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Management of Acute Pancreatitis in Baghdad Teaching Hospital

***Dr. Hassan Ghweely shalal*[1], *Dr Laith Mahmood Mohammed*[2], *and Dr Samer Th. Ahmed*[1]**

[1]*MBChB, CABS, Baghdad Teaching Hospital, Medical City, Baghdad, Iraq*

[2]*MBChB, FICMS, Medical City, Baghdad, Iraq*

Abstract: Background: Acute pancreatitis is a common and challenging disease that can develop both local and systemic complications, It ranges from a mild self-limiting inflammation of the pancreas to critical disease, the incidence of acute pancreatitis has increased during the past 20 years. Glasgow scale: is scoring system to predict the severity of acute pancreatitis, its consider a severe when the score was three or more. Aim: to determine the diagnosis, causes, classification, management of acute pancreatitis and its outcome. Patients and methods: This is a Prospective descriptive case series Study conducted in medical city / Baghdad teaching hospital for the period from the 1st of January 2015 to the 1st of January 2018, 133 patients with acute pancreatitis were admitted to the surgical wards. Result: one hundred thirty-three patients included with acute pancreatitis, 84 male and 49 female with male to female ratio 1.7:1, Regarding the etiology of acute pancreatitis in our patients was the most common cause is gall stone 51.87%, alcohol was 24.27%, idiopathic was 18.03%, post ERCP and drugs abused (2 patients by codeine and 1 by Atorvastatin) were 2.25%, post trauma was 1.5% and hyperlipidemia was 0.75% . Conservative management is effective in mild and most severe cases , surgical management is used in 25 patients with severe acute pancreatitis. Conclusion: severe acute pancreatitis was lethal condition which mean early diagnosis and differentiate from other pathology and urgent proper management.

Keywords: Acute Pancreatitis, Etiology, Management.

INTRODUCTION

Acute pancreatitis (AP) is a common and challenging disease that can develop both local and systemic complications. It ranges from a mild self-limiting inflammation of the pancreas to critical disease characterized by infected pancreatic necrosis, multiple organ failure and a high risk of mortality. (Petrov, M. S. *et al*., 2010) It is one of the most common disease of the gastrointestinal tract, leading to tremendous emotional, physical and financial human burden. (Peery, A. E. *et al*., 2012) The clinical outcome has improved over recent decades, even in the absence of specific treatments that target outcome-determining pathophysiology, probably because of a more consistent approach to diagnosis, monitoring and management. (Jose Acosta)

The exact mechanism whereby predisposing factors such as ethanol and gallstones produce pancreatitis is not completely known. Most researchers believe that AP is the final result of abnormal pancreatic enzyme activation inside acinar cells. Immunolocalization studies have shown that after 15 minutes of pancreatic injury, both zymogen granules and lysosomes colocalize inside the acinar cells. The fact that zymogen and lysosome colocalization occurs before amylase level elevation, pancreatic edema, and other markers of pancreatitis are evident suggests that colocalization is an early step in the pathophysiologic process and not a consequence of pancreatitis. Studies also suggest that lysosomal enzyme cathepsin B activates trypsin in these colocalization organelles. In vitro and in vivo studies have elucidated an intricate model of acinar cell death induced by premature activation of trypsin. In this model, once athepsin B in lysosomes and trypsinogen in zymogen granules are brought in contact by colocalization induced by pancreatitis-inciting stimuli, activated trypsin then induces leak of colocalized organelles, releasing cathepsin B into the cytosol. It is the cytosolic cathepsin B that then induces apoptosis or necrosis, leading to acinar cell death. Thus, acinar cell death and to a degree the inflammatory response seen in AP can be prevented if acinar cells are pretreated with cathepsin B inhibitors. In vivo studies have also shown that cathepsin B knockout mice have a significant decrease in the severity of pancreatitis. (Saluja, A. K. *et al*., 2007)

The inflammatory cascade is self-limited in approximately 80% to 90% of patients. However, in the remaining patients, a vicious circle of recurring pancreatic injury and local and systemic inflammatory reaction persists. In a small number of patients, there is a massive release of inflammatory mediators to the systemic circulation. Active neutrophils mediate acute lung injury and induce the adult respiratory distress syndrome frequently seen in patients with severe pancreatitis. The mortality seen in the early phase of pancreatitis is the result of this persistent inflammatory response.

