have found that fatal outcome was anticipated by cardiovascular, respiratory and renal failure, that is increased after surgical treatment.<sup>17</sup>

Thus, the development of systemic complications in surgically-treated patients with necrosis can result in worst prognosis. So, both of those studies agreed with our result. Surgical intervention was indicated in 22 patients (35%) due different indication, and different techniques were applied "Open packing", "Planned relaparotomies", "closed over drains", "closed over drains and the pancreatic cavity irrigated".

It looks that "closed over drains" is the most popular technique in which that 14 patients has undergo this technique although it has a high mortality rate (29%). Anyhow "Planned relaparotomies" has less mortality rates. In the U.K, (30-50%) of acute pancreatitis cases are associated with gallstones, while (15-29%) with alcohol. In the author's audit, 50% were gallstone-related, whereas (12%) were alcohol-related. It is greatly differing in alcoholic pancreatitis this may be because of the difference in dietary habits and prohibition of alcohol in our society. However, the greater percentage (32%) was in idiopathic cases in these series, and this percentage is greater than the standard (20-25%).

## CONCLUSION

The current study again emphasizes the importance of early assessment of severity and intensive care administration in acute pancreatitis depends on clinical, laboratory assessment, ultrasound and contrast-enhanced CT imaging. Lab markers with high values of lipase, CRP associated with the mortality and morbidity.

Numeric systems (APACHE II, RANSON) are often applied nowadays to help organ failure detection, and the acquired information are employed as evidence of the severity of disease, with a high specificity and sensitivity. CT-scan with I.V contrast enhancement appeared to early detect (90%) with nearly (100%) sensitivity after (4) days for acute pancreatitis. The CT severity index showed an excellent association with the development of local complications and death incidence.

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