IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 6 Ser.16 (June. 2020), PP 55-63
www.iosrjournals.org

A Clinical Study on Acute Pancreatitis and Its Management in Tertiary Care Hospital

Dr. k.vamseedhar[1], Dr. N.V.Ramanaiah[2], Dr.G.V.Prakash[3], Dr.Vulchi Sreeramaraju[4].

[1] *Assistant Professor, Department Of General Surgery, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh.*
[2] *Professor, Department Of General Surgery, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh.*
[3] *Professor And Head Of Department, Department Of General Surgery, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh.*
[4] *Senior Resident, Department Of General Surgery, Sri Venkateswara Medical College, Tirupati, Andhra Pradesh.*

Date of Submission: 10-06-2020 Date of Acceptance: 27-06-2020

ABSTRACT

BACKGROUND

Acute pancreatitis includes a wide spectrum of disease, from one with mild self- limiting symptoms, to fulminant processes with multiorgan failure and high mortality. Given the wide spectrum of disease seen, the care of patients with pancreatitis should be highly personalized. Patients with mild acute pancreatitis generally can be managed with resuscitation and supportive care. Those with severe and necrotizing pancreatitis require intensive therapy, which may include surgical management. Because of frequent emergencies, multimodality presentation, complications, this challenging subject is taken up for the present study in which we studied the clinical profile and management of acute pancreatitis in our hospital.

METHODS

This study is hospital based observational study conducted in Department of General Surgery, S.V.R.R.G.G.H, Tirupati. 100 Patients fulfilling the inclusion and exclusion criteria are selected and Four sequential steps have been followed.

1. *Establishing the diagnosis of acute pancreatitis excluding other abdominal conditions that have similar clinical features.*
2. *Identify the presence of biliary tract disease, excluding other possible etiologies of the acute pancreatitis.*
3. *Assess the severity of the disease.*
4. *Detect any complications.*

RESULTS

This prospective study conducted at SVRRGGH, Tirupathi, included 100 patients with acute pancreatitis, 93 males and 7 females (M:F ~ 13.28:1). The peak incidence was noted in the fourth decade, with the mean age of 38.54 years. The commonest etiology was alcohol accounted for 85% of cases followed by gall stone disease (7%).

Pain and vomiting were the commonest presenting complaints. Ten patients had jaundice. Serum amylase and serum lipase together gave high sensitivity (95%) for diagnosis. Computed tomography was a very sensitive, non-invasive tool for diagnosis and imaging of complications. The enteral route was used for nutritional support in 12 patients and total parenteral nutrition was given to 9 patients. The mean hospital stay was 12.13 days (Range – 6 to 34 days).

Out of 100 patients, 69% had mild disease, while 31% had a severe attack. The overall mortality rate was 4%.

CONCLUSION

The incidence of acute pancreatitis was more in a younger age group in our study. Serum Amylase and Lipase both were (95% sensitivity) used for diagnosis wherever possible. Ideally, all cases should be stratified during the first 48 hours, according to one of the scoring systems. Scoring systems help to identify patients who are more likely to have a severe attack. Severe cases should be managed in well-equipped ICU since they may require massive fluid resuscitation, mechanical ventilation, and hemodialysis. Further attacks should be prevented by early cholecystectomy and avoiding alcohol.

Keyword: *Acute pancreatitis, cholecystectomy, pancreatic necrosis, pancreatic abscess, ARDS.*

INTRODUCTION

Acute pancreatitis is a common condition involving the pancreas. The estimated incidence is about 3% of cases presenting with pain abdomen in the UK. The hospital admission rate for acute pancreatitis is 9.8/100000 per year in the UK, and annual incidence may range from 5-50/100000 worldwide.[1] Gall stone disease and ethanol account for greater than 80% of all patients with acute pancreatitis, with biliary disease accounting for 45% and alcohol found in 35% of patients.[2] Alcohol is the most common etiology in a study from Finland.[3] In the study, approximately 70% of patients had alcohol abuse as the etiology. Acute pancreatitis includes a wide spectrum of disease, from one with mild self- limiting symptoms, to fulminant processes with multiorgan failure and high mortality. Most experience relatively minor episodes of the disease with mild parenchymal edema without distant organ dysfunction and uneventful recovery. Severe episodes, however, may involve a progression to extensive pancreatic necrosis, development of the systemic inflammatory response syndrome (SIRS), multiorgan failure, rapid clinical deterioration, and even death. Although the overall mortality rate for acute pancreatitis is 2–10%, this is related primarily to the 10–30% of patients with severe disease characterized by pancreatic and peripancreatic necrosis.[4] Whereas early aggressive debridement was used commonly for all patients with pancreatic necrosis in the past, now most pancreatic surgeons have adopted a more conservative algorithm of selective and delayed pancreatic debridement.[5] Because of frequent emergencies, multimodality presentation, complications, this challenging subject is taken up for the present study in which we will be studying the clinical profile and management of acute pancreatitis in our hospital.