The incidence of AP has increased during the past 20 years. AP is responsible for more than 300,000 hospital admission annually in the united states. Most patients develop a mild and self-limited

***Corresponding Author:** Dr. Hassan Ghweely shalal

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course, however, 10% to 20% 0f patients have a rapidly progressive inflammatory response associated with prolonged length of hospital stay and significant morbidity and mortality. Patient with mild pancreatitis have a mortality rate of less than 1%, but in severe pancreatitis, this increases up to 10% to 30%. The most common cause of death in this group of patients is multiorgan dysfunction syndrome. (Lankisch, P. G. *et al*., 2001)

The management of acute pancreatitis is divided into three steps:

- The first step includes diagnosis and initial management.
- The second step includes, running simultaneously, severity stratification, management according to disease severity, and etiological assessment.
- The final step involves the detection and management of complications.

PATIENT AND METHODS

This is a Prospective descriptive case series Study conducted in medical city / Baghdad teaching hospital for the period from the 1st of January 2015 to the 1st of January 2018, 133 patients with acute pancreatitis were admitted to the surgical wards AP was diagnosed by exploratory laparotomy or by clinical background confirmed by laboratory and/or image investigations, positive when he had two or more of three of the following findings:

- Typical abdominal pain of AP (acute onset of a persistent and severe epigastric pain often radiating to the back)
- Elevated of serum amylase and/or lipase levels three times the normal limit.
- Finding of imaging studies, including abdominal ultrasonography (US) or computed tomography (CT)

The patients data regarding the clinical picture (history & examination), investigation (CBC, RBS, RFT, LFT, Serum amylase, LDH and S. electrolyte, abdominal ultrasound, chest and plain abdominal x- ray for all patient, Serum Lipase, OGD, CT scan for some patients) and operative findings were collected from the patients and their records using the following form as shown:

Patient:

Name: ---------- Age---------- Gender----------
BMI----------, smoking----------, alcoholic----------

Clinical:

Pain and its characters----------

Nausea----------, Vomiting ----------, Jaundice----------

Temp----------, PR------, RR-------BP

Investigation:

WBC-------- RBS--------, S. Amylase-------, S. Lipase----------

RFT----------, LFT---------- LDH----------, S.K----------

S. Ca----------S. Na----------, S. Cl----------S. albumin--------

U.S----------, CXR----------, Abdominal X-Ray----------Pao2----------

Abdominal CT scan----------

Fig 1: Patient data form

After diagnosis of AP, the patients were classified according the severity of AP by Glasgow scale that shown below to mild and severe patients.

Glasgow scale
On admission

- Age > 55 years.
- White blood cell count > 15 x109/L.
- Blood glucose > 10 mmol /L (no history of diabetes).
- Serum urea > 16 mmol/L (no response to intravenous fluids).
- Arterial oxygen saturation (PaO2) < 8 kPa (60 mmHg)

Within 48 hours Within 48 hours

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- Serum calcium < 2.0 mmol/L.
- Serum albumin < 32 g/L.
- LDH > 600 units/L.
- AST/ALT > 600 units/L.

0-2 mild and equal or more than 3 severe.

Regarding mild patients the treatment was conservatively by: Nothing by mouth till pain, nausea and vomiting subside, I.V fluid, electrolyte replacement, antibiotics, antiemetic, analgesia, PPI or H2 blocker as prophylactic to avoid stress ulcer, nasogastric tube in vomiting or ileus to decompression, follow up persist of them during hospitalization and appointment for cholecystectomy given to patient with gallstone.

While the severe cases treated by conservatively by the same regimen above in addition to O2, octreotide, enoxaparin in some cases as prophylactic or treated by surgery for patients did not respond well to conservative treatment.

Other cases presented to emergency as acute abdomen and underwent exploratory laparotomy and reveal severely inflamed pancreatitis, those patients classified as severe acute pancreatitis (SAP).

All patients were followed up during hospitalization and their outcome were recorded.

Our results were arranged in tables and figures and expressed as percentages.

RESULTS

In this prospective descriptive study, one hundred thirty three patients included with AP, there were 84 male and 49 female with male to female ratio 1.7:1 their ages ranges from 15 to 78 years with mean of ages equal to 39.7years, the highest No. of male patients were in age group 31-40, while the highest No. of females patients were in age group 41-50 years, the lowest No. of patients were below 20 years, that shown below in table No.(1).

