

Study of Acute Pancreatitis in a Tertiary Care Hospital – Assessment of Risk Factors and Outcome

Dr.M.Bhargavi Devi¹, Dr. G. Sampurna², Dr. P. Padmalatha³, Dr. N.Narmada⁴,
Dr. G.Surya⁵

^{1,3,4,5}(Department of General Medicine, Guntur Medical College, Guntur, A.P. INDIA)

Corresponding Author: Dr. G. Sampurna² M.D, (Path).

Abstract:

Objectives: To study the clinical presentation, etiological, factors, biochemical parameters and outcome in patients of acute pancreatitis in a tertiary care hospital at Guntur.

Materials and methods: 140 cases of acute pancreatitis over a period of 15 months were studied in detail including presenting complaint, clinical examination and investigations. All patients were observed for complications and supportive treatment was given and outcome was observed.

Results: The affected age group was 17 – 58 years with a male to female ratio of 9:1. Pain abdomen was the presenting complaint in all cases (100%) followed by vomiting in 86 cases (61.42%), and fever in 29 cases (20.71%). Radiologically, bulky pancreas was observed in 100 cases (71.4%), followed by necrotizing pancreas, in 31 cases (22.14%), acute on chronic pancreatitis in 4 cases (2.85%), atrophic pancreatitis in 3 cases (2.14%) and Interstitial pancreatitis in 2 cases (1.42%). Biochemically, elevated amylase and lipase levels were observed in 114 cases, (81.42%), elevated LFT in 63 case (45%) and abnormal RFT in 22 cases (15.71%). Associated risk factors were, alcoholism in 115 cases (82.14%), smoking in 67 cases (47.85%), gall stones in 5 cases (3.57%), sepsis in 5 cases (3.57%), drug association in 2 cases (1.42 %), one case (0.71 %) has vasculitis, dyslipidemia in 1 case (0.71 %), structural abnormalities in 3 cases (2.31%), and 6 cases (4.28%) were idiopathic. Observed complications were acute local fluid collection in 100 cases (71.4%), hepatitis in 63 cases (45%), pleural effusion in 46 cases (32.85%) sterile pancreatic necrosis in 31 cases (22.14%), ascitis in 28 cases (20%), renal failure in 22 cases (15.71%), 10 cases (7.14%) developed pseudocyst, shock in 10 cases (7.14%), splenic vein thrombosis in 6 cases. (4.28%) and hypoxemia in 6 cases (4.28%), Recurrence is seen in 43 cases (30.71%), 123 cases (87.8%) recovered, 17 cases (12.14%) died.

Conclusion: acute pancreatitis is more common in 30 – 40 years age group with male: female ratio of 9:1. Pain abdomen is the most common presentation. Alcoholism is the most common risk factor. Smoking was commonly observed in cases presenting with recurrence. Only 17 cases expired, 43 cases have recurrence and 123 cases recovered.

Key words: Acute Pancreatitis (AP), Acute Respiratory Distress Syndrome (ARDS), Body Mass Index (BMI), Common Bile Duct (CBD), Liver Function Tests (LFT), Renal Function Tests (RFT). Systemic Lupus Erythematosus (SLE), Zudovidina (ZLN).

Date of Submission: 23-08-2019

Date of Acceptance: 07-09-2019

I. Introduction

Acute pancreatitis (AP) is the most common inpatient gastrointestinal diagnosis and is a medical emergency. Acute pancreatitis is an acute inflammatory process of the pancreas with variable involvement of other regional tissues or remote organ systems. The incidence varies and depends on cause. Prevalence rate for Pancreatitis in India is 7.9 per 100,000. Prevalence rate for men and women 8.6 and 8.0 per 100,000 respectively in India⁽¹⁾. Overall, about 20% of patients with acute pancreatitis have a severe course and mortality rate is of 10% to 30% in severe acute pancreatitis Patients^(2,3).

II. Material and Methods

This was a prospective observational study done in the department of general medicine, Guntur medical college for 15 months study period from June 2016 to September 2017.

