Print ISSN: 2321-6379
Online ISSN: 2395-1893
DOI: 10.17354/SUR/2017/94

Original Article

Clinical Study of Pancreatitis and Its Management: A Prospective Study

Lekh Kumari Kurrey[1], Vishnu Patel[2], A P S Gaharwar[3], Vikash Jayant[1], Sujeet Kumar Pandre[1], Survind Kumar[1]

[1]Junior Resident, Department of Surgery, Shyam Shah Medical College, Rewa, Madhya Pradesh, India, [2]Assistant Professor, Department of Surgery, Shyam Shah Medical College, Rewa, Madhya Pradesh, India, [3]Professor and Head, Department of Surgery, Shyam Shah Medical College, Rewa, Madhya Pradesh, India

Abstract

Background: Pancreatitis has been recognized since antiquity, but the importance of pancreas and the severity of its inflammatory disorders were realized only in the middle of 19th century. Pancreatitis by itself is a disease which is unique, protean and extrudes into the diagnostic arena. Objectives of the study were to study the demographic characteristics of pancreatitis, and to study the various etiological factors of pancreatitis, and to study the clinical presentation of pancreatitis and its management.

Material and Methods: A total of 50 patients were enrolled over a period of 1 year for the study. Cases were studied with reference to clinical/biochemical/radiological signs of pancreatitis. Treatment was planned according to the severity of pancreatitis and presence or absence of complications with either conservative or surgical methods. Patients were followed up for 1 month to look for recurrence or complications developing after discharge.

Results: About 66% patients were male. The highest incidence was noted in 20-40 years age group (mean - 36.18 years). More common among unskilled workers. Alcohol was the most common cause (58% patients). Abdominal pain is the most common mode of presentation (100%), and epigastric tenderness is most common sign (100%). 84% of the patients were managed conservatively. Fluid collection in the abdomen was the most common complication of pancreatitis seen in 54% of the patient.

Conclusions: Acute pancreatitis is a common cause of acute abdomen in patients presenting to the surgical emergency department. The management is mainly conservative with surgery limited to only a few selected cases, depending on the severity of the disease.

Keywords: Pancreas, Pancreatitis, Pseudocyst

INTRODUCTION

The pancreas is a glandular organ in the digestive system and endocrine system of vertebrates. It is an endocrine gland producing several important hormones including insulin, glucagon, somatostatin, and pancreatic polypeptide which circulate in the blood. The pancreas is also a digestive organ secreting pancreatic juice containing digestive enzymes that assist digestion and absorption of nutrients in the small intestine. These enzymes help the further breakdown of carbohydrates, proteins, and lipids in the chyme.

Pancreatitis has been recognized since antiquity, but the importance of pancreas and the severity of its inflammatory disorders were realized only in the middle of 19th century. More than a century after its comprehensive description, acute pancreatitis (AP) remains a common disorder with devastating consequences.

Although most episodes are mild and self-limiting, up to a fifth of patients develop a severe attack that can be fatal. The presentation of wide spectrum of symptoms gives the clinician a heartbreaking exercise to bring back the patient from the clutches of the disease process.

AP is a common condition involving the pancreas. The estimated incidence is about 3% of cases presenting with pain in the abdomen. Gallstones and alcoholism together

Access this article online

www.surgeryijss.com

Month of Submission : 02-2017
Month of Peer Review: 03-2017
Month of Acceptance : 04-2017
Month of Publishing : 05-2017

Corresponding Author: Dr. Lekh Kumari Kurrey, Road-H, Near Priya Beauty Parlour, Devpuri Road, Amlidih Raipur - 492 001, Chhattisgarh, India. Phone: +91-7723065837. E-mail: kurreylekh08@gmail.com

account for 80% of AP. It has been noticed in most of the studies that there is an increase in the incidence of disease in past 3 decades. The reason for this increase is speculated to be due to increase in alcohol abuse and an improved ability to diagnose the disease. However, the disease has been a cause of significant morbidity and mortality.

AP includes a wide spectrum of disease from one with mild self-limiting symptoms to fulminant processes with multiorgan failure and high mortality.

Chronic pancreatitis (CP) is a chronic pancreas exocrine part inflammation which is accompanied by organ parenchymal destruction and fibrosis. Alcohol consumption and smoking are the most common risk factors. It can present as episodes of acute inflammation in a previously injured pancreas or as chronic damage with persistent pain or malabsorption. CP is one of the complications of AP.