Table No. 1: distribution of patients according to the age group

Total NO	Male		Female		Total	
	No.	(%)	NO.	(%)	No.	(%)
15-20	2	1.5	1	0.7	3	2.25
21-30	16	12.03	3	2.25	19	14.28
31-40	32	24.06	**15**	**11.27**	47	35.33
41-50	17	12.78	24	18.04	41	30.82
51-60	12	9.02	3	2.25	15	11.27
61-70	5	3.75	2	1.5	7	5.26
Total	84.	63.15	49.	36.85	133	

Regarding diagnosis of Our patients we depend on history and examination confirmed by biochemical investigations (elevated serum amylase or lipase threefold more than normal range) or imaging (ultrasonography or computed tomography), serum amylase done for all patients it was normal in 26 patients, s.lipase done for 77 patients it was normal in 9 patients, ultrasonography performed for all patients and reveal feature of acute pancreatitis in 48 patients, computed tomography done for 53 patients and post exploratory laparotomy diagnosis done in 21 patients. Table below shows the use of investigations:

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Table No.2 : investigations used for diagnosis		
Type of investigation	No. of patients	Percentage %
S. amylase	133	100%
S. lipase	77	57.89%
ultrasonography	133	100%
Computed Tomography	53	39.84%

The No. of patients who diagnosed with AP during study were inceased every year, the No of patient at the 1st year was 37, at 2nd year was 45, and last year was 51 as shown in figure no.(2) below:

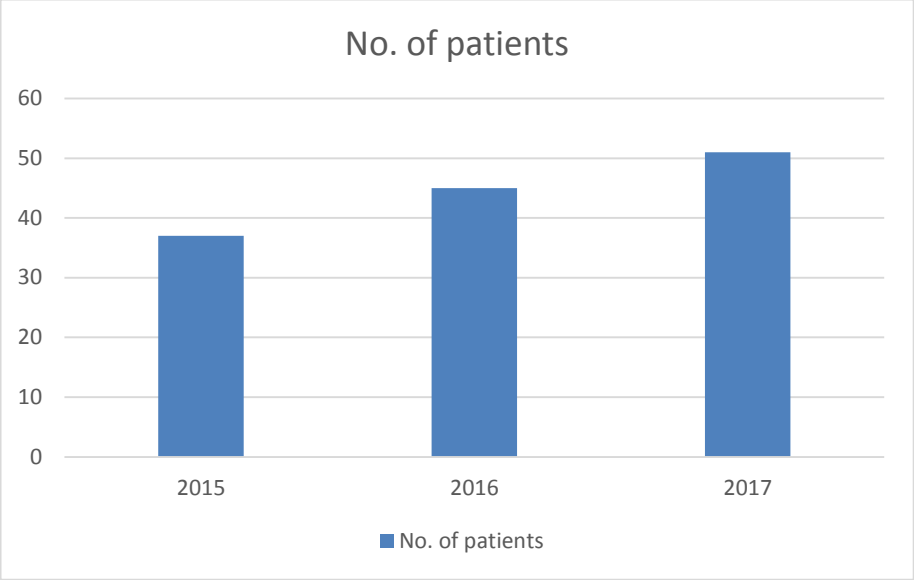

Figure no 2: No. of patients

The signs and symptoms of patients were variant, the abdominal pain was present in all patients with different characters, nausea was present in 87 patients, vomiting in 79 patients, fever in 55 patients, sweating 38 patients, jaundice in 13 patients and shocked also present in 4 patients (figure No. 3 show percentage of symptoms in our patients).