Typical abdominal pain in the epigastric region that may radiate to back, three-fold or greater elevation in serum amylase and / or amylase, confirmatory findings of acute pancreatitis on cross sectional abdominal imaging are the three criteria for the diagnosis. All cases of pain abdomen that are fulfilling the diagnostic criteria of acute pancreatitis were included.

Diabetic keto acidosis and chronic kidney disease, acute intestinal obstruction cases where false positive elevation in amylase, lipase will occur were excluded from the study.

III. Results

Table 1: Age and Sex Distribution

Age (years)	Male(155)	Female(18)	Total(173)
<20	2(1.42%)	1 (0.71%)	3 (2.14%)
21 – 30	43(30,71%)	3(2.14%)	46(32.85%)
31 – 40	49(35%)	4(2.85%)	53(37.85%)
41 -50	21(15%)	3(2.14%)	24(17.14%)
51 -60	11(7.85%)	4(2.85%)	15(10.71%)

Table 2: Clinical Presentation

Clinical feature	Total (N=140)
Pain abdomen	140(100%)
Vomiting	86(61.42%)
Fever	29(20.71%)
Shortness of breath	16(11.42%)
Loose stools	9(6.42%)
Constipation	9(6.42%)

Table 3: Imaging Finding

USG/CT abdomen finding	Total (N=140)
Bulky pancreas	100(71.4%)
Necrotizing pancreas	31(22.14%)
Acute on chronic pancreatitis	4(2.85%)
Atrophic pancreatitis	3(2.14%)
Interstitial pancreatitis	2(1.42%)

Table 4: Laboratory Parameters

Findings	N=140
leucocytosis	80(57.14%)
Fall in Hematocrit	54(38.57%)
Elevated Amylase / Lipase	114(81.42%)
Abnormal liver function tests	63 (45%)
Abnormal renal function tests	22(15.71%)

Table 5: Risk Factors

Risk Factor	Male	Female	Total
Alcohol	115(82.14%)	-	115(82.14%)
Smoking	47.85%	-	47.85%
Gall stones	2(1.42%)	3(2.14%)	5(3.57%)
Sepsis	3(2.14%)	2(1.42%)	5(3.57%)
Drugs	-	4(2.84%)	4(2.84%)
Dyslipidemia	-	1(0.71%)	1(0.71%)
CBD structural abnormalities	3(2.31%)	-	3(2.31%)
vacuities	-	1(0.71%)	1(0.71%)
idiopathic	5(3.57%)	1(0.71%)	6(4.28%)

Table 6: Complications

Feature	Number (N=140)	Percentage
Acute local fluid collection	100	71.4%
Hepatitis	63	45%
Pleural effusion	46	32.85%
Sterile Pancreatic Necrosis	31	22.14%
Ascitis	28	20%
Renal failure	22	15.71%
Pseudo cyst	10	7.14%
Shock	10	7.14%
ARDS	6	4.28%
Splenic vein thrombosis	6	4.28%

Table 7: Outcome

Outcome	Male (N=126)	Female (N=14)	Total (N=140)
Recovered	113	8	123(87.85%)
Recurrence	41	2	43(30.71%)
Death	13	4	17(12.14%)

IV. Discussion

Age and Sex distribution:

There is considerable variation in age and sex distribution. In a study by Nitesh Negi et al⁽⁴⁾, mean age of presentation was 42.89 ± 12.53 with majority in the age range of 40- 60 year age and the male to female ratio was 2.6:1. In a study by Shaishav Patel et al⁽⁵⁾, age range was. 16 to 67 years (mean age: 44.7 years). 24 (60%) patients were male and 16 (40%) were female, the male to female ratio being 3:2. In this study youngest was 17 year old and the eldest was 58 year old, with majority in the age range of 31 - 40 years. Male to female ratio was 11:1. Males outnumbered females in this study probably because alcohol consumption is more common in males in our society and more in middle age people.

Clinical Presentation:

Clinical presentation is variable with typical epigastric pain, radiating to back. In addition, vomiting, fever, shortness of breath, loose stools, constipation, shock features may also be seen. In this study, pain abdomen is seen in 100 % cases, correlating with study by Nitesh Negi et al⁽⁴⁾, Mitchell S⁽⁶⁾ and Rao B S et al⁽⁷⁾ where pain abdomen was seen in 100 % ,95 % and 100% of cases respectively.