MATERIAL AND METHODS

Inclusion Criteria:

1. Patients giving informed and written consent.
2. Patients presented with acute pancreatitis proved by serum amylase / lipase levels and imaging studies (USG and CECT abdomen).

Exclusion Criteria:

1. Patients not willing to include in study.
2. Patients with elevated renal parameters.
3. Patients of chronic kidney disease.
4. Pregnant women.
5. Age less than 18 years.
6. Patients with chronic pancreatitis and acute on chronic pancreatitis.

Study design: hospital based observational study.

Study setting: Department of General Surgery, S.V.R.R.G.G.H, Tirupati.

Study Period: 1 year from the date of institutional ethical committee approval.

Study methods:

- 100 Patients fulfilling the inclusion and exclusion criteria are selected.
- Written and informed consent was taken.
- Demographic data like name, age, sex, occupation, economic status, literacy status are noted.
- Detailed clinical history and examination of the patients will be done.
- Relevant investigations were undertaken to make diagnosis.

Four sequential steps have been followed.

1. Establishing the diagnosis of acute pancreatitis excluding other abdominal conditions that have similar clinical features.
2. Identify the presence of biliary tract disease, excluding other possible etiologies of the acute pancreatitis.
3. Assess the severity of the disease.
4. Detect any complications.

Routine investigations like complete hemogram, blood urea, serum calcium and serum amylase/lipase performed. USG abdomen will be done routinely to confirm the diagnosis, for evaluation of the biliary tract diseases and for detecting any complications. contrast enhanced CT abdomen will be undertaken when the diagnosis is doubtful, when USG was not confirmative and when patient failed to improve beyond 72 hours.

The treatment plan is focused on adequate initial resuscitation and supportive care, early detection of complications and definitive treatment of associated biliary diseases.

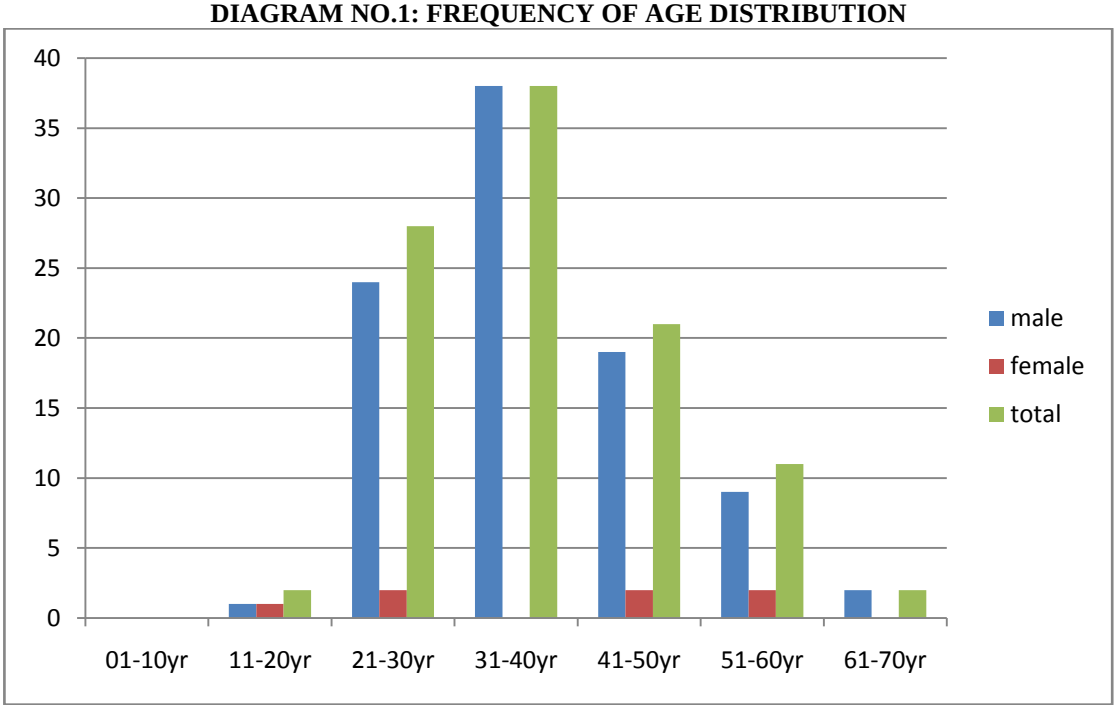
Data like clinical symptoms and signs, results of investigations, complications, surgical procedures if any, duration of hospital stay, recurrence if any were carefully recorded.

OBSERVATION AND RESULTS

AGE DISTRIBUTION :

The mean age observed in the study group was 38.54 years. The peak incidence is in the 4th decade.