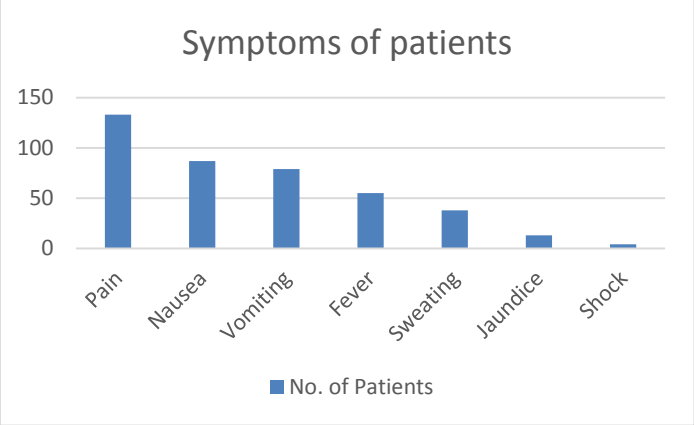

Figure no 3: Distribution of symptoms among patients

Regarding the etiology of acute pancreatitis in our patients was the most common cause is gall stone 51.87%, alcohol was 24.27%, idiopathic was 18.03%, post ERCP and drugs abused (2 patients by codeine and 1 by Atorvastatin) were 2.25%, post trauma was 1.5% and hyperlipidemia was 0.75% as shown in table no.(3).

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Table no. (3) causes of acute pancreatitis		
Causes	Total NO	Percentage
Gallstone	69	51.87
Alcohol	31	24.27
Idiopathic	23	18.03
Post ERCP	3	2.25
Drugs abused	3	2.25
Trauma	2	1.5
Hyperlipidaemia	1	0.75
Total	133	100

According to the severity, the patients were classified into mild and severe by using Glasgow scale, there were 74 patients in mild condition and 59 patients in severe condition. As shown in figure no. (4).

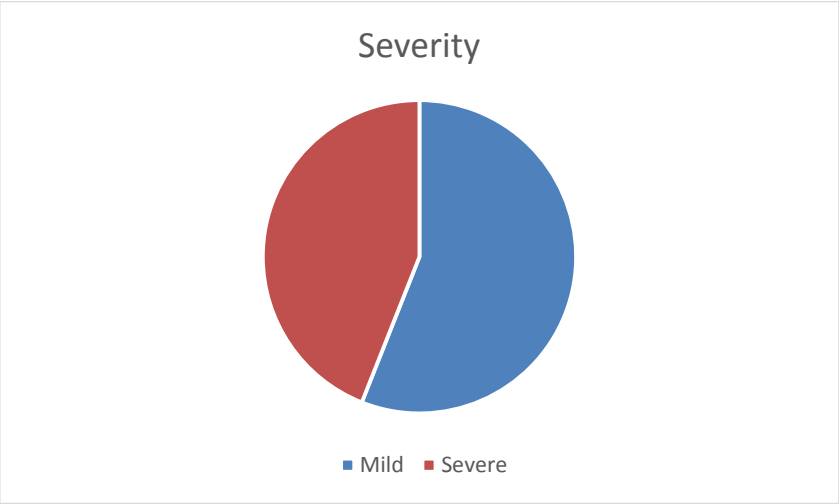

Figure no 4: distribution of patients regarding severity

Regarding 74 patients who classified as mild condition, they treated by conservative method in mean hospitalization period 6 days for improvement, 42 of them were gallstone ,37 patients underwent laparoscopic cholecystectomy during 6 weeks from attack, 3 of them convert from laparoscopic to open cholecystectomy, 3 underwent open cholecystectomy and 2 patients refused any type of cholecystectomy.

Regarding the severe cases there were 38 patients diagnosed by combination of clinical and biochemical or imaging investigation treated conservatively and Follow up done in the wards, 6 of patients died because MOF and 4 patients convert to surgical management because not responded to conservative management, with a mean period of hospitalization equal to 17 days as shown in figure no. (5).

Twenty-One patients were diagnosed post exploratory laparotomy because the diagnosis was unclear, and patients were vitally unstable 14 of them were Necrotizing pancreatitis and 7 were Edematous pancreatitis. 8 patients died post-operatively with a mean duration of hospitalization for cases underwent laparotomy was 22 days as shown in figure no. (5).