Biochemical parameters:

In the present study leucocytosis in 80 cases (57.14%), fall in hematocrit was observed in 54 cases (38.57%), correlating with Nitesh Negi et al⁽⁴⁾, amylase and lipase elevated in 114 cases (81.42%), correlated with the study of Shaishav Patel et al.⁽⁵⁾ Jaundice, when present, it usually is due to edema of the head of the pancreas with compression of the intra pancreatic portion of the common bile duct or passage of a biliary stone or sludge. In our study 63 cases (45%) have elevated liver functional parameter. when pancreas is damaged, pancreatic enzymes liberate potent vasodilator substances from globulin precursors in plasma, ensues vasomotor collapse and hypotension, which if prolonged sufficiently will cause renal failure .but hypotension was observed in 10 cases (7.14%) only, which may explain other factors influencing development of renal failure . In our study, 22 cases (15.71%) have acute kidney injury, out of them 9 cases needed dialysis.

Risk Factors:

Alcohol: Pancreatitis due to alcohol abuse is a very painful and potentially fatal condition. It is estimated that drinking more than 80 gm of alcohol/d or about 10-11 standard U.S. drinks for a minimum of 6-12 years is required to produce symptomatic pancreatitis⁽⁸⁾. Alcohol Related Pancreatitis' is more common in the West, compared to Asian countries. 9-11 Prevalence is increased approximately 4-fold among subjects with a history of alcoholism. Alcohol consumption has been steadily increasing in developing countries, such as China and India. Due to rapid urbanization and increased affluence, there has been a gradual shift mimicking the western world trend⁽⁹⁾.

Nitesh Neg et al⁽⁴⁾, found alcoholism in 59.34%, in their study. In the present study alcohol was the major risk factor, seen in 82.14% cases. The increased incidence can be explained by the changes in the life style due to urbanization and easy availability, as it has been legalized.

Table 8: Relative percentage of AP etiologies in different geographical areas^{10,11}

Etiology	New York USA	Sweden	New Delhi, India	Present study
Gallstones	32%	38.40%	49%	3.57%
Alcohol	20%	31.80%	23.60%	82.14%
Idiopathic	18%	23.20%	16.50%	4.28%
Miscellaneous	29%	6.60%	10%	10%

Smoking: Cigarette smoke potentiates pancreatic microcirculatory impairment caused by ethanol and also induces leukocyte aggregation and adhesion. Cigarette smoking might have an additive effect with alcohol in inducing pancreatitis although smoking precipitates chronic pancreatitis. In present study, 67 cases (47.85%) have smoking history along with alcoholism. This smoking habit might explain the increased incidence of alcohol related pancreatitis and also recurrence in this study.

Others: As observed in several studies,^(9,11,12) HIV-positive patients that develop AP, in addition to exposure to the anti retro viral drugs, have in common advanced age, non-white race (risk 39 to 54% higher for non-whites compared to Caucasians), long duration of sero positivity, CD4 <200 cells/mm³, AIDS diagnosis, high viral load, previous history of AP, hepatobiliary diseases, opportunistic infection prophylaxis, alcohol abuse, in addition to, most of the time, women with a low body mass index (BMI) (more sensitive to toxic effects). In the present study two middle aged woman with low BMI, low CD4 count, on prophylaxis regimen for opportunistic infections, and on ZLN regimen presented with AP with septic shock.

In this study two female(1.42%) patients who were on steroids presented with AP , one young female , diagnosed as SLE and using prednsolone only , presented with AP, It may be either due to steroids or SLE per se due to vasculitis . Another middle aged obese woman who has steroid abuse for joint pains also presented with AP. For both these, no other etiology was made out, so steroid association was considered. Steroids were considered as possible association in AP. Finally there have been no reports of patients thought to have steroid-induced pancreatitis who were re challenged with steroids to confirm these drugs as the etiologic agent.

In this study, Dyslipidemia is seen in one female (0.71%), where triglycerides were exceeding 1000 mg. It is consistent with results of other countries.