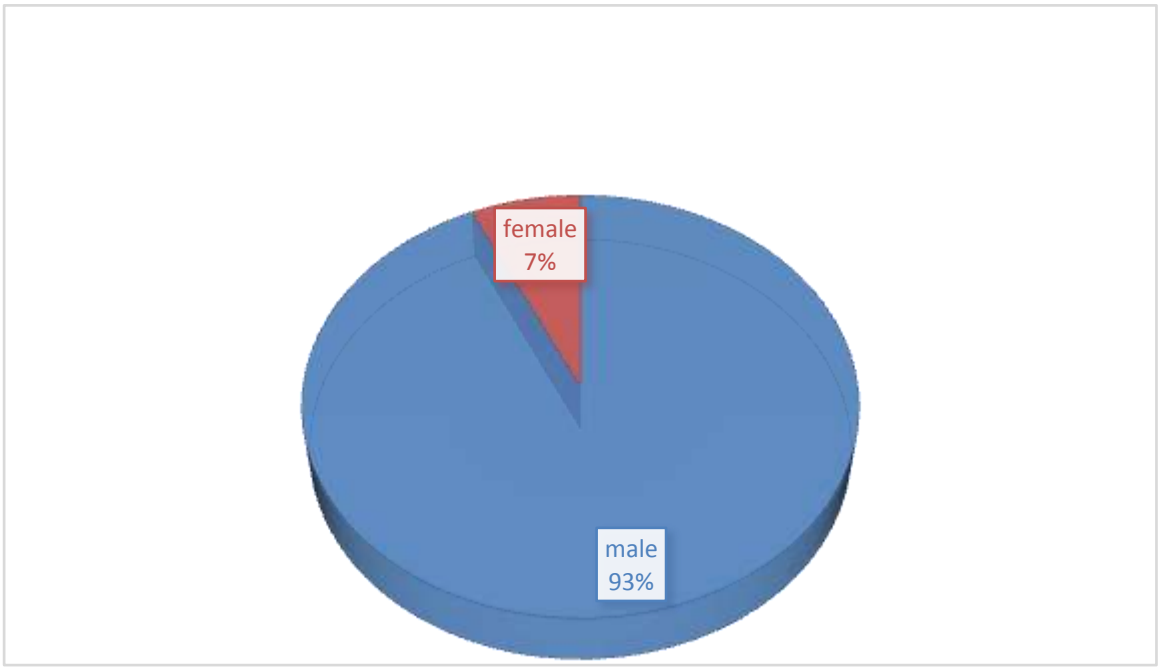
DIAGRAM NO.1: FREQUENCY OF AGE DISTRIBUTION



SEX DISTRIBUTION :

Of the 100 patients, 93 (93%) were males, and 7 (7%) females. Of these, 30(32.25%) males had severe disease, and 1 (14.28%) females had severe disease.

DIAGRAM NO.2: FREQUENCY OF SEX DISTRIBUTION



ETIOLOGY :

Alcohol consumption is the most common etiology with a history of alcohol consumption present in 85 (85%) patients.

7 (7%) patients had biliary pancreatitis, with the majority of them having milder disease.

1 (1%) patient had pancreatitis due to blunt injury to the abdomen.

1 (1%) patient had drug-induced pancreatitis, a case of RVD and on ART.

6 (6%) patients had no cause identified.