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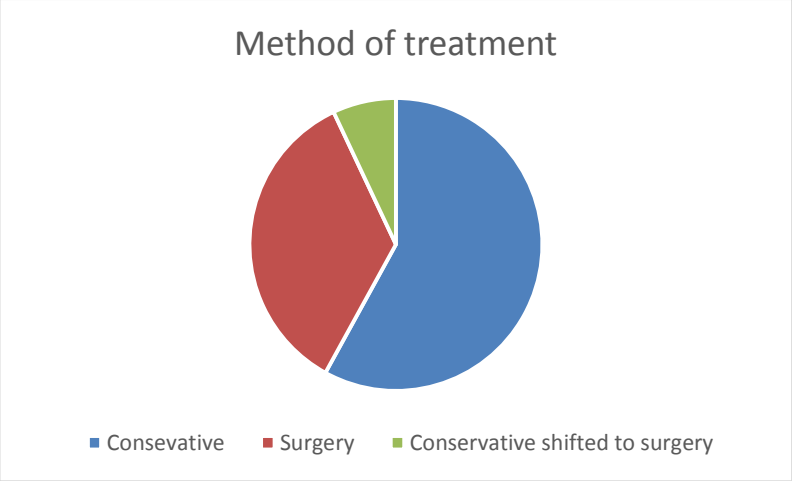

Figure no. 5: method of treatment regarding severe acute pancreatitis

In our hospital the total No. of mortality was 14 patients who represent (10.52% from total AP and 23.72% from severe cases).

DISSCUSION

In our study 133 patients were diagnosed as AP, we noticed there was increase in No. of patient admitted to hospital with AP every year , this is compatible with the study done in united states by shah, A.P. *et al*., 2018; that reveal the no. of admission for AP increased every year and compatible with a previous study in Iraq done by Yaqoob, Q.S., 2011; this result may be due to increase the incidence of gallstones and alcohol abuse (most common causes of AP), and increased facilities to diagnosis in emergency department.

Regarding the age we found the highest percentage of AP in male was (35.33%) between 31-40 year of age while in female was (30.04%) between 41-50 year, this peak may be due to the peaks 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.

Regarding the gender of patients, the male to female ratio was 1.7\1 and this is compatible with the result done by lankisch PG(A) in Germany which reveal 1.68\1 male to female ratio. (Lankisch, P. G. *et al.*, 2001)

S. lipase was normal or increased less than threefold in 16.8% of patients, this result was lower than that found in a study done by Avanesov, M. *et al*., 2017, that reveal 27 % of patients with acute pancreatitis may present without threefold increased serum lipase.

In our study the most common cause of AP was gallstone 51.87% of patients, and alcohol was the 2nd cause that present in 24.27% of patients, this is compatible with a study done by Cho, *et al*., 2015, in Korea at 2015 that reveal 49.7% of etiology of AP was gallstone and 32.7% was alcoholic, and incompatible with other study done in India by Baig, S.J. *et al*., 2008, that reveal alcohol was the main cause of acute pancreatitis and gallstone was the 2nd cause.

In this study we found that 23 patients 17.28% were diagnosed as idiopathic acute pancreatitis, this compatible with study done by pongprasobchai, S. *et al*., 2017, in Thailand that reveal the idiopathic acute pancreatitis 15%.

Regarding The AP caused by drug in use in our study were 2.25% from all cases, this result is similar to the result done by jones, M.R. *et al*., 2015, in the united states (2%).

Regarding severity of AP we found 44% severe cases and 56% mild cases, and this is a high percentage of SAP as compared to a study done in Brazil by Tercio De campose, 2013, which found 16% of patients diagnosed as severe AP.

Mortality rate of AP in our study were 10.52% of patients from total AP and 23.72%% from severe cases this is incompatible with a study done in Romania by Popa, C.C. *et al*., 2016, that reveal mortality was 45.63% in severe cases and a study in London hospital (Besselink, M. G. *et al*., 2009) that reveal mortality rate equal to 32%.

In SAP (59 patients), 38 of them started on conservative treatment, 6 of them died, 4 converted to surgery and others improved, the mortality rate equal to 18.75.

In surgical cases 21 underwent exploratory laparotomy since beginning plus 4 patients converted from conservative to surgery 8 patients

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died, the mortality rate for surgical patient equal 32.

CONCLUSIONS

- Severe acute pancreatitis was lethal condition; which need early diagnosis and urgent proper care and management may influence the outcome.
- We conclude that incidence of AP is increasing every year.
- We conclude that the mortality in severe cases was low as compared to other countries.

RECOMMENDATIONS

- Severe AP was lethal condition which need early diagnosis and urgent proper management.
- Educate patient about the disease, and advise them to avoid alcohol in binge amount and discontinue any risk factor, such as fatty meals.
- Educate the doctors and medical staff to deal with this problem severity and urgently.
- Increase more facilities of investigations in emergency department.

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