Diagnoses remain clinical and can be supported by 1.5-2 fold increase above the upper limit of normal of serum amylase. However, an estimation of serum lipase, trypsinogen, or isoamylase assay is confirmatory and will increase the diagnostic yield. Supportive radiological procedure is sonography, computed tomography, and MRI. At present, CECT is the imaging modality of choice where areas of hypoperfusion correlate with necrosis.

CP was considered a surgical pathology for a long time. Even though CP patients receive an effective surgical and endoscopic treatment, those methods are not always necessary, and a medical treatment remains the main CP curing way.

An increased mortality rate associated with the disease is due to inability to assess the severity of the disease at the outset. Various prognostic scoring systems have been developed involving multiple factor and single factor. The drawback with the current severity scoring system is that they are cumbersome and time-consuming and lack sensitivity and specificity. In fact, there necessity has been questioned.

MATERIALS AND METHODS

This study was conducted in 50 patients who admitted in surgery ward, Sanjay Gandhi Memorial Hospital associated with S.S.M.C. Rewa, Madhya Pradesh during the period of 1st August 2015 to 31st July 2016.

After detailed clinical history, resuscitation and examinations patients were classified in AP, acute on CP and CP according to patients presenting symptoms and investigations. Out of this 50 patients, 29 patients were of AP, 12 patients were of acute on CP, and 9 patients of CP. During the first 48 h, patients were stratified according to the Ranson's criteria. Treatment was planned according to the severity of pancreatitis and presence or absence of complications with either conservative or surgical methods. Initial conservative management consists of nasogastric suction, intravenous administration of fluid, antibiotic and supportive care in all patients. An indwelling urinary catheter was placed in most patients to allow close monitoring of urine output. Most of the systemic complication was managed by conservative and supportive care including intensive critical unit care. Patients were followed up for a period of 6 months to look for recurrence or complications developing after discharge. Data such as clinical symptoms and signs, results of investigations, complications, surgical procedures if any, duration of hospital stay, recurrence if any were carefully collected and compiled. Interventions are done according to severity of the disease. Patients were discharged after recovery and were advised for follow-up in the outpatient department.

RESULTS

This was a prospective observational descriptive study consisting of 50 cases of pancreatitis ($n = 50$). Of these, there were 29 patients of AP, 12 patients of acute on CP and 9 patients of CP.

It is evident from Table 1 and Figure 1 that the highest incidence was noted in the age group between 20 and 40 years that is 52% of total 50 patients. Mean age is 36.18 years. The youngest patient was a 11-year-old female, and oldest patient was 65 years male.

It is evident from Table 2 and Figure 2 that males were predominant who accounted for 66% of total patients and females accounted for 34% of the total patients with a male to female ratio of 1.94:1.

It is evident from Table 3 that pancreatitis was more common in laborers that accounted for 34% of total patients, students accounted for 24% of total patients, housewife accounted for 18% of total patients, farmers accounted for 8% of total patients driver and businessmen both accounted for 6% of total patients, and office workers accounted for 4% of total patients.

It is evident from Table 4, 58% of the total patients had alcoholic pancreatitis, 28% of the total patients had gallstone pancreatitis, and 14% patients had other miscellaneous causes such as trauma, choledochal cyst, biliary stricture, and hemoglobinopaties.

It is evident from Table 5, 100% of the patients presented with the pain in abdomen, 82% of the patients had vomiting, 24% of the patients had fever, 20% of the patients had abdominal distension,16% of the patients had lump in abdomen, and 14% of the patients had jaundice.

It is evident from Table 6, 100% of the patients had tenderness at the epigastrium, 20% of the patients had abdominal distensions, 16% of the patients had a lump in the abdomen, and 12% of the patients had hepatomegaly.

