The Clinical Profile and Outcome of Pancreatitis Cases in a Rural Tertiary Care Center: A Surgical Audit

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ABSTRACT

The Pancreatitis is a common inflammatory condition of pancreas which can be of acute or chronic variety. The Incidence of acute pancreatitis has been reported as 30.0 and 2.6-3.2 /one lac population worldwide and in India. To study the clinical profile and outcome of pancreatitis patients. A total of 82 patients of pancreatitis included in this study period of almost five and a half year of span from 1st November 2019 to 30th September 2024 were included. A total of 82 patients of pancreatitis (26 male and 56 female) were included. Acute pancreatitis cases were of age group 16-80 years out of which maximum patient were fall in age group of 31-45 years (40.7%) of total study group. The main cause of pancreatitis was gallstone in 48 (59.3%) patients followed by alcohol induced pancreatitis in 26 (31.7%) patients. In this study association of alcohol induced pancreatitis with CT grades and pain score were 5.24±1.09 and 4.20±0.57, gall stone induced pancreatitis with CT grades and pain score were 5.42±0.91 and 4.17±0.42, other causes of pancreatitis with CT grades and pain score were 5.50±0.75 and 4.00±0.0 with p value of 0.56 and 0.70. In this study association of glucose level and complications were found as glucose level 129.49±57.71 in patients with no severe complications and 130.43±36.32 were found in patients with severe complications. Correlation between pain grade and amylase level with r value -0.008 and p=0.94, correlation between CT grade and amylase level with r value -0.05 and p=0.64. In this study correlation between pain grade and lipase level with r value -0.04 and p=0.74 and correlation between CT grade and lipase level with r value 0.02 and p=0.85 were observed. In this study correlation between pain grade and TLC counts with r value -0.11 and p=0.32, correlation between CT grade and TLC counts with r value -0.01 and p=0.92 were observed. In this study it was observed that pain in RHC was most common presented symptom in 57 patients with age group of 31-60 years followed by vomiting in 30 patients with age group of 31-60 years. followed by fever in 10 patients with age group of 31-40 years and one patient presented with abdominal distension. This audit was found incidence of pancreatitis dominates in females with 56 (69.1%)and male 26 (31.7%) with age group of 31-60 years were found more affected. Most common cause of pancreatitis in this study was gall stone induced (59.3%) followed by alcohol (31.7 %) and other causes were (9.9%) .TLC counts were higher in males with age group of 46-75 years. in this study it was also observed that higher pain grade in patients were associated with higher CT grades. hyperglycemia were also associated with higher complication rates in this study (130.43+/-46.32). slight correlation was found between amylase levels and TLC counts maximum number of patients of pancreatitis patients presented with pain in right hypochondrium fall in age group of 31-60 years.

INTRODUCTION

The Pancreatitis is a common inflammatory condition of pancreas which can be of acute or chronic variety. The Incidence of acute pancreatitis has been reported as 30.0 and 2.6-3.2 /one lakh population worldwide and in India respectively[1]. The prevalence and incidence of chronic pancreatitis has been reported as 13.5-163 cases and 5-31. Seven new cases/one lakh population/ years respectively. The rates of acute pancreatitis are similar in both sexes, but chronic pancreatitis is more common in males[2]. The various etiological factors such as Gall stones, Alcohol, CBD stones, Congenital pancreas anomaly, hereditary etc. plays key role in development of both acute and chronic pancreatitis. The common clinical presentations are pain upper abdomen, vomiting, nausea and fever etc. The Billiary stricture, necrosis, splenic vein thrombosis, pseudo cyst of pancreas usually depends upon the severity of the disease and are uncommon. Investigations such as TLC, DLC, Hb, RBS, Amylase, Lipase, USG, CT whole abdomen, X-ray are some of useful investigations done for management of these cases. The clinical severity of the patient can be evaluated by APACHE –II (Temperature, HR, BP, PR, BUN, RR, MAP, PaO^2, Na+, K+, hematocrit, GCS, ABG, WBC and CT severity score can be evaluated for prognosis and severity of pancreatitis. An accurate audit of evidence based standard management and outcome of pancreatitis remains vital in evaluating the effectiveness of its management. In this retrospective study, we aimed to assess the predictive value of a variety of parameters including radiological, clinical, scoring systems (APACHE-II), complications and treatments of pancreatitis cases[3-8].

Aims and Objectives: To study the clinical profile and outcome of pancreatitis patients presented at a rural tertiary care center.