In this study, 3 cases (2.31%) have structural abnormalities, one has dorsal duct agenesis, one has CBD stricture and one has CBD dialation, for which they have referred for ERCP.

In this study, 6 cases (4.28%)were found to be idiopathic, where no etiology was made out. In prospective studies of idiopathic pancreatitis, two third to three fourth cases have microlithiasis as the presumed cause by ERCP.

Outcome:

In our study, local complications like peri pancreatic fluid collection were noted in 71.4% and sterile necrosis in 22.14%, these were resolved spontaneously. Splenic vein thrombosis is relatively common observation, seen in 4.28%.

In this study, 10 cases (7.14%) presented with shock requiring ionotrope support, 6 cases (4.28%) have hypoxia and ARDS requiringventillatory support, 22 cases (15.71%) have acute renal failure, out of them 9 cases needed dialysis. Mortality rate was 12.14%. The results were in accordance with the study done by Shaishav Patel1 et al⁽⁵⁾, where shock in 15%, respiratory failure in 25%, renal impairment in 35%.

In study by Shaishav Patel1 et al. overall mortality rate was 25%. In our study, 123 cases recovered and 17 cases died with mortality rate of 12.14%.

In the current study, 43 cases (30.71%) have recurrent episode, out of which 41 cases were both alcoholics and smokers, most probably because of their smoking habit which will potentiate the episode of alcoholic related pancreatitis, Recurrence in females was explained by dyslipidemia in one case and anti retroviral therapy in another case.

V. Conclusion

Acute Pancreatitis is a common medical cause of acute abdomen. Alcohol and smoking are the most common preventable risk factors. Most of the patientswere males. Recurrence rate was mostly observed in those with alcoholism and smoking. Drugs like anti retro viral therapy, steroid are precipitating Acute Pancreatitis in females which may be preventable.

References

- [1]. Harrison text book of medicine, 19th edition.
- [2]. API text book of medicine, 10th edition.
- [3]. Davidson text book of medicine.
- [4]. Nitesh Negi1, Jatinder Mokta2 Clinical Profile and Outcome of Acute Pancreatitis: A Hospital- Based Prospective Observational Study in Sub Himalayan State , Journal of The Association of Physicians of India Vol. 66 March 2018.
- [5]. Patel S, Patel T, Hada D, Suvera M, Parmar H. Clinical profile and outcome of acute pancreatitis and necrotizing pancreatitis. IAIM, 2015; 2(7): 116-120.
- [6]. Mitchell S. Acute pancreatitis: etiology, clinical presentation, diagnosis, and therapy. Med Clin N Am 2008; 92:889-923.
- [7]. Rao S. Etiology, clinical profile, severity and outcome of acute pancreatitis in relation to bedside index for severity of acute pancreatitis BISAP and CT severity index (CTSI) scores. Int J Med Res Health Sci 2014; 3:922-928.
- [8]. Strate T, Yekebas E, Knoefel WT, Bloechle C, Izbicki JR. Pathogenesis and the natural course of chronic pancreatitis. Eur J Gastroenterol Hepatol. 2002;14:929–934.
- [9]. Moore RD, Keruly JC, Chaisson RE. Incidence of pancreatitis in HIV-infected patients receiving nucleoside reverse transcriptase inhibitor drugs. AIDS. 2001;15(5):617–620.
- [10]. Global Status Report on Alcohol and Health 2011 [online]. Available from: http://www.who.int/substance_abuse/publications/global_alcohol_report/en/index.html.
- [11]. Toouli J, Brooke-Smith M, Bassi C, et al. Guidelines for the management of acute pancreatitis. J Gastroenterol Hep 2002;17 (Suppl.) S15-39.
- [12]. Manfredi R, Calza L, Chiodo F. A case-control study of HIV-associated pancreatic abnormalities during HAART era. Focus on emerging risk factors and specific management. Eur J Med Res. 2004;9(12):537–544.

Dr. M. Bhargavi Devi¹. “Study of Acute Pancreatitis in a Tertiary Care Hospital –Assessment of Risk Factors and Outcome.” IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 9, 2019, pp 30-33.