DIAGRAM NO.3: ETIOLOGICAL DISTRIBUTION

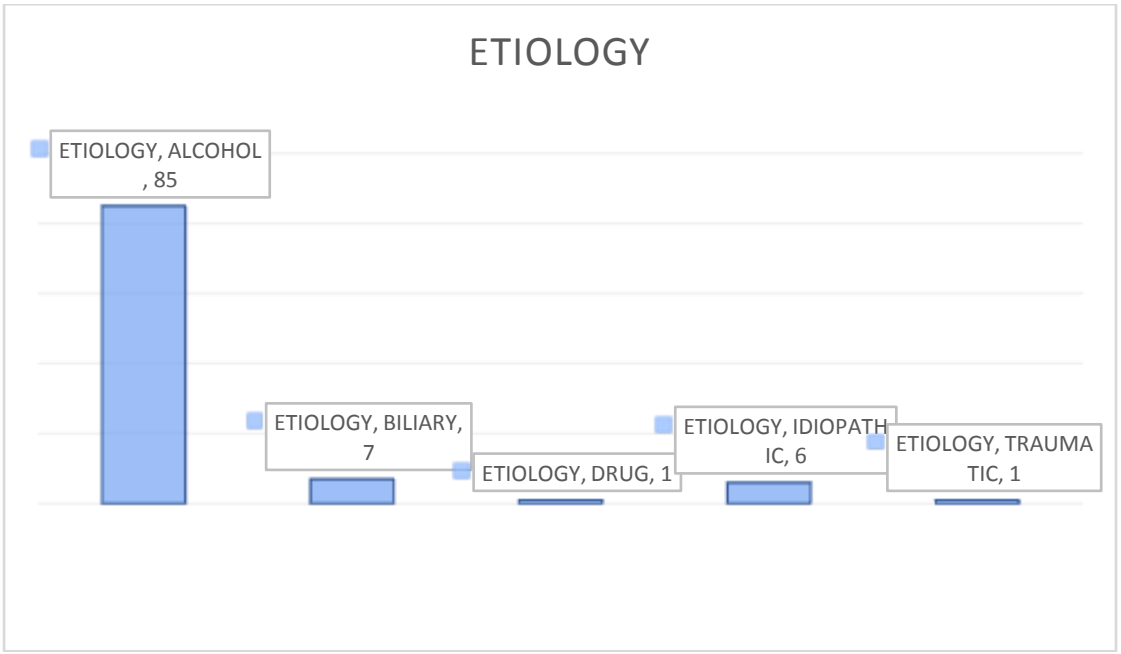


Table 5: Etiology-Frequency

ALCOHOL		
	Frequency	**Percent**
Non-alcoholic	15	15
Alcoholic	85	85
Total	100	100

BILIARY		
	Frequency	**Percent**
Non-biliary	93	93
Biliary	7	7
Total	100	100

TRAUMA		
	Frequency	**Percent**
No H/O Trauma	99	99
Trauma	1	1
Total	100	100

DRUGS		
	Frequency	**Percent**
No H/O drugs	99	99
H/O drugs	1	1
Total	100	100

IDIOPATHIC		
	Frequency	**Percent**
Non-Idiopathic	94	94
Idiopathic	6	6
Total	100	100

CLINICAL FEATURES :

The commonest presentation is with pain in the abdomen and vomiting. Pain in the abdomen is present in 99 (99%) patients and vomiting in 77 (77%) patients, respectively.

Other clinical features include distention of abdomen in 24 (24%) cases, fever in 35 (35%) cases, and jaundice in 10(10%) cases.

DIAGRAM NO.4: CLINICAL FEATURES

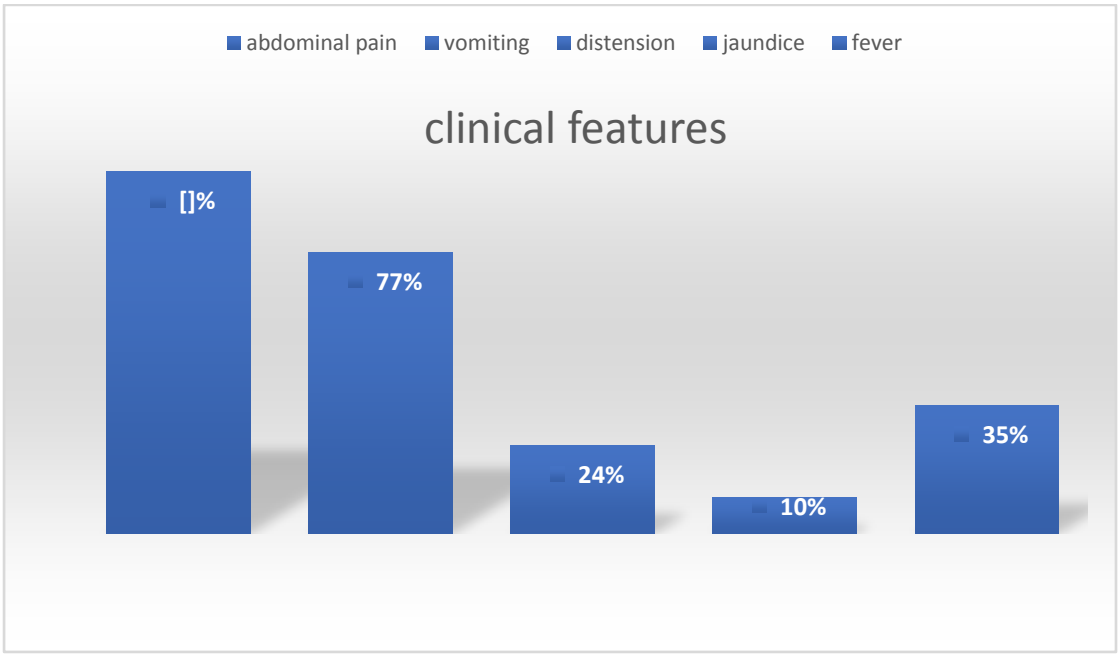


Table 6: Clinical features Frequency

ABDOMINAL PAIN		
	Frequency	**Percent**
No H/O Pain	1	1
H/O pain present	99	99
Total	100	100

VOMITING		
	Frequency	**Percent**
No H/O vomiting	23	23
H/O vomiting present	77	77
Total	100	100

JAUNDICE		
	Frequency	**Percent**
No H/O Jaundice	90	90
H/O Jaundice present	10	10
Total	100	100

ABDOMINAL DISTENTION		
	Frequency	**Percent**
No Distention	76	76
Distention present	24	24
Total	100	100

FEVER		
	Frequency	**Percent**
No H/O Fever	65	65
H/O Fever present	35	35
Total	100	100

CO-MORBITITIES :

20 patients out of 100 had a history of pre-existing co-morbidities in the form of Diabetes (9), Hypertension (11). 3 out of 9patients with diabetes had severe disease.