MATERIALS AND METHODS

A total of 82 patients of pancreatitis included in this study period of almost five and a half year of span from 1st November 2019 to 30th September 2024 were included. Patient data of improper details were excluded out. Details of history, hospital stay, laboratory findings, radiological findings, patients' symptoms, duration of hospital stay and operative findings were collected from the patients records from MRD department of our institution.

Study Procedure: Plan of study was drawn up and submitted to and cleared up by institutional scientific Review Board vide letter number BPS/SRC/207, ethical review board Vide letter number BPSGMCW /RC1070 /IEC / 24 of our institution. Patient data collected from patient records based on inclusion and exclusion criteria. All details such as TLC, DLC, Hb, RBS, Amylase, Lipase, USG, CT whole abdomen, X-ray, HR, BP, PR, BUN, RR, MAP, PaO2, Na+, K+, hematocrit, GCS, ABG, WBC and CT severity score were appropriately collected.

Statistical Analysis: Data were entered and analysed using SPSS version 28.0. The nominal data were described using frequency and percentage and compared using Chi-square test or Fischer exact test. The ordinal data were described using median and interquartile range (IQR) and compared using the Mann-whitney U-test. The continuous data were described using mean±SD and compared using an unpaired t-test. A p-value of <0.05 was considered statistically significant.

Ethical Clearance: Ethical clearance was obtained from institutional ethical committee, BPS GMC Khanpur Kalan. The certificate reference number is BPSGMCW/RC1070/IEC/24.

RESULTS AND DISCUSSIONS

In the present series of 82 patients of pancreatitis (26 male and 56 female) were included in this study. Acute pancreatitis cases were of age group 16-80 years out of which maximum patient were fall in age group of 31-45 years (40.7%) of total study group. The initial diagnosis were made on basis of clinical examination, radiological examination and hematological examination. The main cause of pancreatitis in this study was gallstone in 48 (59.3%) patients followed by alcohol induced pancreatitis in 26 (31.7%) patients (Table 1-3).

Table 1: Gender Wise Distribution of Pancreatitis Study Subjects (n=81)

Gender	No.	%
Male	26	31.7
Female	56	69.1

Table 2: Age Wise Distribution of Pancreatitis Study Subjects (n=81)

Age group	No.	%
16-30 years	12	14.8
31-45 years	33	40.7
46-60 years	24	29.6
61-75 years	10	12.3
>75 years	3	3.6

Table 3: Cause of Pancreatitis in Study Subjects (n=81)

Cause of pancreatitis	No.	%
Alcohol	26	31.7
Gall stone	48	59.3
Others	8	9.9

In this study association of alcohol induced pancreatitis with CT grades and pain score were 5.24±1.09 and 4.20±0.57, gall stone induced pancreatitis with CT grades and pain score were 5.42±0.91 and 4.17±0.42, other causes of pancreatitis with CT grades and pain score were 5.50±0.75 and 4.00±0.0 with p value of 0.56 and 0.70.

Table 4: Association of Cause of Pancreatitis with CT Grade and Pain Score

Cause of pancreatitis	CT grade	Pain score
Alcohol	5.24±1.09	4.20±0.57
Gall stone	5.42±0.91	4.17±0.42
Others	5.50±0.75	4.00±0.0
P value	0.56	0.70

In this study association of glucose level and complications were found as glucose level 129.49±57.71 in patients with no severe complications and 130.43±36.32 were found in patients with severe complications. In this study correlation between pain grade and CT grade were found as r value 0.05 and p value 0.60.

Table 5: Association Between Glucose Level and Complications

	Complications absent (n=57)	Complications present (n=23)	p-value
Glucose level	129.49±57.71	130.43±46.32	0.94

Table 6: Correlation Between Pain Grade and CT Grade

	r value	p-value
Between pain grade and CT grade	0.05	0.60

In this study there was also association of TLC counts with respect to age i.e. 16-30 years of age group with mean 9058.33±3966.011, 31-45 years with mean of 8872.73±4651.228, 46-60 years with mean of 10656.52±4890.977, 61-75 years with mean of 11200.00±6291.970 and >75 years with mean value of 7500.00±4949.745.

Table 7: Age Wise Distribution of TLC Count in Pancreatitis Study Subjects (n=81)

Age group	Mean	SD
16-30 years	9058.33	3996.011
31-45 years	8872.73	4651.228
46-60 years	10656.52	4890.977
61-75 years	11200.00	6291.970
>75 years	7500.00	4949.747

Genderwise distribution of TLC counts were 10358.33±4704.38 in males and 9375.0±4918.28 in females with p value of 0.40. There was also correlation between TLC, age and amylase levels with r value of 0.13, 0.01 and p value of 0.24, 0.92.