Table 1: Distribution according to age

Age groups	Acute pancreatitis	Acute on chronic pancreatitis	Chronic pancreatitis	Total (%)
<20 years	4	1	0	5 (10)
20-40 years	16	3	7	26 (52)
41-60 years	7	8	1	16 (32)
>60 years	2	0	1	3 (6)
Total (%)	29 (58)	12 (24)	9 (18)	50 (100)

Table 2: Distribution according to sex

Sex	Acute pancreatitis	Acute on chronic pancreatitis	Chronic pancreatitis	Total (%)
Male	22	5	6	33 (66)
Female	7	7	3	17 (34)
Total (%)	29 (58)	12 (24)	9 (18)	50 (100)

Table 3: Distribution according to occupational

Occupation	Acute pancreatitis	Acute on chronic pancreatitis	Chronic pancreatitis	Total (%)
Laborers	11	1	5	17 (34)
Student	8	2	2	12 (24)
Housewife	3	6	0	9 (18)
Farmer	2	0	2	4 (8)
Driver	2	1	0	3 (6)
Businessmen	2	1	0	3 (6)
Office worker	1	1	0	2 (4)
Total (%)	29 (58)	12 (24)	9 (18)	50 (100)

Total 41 patients with the acute episodes of pancreatitis were evaluated for severity of AP. 9 patients with CP were excluded from the study as Ranson's prognostication criteria are not applicable to CP patients (Table 7).

In our study, 12 patients (24%) of the total patients had mild pancreatitis with Ranson's score <2 and mortality of 0%, 22 patients (44%) of the total patients had moderate pancreatitis with Ranson's score 2-3 and mortality 0%, 7 patients (14%) of the total patients had severe pancreatitis with Ranson's score 5 or more and 0% mortality.

It is evident from Table 8 that 42 patients (84%) of total patients were managed conservatively whereas 8 patients (16%) of total patients required surgical interventions in subsequent admission. 2 patients were operated with cholecystectomy and choledocholithotomy with t-tube placement with stenting, and 6 patients were operated with cholecystectomy.

It is evident from Table 9 that 23 patients (46%) required non-opioid analgesia and 21 patients (42%) required opioids analgesia and 6 patients (12%) were required both analgesics for pain relief.

It is evident from Table 10, among systemic complications, free fluid in peritoneum was noted in 27 patients (54% of total patients), pleural effusion was noted in 19 patients (38% of total patients), organ failure was noted in 17 patients (34% of total patients), and diabetes mellitus was noted in 1 patient (2% of total patients). In our study, no mortality was noted due to systemic complications of pancreatitis.

Among local complications, CP was noted in 18 patients (36% of total patients), pancreatic pseudocyst was noted in 8 patients (16% of total patients), local necrosis was noted in 2 patients (4% of total patients), and pancreatic duct calculus was noted in 2 patients (4% of total patients).

In our study, 2 patients of severe pancreatitis out of 50 patients were referred to center of gastroenterology for

Table 4: Distribution according to etiological factors

Etiological factors (n=50)	Acute pancreatitis		Acute on chronic pancreatitis		Chronic pancreatitis		Total (%)
	Male	Female	Male	Female	Male	Female	
Alcohol	19	0	4	0	6	0	29 (58)
Gallstones	2	3	6	0	3	0	14 (28)
Miscellaneous							
Trauma	2	1	0	0	0	0	3 (6)
Others	3	0	1	0	0	0	4 (8)
Total (%)	26	4					
	30 (60)		11 (22)		9 (18)		50 (100)

Table 5: Distribution according to symptomatology

Presenting complaints	Total *n*=50 (%)
Abdominal pain	50 (100)
Vomiting	41 (82)
Fever	12 (24)
Distension	10 (20)
Lump	8 (16)
Jaundice	7 (14)

Table 6: Distribution according to signs

Abdominal signs	Total *n*=50 (%)
Tenderness over the abdomen (epigastric region)	50 (100)
Distension	10 (20)
Lump	8 (16)
Hepatomegaly	6 (12)

Table 7: Distribution according to Ranson's score based severity of pancreatitis

n=41	Acute pancreatitis	Acute on chronic	Total (%)	Mortality (%)
Mild pancreatitis	7	5	12 (24)	0 (0)
Moderate pancreatitis	16	6	22 (44)	0 (0)
Severe pancreatitis	6	1	7 (14)	0 (0)
Total	29	12	41	0 (0)

Table 8: Distribution according to line of management

Treatment	Acute pancreatitis	Acute on chronic pancreatitis	Chronic pancreatitis	Total (%)
Conservative	24	10	8	42 (84)
Surgical	5	2	1	8 (16)
Total	29	12	9	50 (100)

Table 9: Distribution according to type of analgesic required

Analgesic	Number of patients	Total (%)
Non-opioids	23	46
Opioids	21	42
Combined	6	12

further management hence no follow-up was available. Of the remaining 48 patients who were on follow-up, 30 patients (62.5% of total patients) were asymptomatic over 1-month follow-up, 16 patients (33.3% of total patients) had recurrent pain at 1-month after discharge, whereas 2 patients (4.1% of total patients) had to be readmitted with pancreatitis within 1-month after discharge (Table 11).