DIAGNOSTIC INVESTIGATIONS :

TEST	DONE IN	SUPPORTED DIAGNOSIS	DIDN'T SUPPORT DIAGNOSIS
Sr. Amylase	All	76(76%)	24
Sr.Lipase	All	88(88%)	12
Both	All	95(95%)	5
USG	All	85(85%)	15
CT	All	100(100%)	0

While serum Amylase supported the diagnosis in 76 cases (Sensitivity 76%) and serum Lipase supported the diagnosis in 88 cases (sensitivity 88%), both Serum Amylase and serum Lipase together picked up 95 cases (sensitivity 95%).

X-rays of the abdomen and Ultrasonography (USG) of the abdomen are done in all cases, and USG supported the diagnosis in 85 (85%) cases.

Computer Tomography (CT) was done in 100 patients, and it supported the diagnosis in all the 100 cases.

SEVERITY STRATIFICATION AND CO-RELATION OF GLASGOW SCORES :

At the time of discharge / death, all cases were classified into mild or severe according to the Atlanta classification. 69 (69%) patients had mild disease, while 31 (31%) had severe attacks.

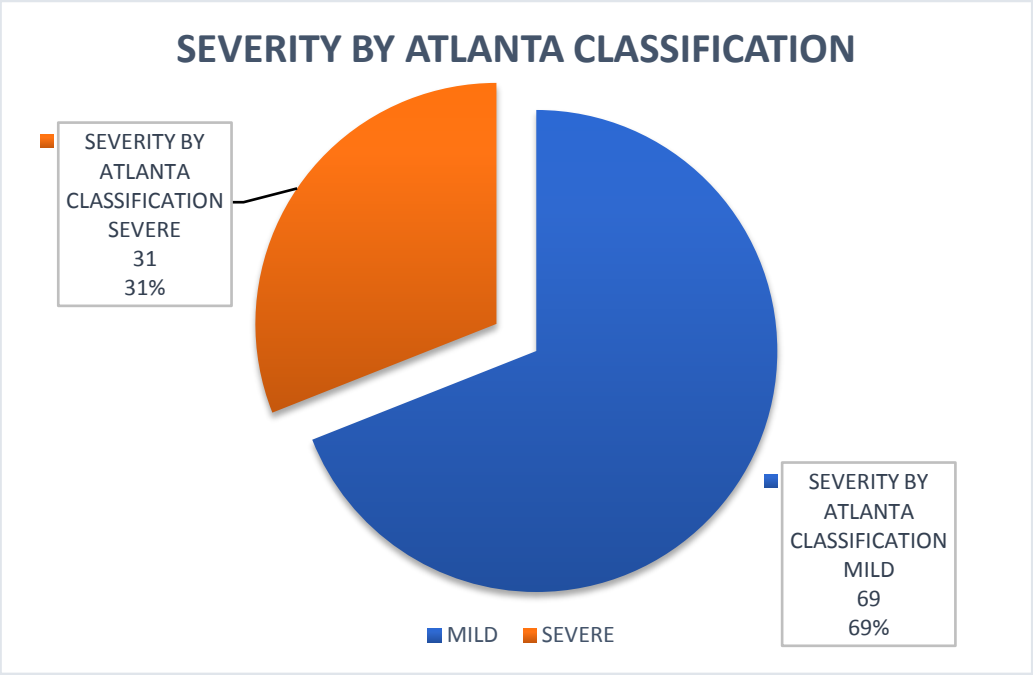
During the initial 48 hours, patients were predicted to have severe or mild disease according to Glasgow criteria. According to Glasgow criteria, 70 out of 100 patients were predicted to have mild disease, and 30 out of 100 patients were predicted to have severe disease.

SEVERE CASES: 22 cases out of 30 were correctly predicted to be severe by the Glasgow scores.

MILD CASES: 56 cases out of 70 were correctly predicted to be mild by the Glasgow scores.

Therefore a total of 78 (78%) cases were correctly predicted to have mild or severe disease. Hence the positive predictive value of Glasgow criteria found to be 78%.

DIAGRAM NO.5: SEVERITY OF ACUTE PANCREATITIS



LOCAL COMPLICATIONS:

Pancreatic Ascites was present in 23 (23%) patients. All of them were treated conservatively.

Organized fluid collection in the form of Pseudocyst detected by either USG or CT scan was present in 10(10%) patients. Most of them are treated conservatively, but three of them with a thick cyst wall was treated with cystogastrostomy.

8 (8%) patients had acute necrosis confirmed on C.T scan with 3 of these patients developed Pancreatic abscess, which was drained.3 underwent necrosectomy, and 2 patients was treated conservatively.