Table 8: Gender Wise Distribution of TLC Count in Pancreatitis Study Subjects

	Male	Female	P-value
WBC count	10358.33±4704.38	9375.0±4918.28	0.40

Table 9: Correlation Between TLC Count with Age and Amylase Level

	r value	p-value
Between amylase level and TLC count	0.01	0.92
Between age and TLC count	0.13	0.24

In this study pain grade and duration stay correlation were with r value of -0.07 and p value of 0.48.

Table 10: Correlation Between Pain Grade and Duration of Hospital Stay

	r value	p-value
Between pain grade and Duration of hospital stay	-0.07	0.48

In this study correlation between pain grade and amylase level with r value of -0.008 and p value of

0.94, correlation between CT grade and amylase level with r value of -0.05 and p value of 0.64.

Table 11: Correlation Between Amylase Level with CT and Pain Grade

	r value	p-value
Between pain grade and amylase level	-0.008	0.94
Between CT grade and amylase level	-0.05	0.67

In this study correlation between pain grade and lipase level with r value of -0.04 and p value of 0.74 and correlation between CT grade and lipase level with r value of 0.02 and p value of 0.85 were observed.

Table 12: Correlation Between Lipase Level with CT and Pain Grade

	r value	p-value
Between pain grade and lipase level	-0.04	0.74
Between CT grade and lipase level	0.02	0.85

In this study correlation between pain grade and TLC counts with r value of -0.11 and p value of 0.32, correlation between CT grade and TLC counts with r value of -0.01 and p value of 0.92 were observed.

Table 13: Correlation Between TLC Count with CT and Pain Grade

	r value	p-value
Between pain grade and TLC count	-0.11	0.32
Between CT grade and TLC count	-0.01	0.92

In this study it was observed that pain in RHC was most common presented symptom in 57 patients with age group of 31-60 years followed by vomiting in 30 patients with age group of 31-60 years. followed by fever in 10 patients with age group of 31-40 years and one patient presented with abdominal distension.

Table 14: Age Wise Distribution of Different Symptoms in Pancreatitis Study Subjects (n=81)

Age group	Pain RHC	Fever	Vomiting	Abdominal distention
16-30 years (n=12)	12	1	7	0
31-45 years (n=33)	33	5	16	0
46-60 years (n=24)	24	3	14	0
61-75 years (n=10)	10	0	5	0
>75 years (n=2)	3	1	1	1

In this retrospective observation study with study population of 82 patients with female gender dominance observed in this study. The total of study population of 82 out of which 56 (69.1 %)were female and 26(31.7%)were male. A study found female dominance in their study group[11]. In this study it was observed that higher patients of pancreatitis were belong to 31-45 years of age group with 40 .7%(33) of total study population followed by 46 -60 years of age group with 29.6%(24) of total study population. In this study gall stones were the main cause of pancreatitis with 48 (59.3%), alcohol induced pancreatitis with 26 (31.7%) and followed by 8(9.9%) with other cause. Flint *et al* also studied the same and found lower incidence[12] while another study found the higher incidence of alcohol induced pancreatitis in their study which was second most common aetiological factor seen in 38% cases and was noted only in males[11]. In this study it was observed that highest value of TLC counts with mean 10656.52±11200.00 seen in 46-75 years of age group followed by 9058.33 in 16-30 years

of age group with SD of 3996.011 with male population dominance with 10358.33±4704.38. The lowest values of TLC counts were seen more than 75 years of age group 7500.00±4949.747 followed by 31-45 years of age group with mean value of 8872.73 with SD of 4651.224 with female population dominance that suggest higher the TLC counts were found in middle and higher age group and also in male dominant in this study population of pancreatitis. In this study it was observed that pain grade of pancreatitis patients had no positive correlation with hospital stay during treatment but there is slightly positive correlation was found between pain grade of pancreatitis patients with CT scan severity grade was found higher in patients with high pain grades (VAS scale). In this study it was also observed that all patients of pancreatitis of this study group with higher glucose levels with mean 130.43+/-46.32 were associated with complications like necrosis pancreas, ascites etc. and patients with lower glucose levels had lesser complications rate. Chiang et al study found that hyperglycemia or hypoglycaemia affects the patient hospital stay effectively[13]. In this study negative correlation were found between pain grade, amylase levels and CT grade. This suggest there is no significant correlation was seen in this study population. In this study there were slightly positive correlation were found between CT severity grade system and lipase levels but were negative correlation were seen between pain grade and lipase levels of pancreatitis patient in this study group. In this study there were merely positive correlation were found between amylase levels and TLC counts of pancreatitis patients of the study group. There were slightly positive higher amylase levels were noted in patients with higher TLC counts. In this study there were highest symptoms of pancreatitis seen in 31-40 years of age group with pain in right hypochondrium, fever and vomiting followed by 17 patients presented with pain RHC, vomiting and fever followed by 15 patients had pain in RHC and vomiting with main age of 61-75 years of age.