DISCUSSION

Age Distribution

This study demonstrates that the mean age for pancreatitis is 36.18 years (11-65 years) with the highest prevalence in the age group 20-40 years. Our results are comparable with below-mentioned studies for age distribution. Kashid[1] demonstrated that mean age at presentation was 35 years. Choudhuri[2] demonstrated mean age at presentation were 44.89 years.

Sex Distribution

Our study demonstrates that there is high incidence among males (66%) compared to females (34%) with a male to female ratio of 1.94:1. Kashid[1] demonstrated a higher incidence of pancreatitis among males (70.91%) compared to females (29.09%). Choudhuri,[2] demonstrated a higher incidence of pancreatitis among males (66.6%) compared to females (34.4%).

Occupation Distribution

This study shows that pancreatitis is most common in laborers and least common in office workers. Our study is comparable with other studies in terms of occupational distribution. Kaila-Kangas *et al*. (2015) in his study demonstrated a higher incidence of alcohol-related diseases such as pancreatitis and cirrhosis. In unskilled workers such as laborers and least incidence among professionals such as executive and businessmen.

Etiological Distribution

This study demonstrates that alcohol (58% of the total patients) is the most common cause of pancreatitis followed by gallstones (28%), whereas, remaining 14% patients had other miscellaneous causes such as trauma, drugs, and choledochal cyst. Our study is comparable with other studies. We belong to a rural setup where more people are under-educated, and there is lack of facilities for leisure and hence people are prone to this kind of addictions leading to excessive alcohol consumption. Choudhuri,[2] in his study at Lucknow demonstrated alcohol as the most common etiological factor accounting for 45.83% of total cases followed by gallstones 26.04%, in 19.37% patients these other causes such as trauma, hereditary, autoimmune, and idiopathic. Kumar,[3] in his study of 50 patients at Bengaluru, demonstrated alcohol (80%) as the most common cause of pancreatitis followed by gallstones (16%), whereas, others causes included remaining 4% of total patients. Nagesh,[4] in his study of 49 patients at Bengaluru, demonstrated alcohol (81.1%) as the most common cause of pancreatitis followed by gallstones (3.77%), whereas, others causes included remaining 15.1% of the total patients.

Table 10: Distribution according to complications

Systemic complications				
Systemic complications	**Acute pancreatitis**	**Acute on chronic pancreatitis**	**Chronic pancreatitis**	**Total (%)**
Organ failure				
System in shock	6	3	0	9 (18)
ARDS	1	1	0	2 (4)
ARF	5	1	0	6 (12)
Total	12	5	0	17 (34)
Free fluid in abdomen	24	2	1	27 (54)
PE	16	3	0	19 (38)
DM	0	0	1	1 (2)
Local complications				
Local complications	**Acute pancreatitis (*n*=29)**	**Acute on chronic pancreatitis (*n*=12)**	**Chronic pancreatitis (*n*=9)**	**Total (%)**
Chronic pancreatitis	14	4	0	18 (36)
Pancreatic pseudocyst	5	0	3	8 (16)
Local Necrosis	2	0	0	2 (4)
Pancreatic duct calculus	0	2	0	2 (4)

Table 11: Follow-up

Diagnosis	Follow-up for 1-month		
	Asymptomatic	Recurrent pain	Required readmission
Acute pancreatitis	15	10	2
Acute on chronic pancreatitis	10	02	0
Chronic pancreatitis	05	04	0
Total (%)	30 (62.5)	16 (33.3)	2 (4.1)

Symptomatology

Our study demonstrates that pain in abdomen is the most common symptom affecting all the patients (100% of total population), followed by vomiting, fever, abdominal distension, lump and jaundice. Our study is comparable with others studies. Kumar,[3] in his study of 50 patients at Bengaluru, demonstrates pain in the abdomen as the most common symptoms affecting all the patients (100% of total patients), followed by vomiting, abdominal distension, fever, and jaundice. Kashid,[1] in his study at Manipal Hospital, demonstrated pain in the abdomen as the most common symptom affecting most of the patients (92.7% of total population), followed by vomiting, fever, abdominal distension, jaundice and lump in the abdomen.