DIAGRAM NO.6: LOCAL COMPLICATIONS

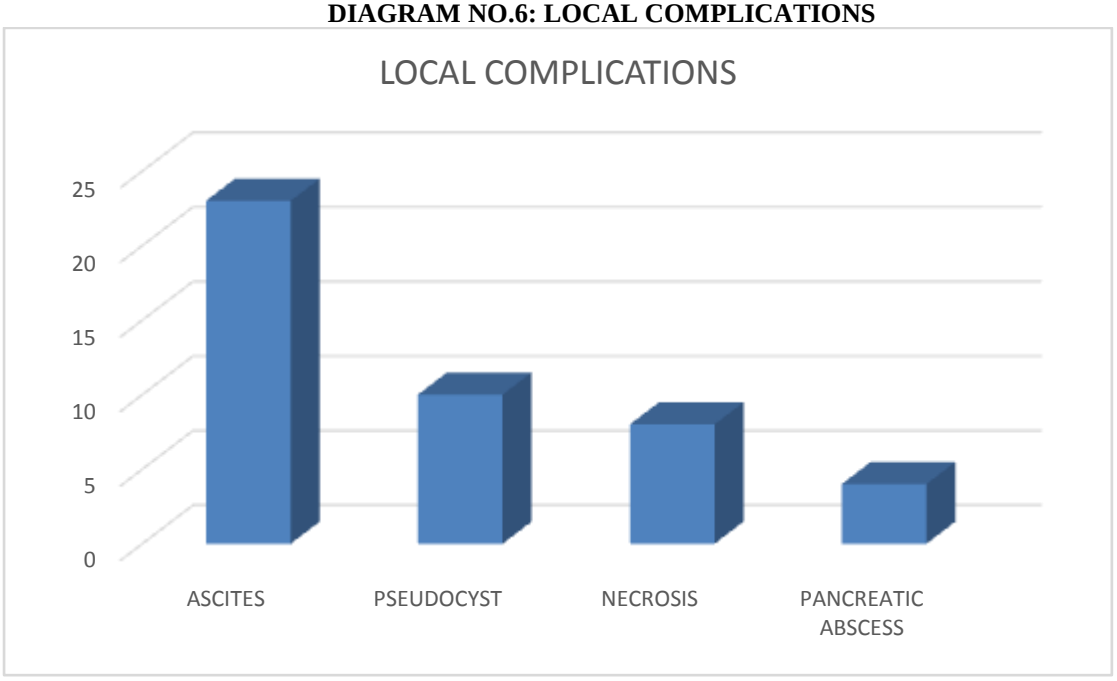


Table 7: Local Complications Frequency

ASCITES		
	Frequency	**Percent**
No Ascites	77	77
Ascites	23	23
Total	100	100

PSEUDOCYST		
	Frequency	**Percent**
No Pseudocyst	90	90
Peudocyst	10	10
Total	100	100

PANCREATIC NECROSIS		
	Frequency	**Percent**
No necrosis	92	92
Necrosis	8	8
Total	100	100

PANCREATIC ABSCESS		
	Frequency	**Percent**
No Abscess	96	96
Abscess	4	4
Total	100	100

OTHER COMPLICATIONS :

11 (11%) patients had pleural effusion, mainly on the left side. None of them required therapeutic intervention. 4 (4%) patients had basal Atelectasis. One patient had wound dehiscence, and one patient had deep vein thrombosis (DVT).

Table 8: Frequency of Pleural Effusion

PLEURAL EFFUSION		
	Frequency	**Percent**
No Pleural effusion	89	89
Pleural effusion present	11	11
Total	100	100

ORGAN FAILURE AND MORTALITY :

6(6%) patients had ARDS evident in the X-ray of the chest and required mechanical ventilation. 6 (6%) patients had acute renal failure (ARF), one required hemodialysis.

4 (4%) patients died; 3 of these died secondary to ARDS, and one patient due to ARF.