Limitations: One of the major limitations of this study is small sample size due to the Covid-19 pandemic fall during the study period. Number of patients lost to follow up. Patient data record were also affected due to this. Hospital stay of patients decreased due to Covid-19 guidelines and many patients were followed after the Covid guidelines relaxed. Covid-19 RTPCR report period in our institute was around 1-2 days and RTPCR before surgery if positive then patients discharged for a quarantine period and advised to re-admit. many patients were lost to followup. patient data lost due to change of wards into dedicated Covid-19 patients ward as our institution was declared dedicated Covid-19 hospital.

CsONCLUSION

This audit was found incidence of pancreatitis dominates in females with 56 (69.1%)and male 26 (31.7%) with age group of 31-60 years were found more affected. Most common cause of pancreatitis in this study was gall stone induced (59.3%) followed by alcohol (31.7%) and other causes were (9.9%) .TLC counts were higher in males with age group of 46-75 years. in this study it was also observed that higher pain grade in patients were associated with higher CT grades. hyperglycemia were also associated with higher complication rates in this study (130.43+/-46.32). slight correlation was found between amylase levels and TLC counts maximum number of patients of pancreatitis patients presented with pain in right hypochondrium fall in age group of 31-60 years. Maximum number of patients presented with fever fall in age group of 31-60 years. Maximum number of patients of pancreatitis presented with vomiting fall in age group of 31-60 years.

REFERENCES

1. Parmar, D. and R.A. Makwana., 2022. A study on clinical profile and complications of acute pancreatitis at a tertiary care centre, Ahmedabad: A Case-Series. GCSMC. J Med Sci., Vol. 11, No. 2.
2. Drake, M., S.J.M. Dodwad, J. Davis, L.S. Kao, Y. Cao and T.C. Ko, 2021. Sex-Related Differences of Acute and Chronic Pancreatitis in Adults. J. Clin. Med., Vol. 10 .10.3390/jcm10020300.
3. Bradley, E.L., 1993. A Clinically Based Classification System for Acute Pancreatitis. Arch. Surg., 128: 586-590.
4. Büchler, M.W., B. Gloor, C.A. Müller, H. Friess, C.A. Seiler and W. Uhl, 2000. Acute Necrotizing Pancreatitis: Treatment Strategy According to the Status of Infection. Ann. Surg., 232: 619-626.
5. Baron, T.H., C.J. DiMaio, A.Y. Wang and K.A. Morgan, 2020. American Gastroenterological Association Clinical Practice Update: Management of Pancreatic Necrosis. Gastroenterology, 158: 67-75.
6. Mofidi, R., K.K. Madhavan, O.J. Garden and R.W. Parks, 2007. An audit of the management of patients with acute pancreatitis against national standards of practice. Br. J. Surg., 94: 844-848.
7. Udayakumar, N. and V. Jayanthi, 2007. Chronic pancreatitis in India: The changing spectrum. Postgraduate Med. J., 83: 562-563.

8. Singh, R.K., B. Poddar, A.K. Baronia, A. Azim and M. Gurjar *et al.,* 2012. Audit of patients with severe acute pancreatitis admitted to an intensive care unit. Indian J. Gastroenterol., 31: 243-252.

9. Weiss, F.U., F. Laemmerhirt and M.M. Lerch, 2019. Etiology and Risk Factors of Acute and Chronic Pancreatitis. Visceral Med., 35: 73-81.

10. Roberts, S.E., A. Akbari, K. Thorne, M. Atkinson and P.A. Evans, 2013. The incidence of acute pancreatitis: Impact of social deprivation, alcohol consumption, seasonal and demographic factors. Aliment. Pharmacol. And Ther., 38: 539-548.

11. Raghuwanshi, S., R, Gupta, M.M. Vyas and R. Sharma., 2016. CT Evaluation of Acute Pancreatitis and its Prognostic Correlation with CT Severity Index. Journal of clinical and diagnostic research, 10: 6-11.

12. Flint, R., J. Windsor and M. Bonham, 2004. Trends in the management of severe acute pancreatitis: Interventions and outcome. ANZ J. Surg., 74: 335-342.

13. Chiang, H.Y., K.T.R. Lin and Y.L. Hsiao, 2021. Association Between Preoperative Blood Glucose Level and Hospital Length of Stay for Patients Undergoing Appendectomy or Laparoscopic Cholecystectomy. Diabetes Care, 44: 107-115.