Signs

This study shows that 100% of patients had tenderness over abdomen in epigastrium (most common), 20% patients had abdominal distension, 16% patients had palpable abdominal lump, and 12% patients had hepatomegaly. Most of the patients presenting to us only after the development of peritonitis thus they had tenderness in epigastrium at presentation. Our study is comparable with a below-mentioned study regarding signs of peritonitis. Nagesh[4] in his study of 53 patients, demonstrated that abdominal tenderness (100%), was the most common abdominal sign on examination, followed by abdominal distension (33.96%), free fluid (15.1%), and lump in the abdomen (3.77%).

Stratification According to Ranson's Score

Early assessment and prediction of severity are of outstanding importance to avoid complications of pancreatitis and to decrease morbidity and mortality due to pancreatitis. Ranson's scoring system is a first initial scoring system for the stratification of patients with pancreatitis in our hospital setup. This study shows that 24% of the total patients had mild pancreatitis, 44% of total patients had moderate pancreatitis, and 14% of the total patients had severe pancreatitis with no mortality in our study. There are no very severe or critical patients in our study probably because many patients taken discharge on request or absconded from ward before the settlement of the diagnosis thus not included in our study. Our study is comparable with other studies in the assessment of severity of pancreatitis. Nagesh[4] in his study of 49 patients at Bengaluru, demonstrated 77.4% had mild pancreatitis, whereas 22.6% patients had severe pancreatitis. More predominance of cases with mild pancreatitis was due to referral of complicated patients to higher center due to non-availability of means for management of severe pancreatitis and non-affordability of patients.

Management

This study shows that 84% of the total patients were managed conservatively whereas, only 16% of total patients required surgical management on subsequent admissions. It may be because of most of the patients are of moderate pancreatitis in our study and alcohol is most common cause of pancreatitis. Our study is comparable with a study conducted by Rehaman *et al*.[5] in his study of 38 patients, demonstrated that 89.5% patients were managed with a conservative line of management while 10.5% patients required surgical line of management.

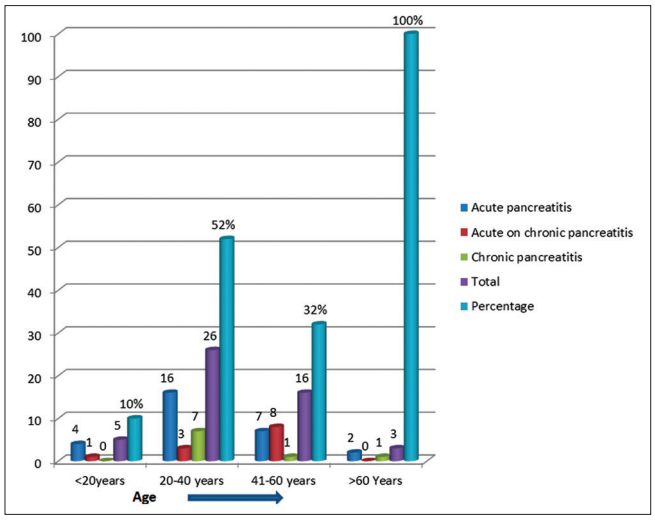

Figure 1: Distribution according to age

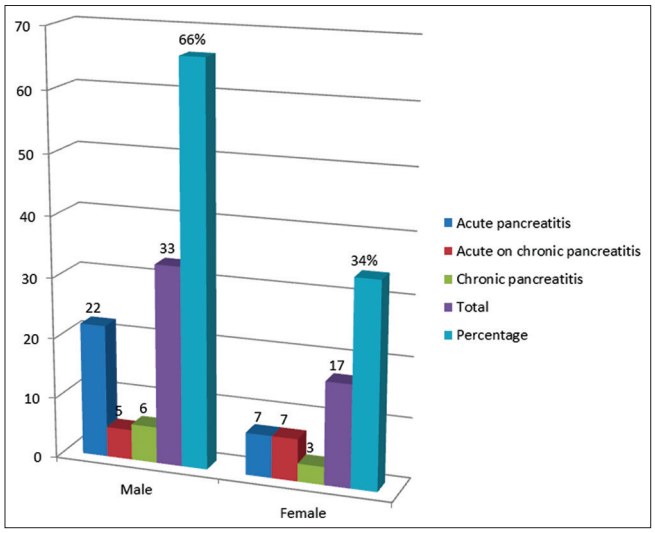

Figure 2: Distribution according to sex

Analgesics

This study demonstrates that 46% of the patients required non-opioids analgesia, 42% of the patients required opioids for analgesia and 12% of the patients required both opioids and non-opioids for analgesia, out of 50 patients in our study, hence our study is partially comparable with other studies. Ebbehoj *et al*. in his study of 30 patients, demonstrated that rectal suppositories of indomethacin (NSAID), a non-opioid drug reduces the number of days with pain in patients with AP and reduces the need for opiates injections significantly.