DIAGRAM NO.7: ORGAN FAILURE AND DEATH

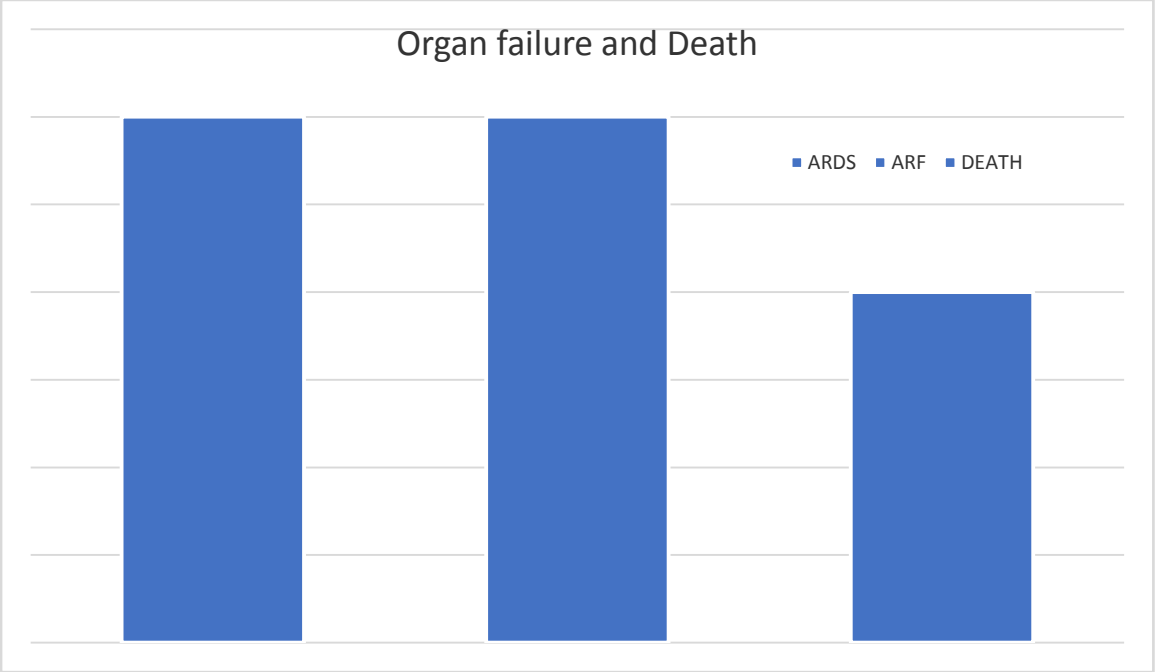


Table 9: Frequency of systemic complications and death

ARDS		
	Frequency	**Percent**
No ARDS	94	94
ARDS	6	6
Total	100	100

ARF		
	Frequency	**Percent**
No ARF	94	94
ARF	6	6
Total	100	100

DEATH		
	Frequency	**Percent**
Alive	96	96
Death	4	4
Total	100	100

SURGICAL PROCEDURES :

Necrosectomy was performed on 3 (3%) patients with pancreatic necrosis. Three patients with pancreatic abscess underwent external drainage of the abscess. Open cystogastrostomy was performed in three patients with a matured pancreatic pseudocyst.

DIAGRAM NO.8: SURGICAL PROCEDURE

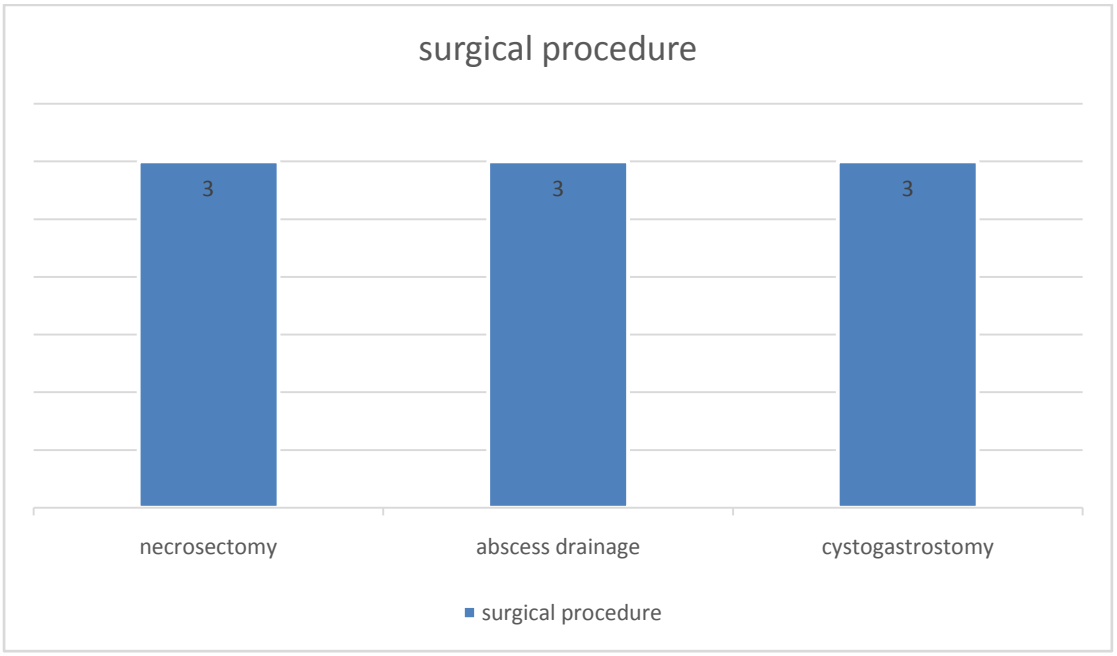


Table 10: Surgical procedure-Frequency

NECROSECTOMY		
	Frequency	**Percent**
No Necrosectomy	97	97
Necrosectomy	3	3
Total	100	100

ABSCESS DRAINAGE		
	Frequency	**Percent**
No Abscess	97	97
Abscess drained	3	3
Total	100	100

CYSTOGASTROSTOMY		
	Frequency	**Percent**
No Cystogastrostomy	97	97
Cystogastrostomy	3	3
Total	100	100

NUTRITIONAL SUPPORT :

Nutritional support was given to 21 (21%) patients with severe acute pancreatitis. 12 (12%) patients had enteral nutrition (EN) by nasojejunal (NJ) feeding, while 9 (9%) patients were given total parenteral nutrition (TPN).