This study shows that free fluid in peritoneum (54%) is the most common complication noted in patients which are comparable with study of Choudhuri[2] and Rehaman *et al*.[5] followed by pleural effusion(38%) which is in comparable to study by Rehaman *et al*.,[5] followed by CP, organ failure, pseudocyst, local necrosis, pleural effusion, pancreatic duct calculus, metabolic disturbance, and pancreatic abscess. Rate of necrosis is higher in study by Kashid[1] and Choudhuri[2] due to selection of severe pancreatitis patients only for their study, whereas, lower in study by Nagesh[4] and Rehaman *et al*.[5] due to more numbers of patients with mild pancreatitis in their study. A Higher percentage of CP in our study is due to excessive alcohol abuse in our area leading to recurrent attacks and development of CP.

This study shows that 62.5% of total patients were asymptomatic at 1-month follow-up whereas 4.1% of total patients required readmission within 1-months of follow-up period. 2 patients who left the study and was referred to center of gastroenterology for further management were not included in follow-up study. Our study is slightly comparable to another study.

Nagesh[4] in his study of 49 patients, demonstrated that 92.45% remained asymptomatic while 7.55% had a recurrence during the follow-up periods. A Higher percentage of asymptomatic patients can be due to a higher percentage of mild pancreatitis patients in this study.

Kumar[3] in his study of 50 patients demonstrated that 54% of patients remained asymptomatic while 16% of patients had a recurrence during the follow-up period.

CONCLUSION

Pancreatitis is a common cause of acute abdomen in patients presenting to the surgery department. Most patients develop a mild and self-limiting course of the disease; however, 10-20% of the patients have a rapidly progressive inflammatory response associated with prolonging the length of hospital stay and significant morbidity and mortality. It has male preponderance and presents most commonly on 20-40 years of the age group which is the productive period of life. Alcohol being the most common cause of AP in our scenario and the point of stress is that it is preventable. It is mainly a clinical diagnosis supplanted with biochemical and radiological findings. Several methods for prognostic stratification for severity of disease are being used. In our prospective, viewing to the occurrence of pancreatitis in productive age grouped alcohol being the most common cause. Studies should be undertaken in the form of projects to mandate people from the abstinence of alcohol. The management is mainly conservative with surgery limited to only a few selected cases, depending on the severity of the disease. Most of the complications of pancreatitis can be managed conservatively. Severe pancreatitis is associated with

increased morbidity and complications. Thus, early diagnosis and proper treatment are necessary to prevent morbidity and mortality.

REFERENCES

1. Kashid A. Acute pancreatitis experience. In: Bhansali SK, Shah SC, editors. Appendix 1-A, Management of Acute Pancreatitis. Bangalore, Mumbai: Manipal Hospital, Jaslok Hospital; 2006.
2. Choudhuri G. Acute pancreatitis experience. In: Bhansali SK, Shah SC, editors. Appendix 1-B, in Management of Acute Pancreatitis. Lucknow: Sanjay Gandhi PGI of Medical Sciences, Jaslok Hospital; 2006. p. 176-8.
3. Kumar A. Clinical Study, Management of Complications of Acute Pancreatitis. Bangalore, Karnataka: Bangalore Medical College and Research Institute, Gandhi University of Health Sciences; 2010.
4. Nagesh VR. Clinical Study of Acute Pancreatitis and its Management. Karnataka, Hubli: Institute of Medical Sciences, Rajiv Gandhi University of Health Sciences; 2011.
5. Rehaman SA, Chandrashekhar S, Reuben PJ. Clinical study of acute pancreatitis. J Evol Med Dent Sci 2015;4:10142-55.

How to cite this article: Kurrey LK, Patel V, Gaharwar APS, Jayant V, Pandre SK, Kumar S. Clinical Study of Pancreatitis and Its Management: A Prospective Study. IJSS Journal of Surgery 2017;3(3):27-33.

Source of Support: Nil, **Conflict of Interest:** None declared.