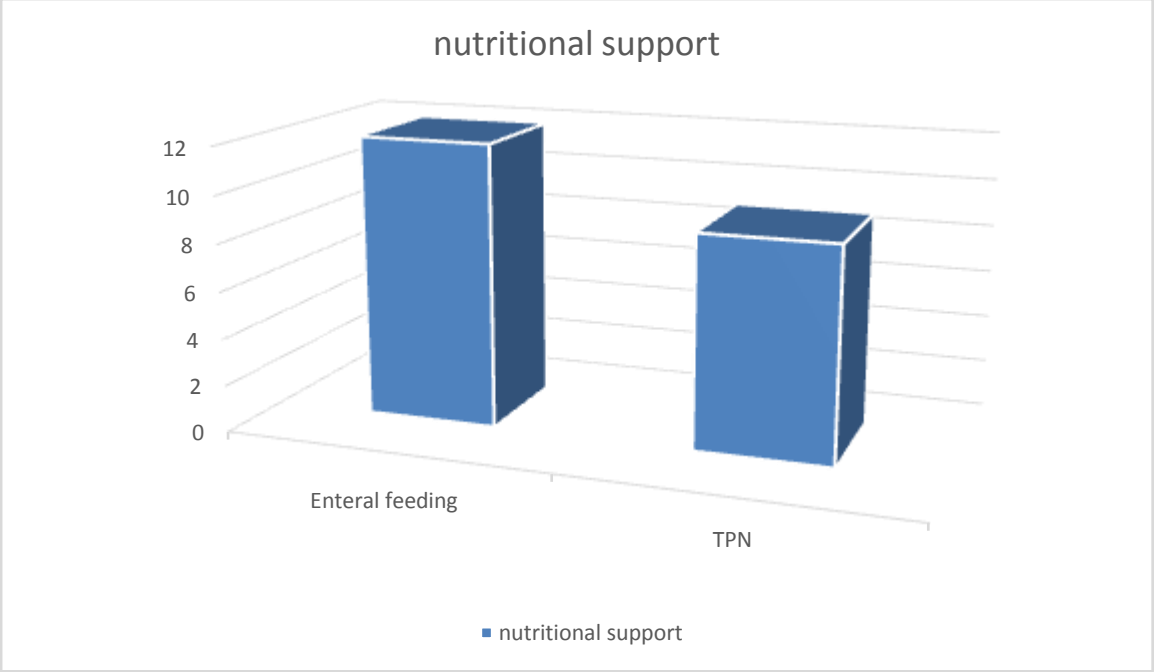


DIAGRAM NO.9: NUTRITIONAL SUPPORT

HOSPITAL STAY :

The mean hospital stay in the study was 12.13 days. Severe cases mean hospital stay was 18.33 days, whereas in mild cases was 8.79 days.

Table 11: Comparison of Duration of hospital stay days

Duration of hospital stay days	N	Mean	Standard Deviation
Mild	58	8.79	2.215
Severe	32	18.33	6.981

	Unpaired t-test	p-value
Stay	7.877	0.001

The above data is statistically analyzed by the Unpaired t-test, and the p-value is found to be 0.001, which is significant. Hence there is a considerable variation between the duration of hospital stay of mild and severe cases.

DISCUSSION

This prospective study conducted at SVRRGGH, Tirupathi, included 100 patients with acute pancreatitis, 93 males and 7 females (M:F ~ 13.28:1). The peak incidence was noted in the fourth decade, with the mean age of 38.54 years. The commonest etiology was alcohol accounted for 85% of cases followed by gall stone disease (7%).

Pain and vomiting were the commonest presenting complaints. Ten patients had jaundice. Serum amylase and serum lipase together gave high sensitivity (95%) for diagnosis. Computed tomography was a very sensitive, non-invasive tool for diagnosis and imaging of complications. The enteral route was used for nutritional support in 12 patients and total parenteral nutrition was given to 9 patients. The mean hospital stay was 12.13 days (Range – 6 to 34 days). Out of 100 patients, 69% had mild disease, while 31% had a severe attack. The overall mortality rate was 4%.

CONCLUSION

The incidence of acute pancreatitis was more in a younger age group in our study. Serum Amylase and Lipase both were (95% sensitivity) used for diagnosis wherever possible. Ideally, all cases should be stratified during the first 48 hours, according to one of the scoring systems. Scoring systems help to identify patients who are more likely to have a severe attack.

Severe cases should be managed in well-equipped ICU since they may require massive fluid resuscitation, mechanical ventilation, and hemodialysis. Support of specialists in Radiology, Endoscopy, and Intensive care unit is essential. Timely intervention by endoscopists and surgeons are crucial to reduce morbidity and mortality. Further attacks should be prevented by early cholecystectomy and avoiding alcohol.

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