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Original Research Article

Clinical study of non-gall stone induced pancreatitis in a tertiary care centre

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ABSTRACT

Background: Acute pancreatitis is a serious condition caused by an acute inflammatory cascade in the pancreas usually with symptoms of upper abdominal pain and increased pancreatic enzymes in blood, urine, peritoneal fluid at least 3 times above the normal. Presence of permanent, morphologic and functional damage differentiates acute and chronic pancreatitis. Aims and objectives: The aims and objectives of this study was to study the aetiology of non-gall stone induced pancreatitis.
Methods: It was an observational hospital-based study, which was designed and conducted in the department of general surgery, school of medical science and research, Sharda University, Greater Noida.
Results: The mean age of study population was 33 years. Among 100 patients 5 patients were in age group of ≤20 years, 47 in 21-40 years, 31 in 41-60 years and 17 in >60 years. The study consisted of 100 patients among which the male to female ratio was 1.7. In our study, in 18% of the patient's alcohol was found to be the causative agent of acute pancreatitis. Hypertriglyceridemia and drugs as causative factor were seen in 15 and 7 patients respectively. No cause could be identified in 30% subjects.
Conclusions: Acute pancreatitis is a disease with high morbidity and mortality throughout the globe. Among the non-gall stone induced pancreatitis idiopathic and alcohol was found to be the commonest causative factor followed by others.

Keywords: Pancreatitis, Amylase, CT scan

INTRODUCTION

Acute pancreatitis is a serious condition caused by an acute inflammatory cascade in the pancreas usually with symptoms of upper abdominal pain and increased pancreatic enzymes in blood, urine, peritoneal fluid at least 3 times above the normal.[1] Presence of permanent, morphologic and functional damage differentiates acute and chronic pancreatitis.[2] Gall stone illnesses and alcohol are the most well-known causes behind acute pancreatitis, the previous is liable for 30-70% of cases and the last option for 30% of cases. When these two causes are barred, there stays a gathering, around 20-25%, and in this setting other predisposing factors like structural or functional alterations in the ductal system, microlithiasis, metabolic deformities, injury, inherited and iatrogenic causes, obstruction, obscure causes, drugs, auto-insusceptibility, infection, post-operative, post-ERCP, injury, hypertriglyceridemia and hereditary variables might be related with acute pancreatitis.[3]

Risk factors for pancreatitis[4-6]

Age and sex

Although the incidence of AP (acute pancreatitis) does not differ according to sex, CP (chronic pancreatitis) is more common among men. The risk of AP increases with age, whereas CP mainly affects middle-age individuals. Usually, alcohol-related pancreatitis is more common in middle-aged men. By contrast, pancreatitis in women is more frequently related to gallstones, instrumentation, autoimmune diseases or may be idiopathic. Geographic variations observed in age and sex distribution can be partly explained by differences in etiology.

Race

The risk of pancreatitis is 2 to 3-fold higher among the black population than the whites. Little is known about the possible reasons of this racial disparity and further studies are needed to determine whether these observed differences are related to dietary, genetic or other factors.

Lifestyle factors

Diet: The role of dietary factors in the etiology of pancreatitis is unclear. The consumption of high glycemic foods has been found to be associated with an increased risk of non-gallstone related acute pancreatitis. By contrast, it has been suggested that vegetables and fruit consumption are associated with reduced risk for pancreatic diseases.

Obesity: It has been found that abdominal adiposity increases the risk and severity of AP. The overweight has similar effect for gallstone and non-gallstone-related inflammation.

Diabetes: Some studies found that type 2 diabetes mellitus increases the risk of AP by 1.5 to 3-fold, particularly in younger diabetic patients 16. This risk may be attributed to diabetes itself, but also to other associated factors with this metabolic disorder (gallstones, hypertriglyceridemia) or the use of anti-diabetic drugs such as di-peptidyl peptidase-4 inhibitors (sitagliptin) or glucagon-like peptide 1 agonist (exenatide).

Clinical features

Abdominal pain is the major manifestation of acute pancreatitis. The pain may vary from mild and tolerable to severe, constant and incapacitating distress. Characteristically, the pain is steady and intense, located in the epigastrium and periumbilical region. It often radiates to the upper back as well as to the chest, flanks, and lower abdomen.[7]

Aims and objectives

The aims and objectives of this study was to study the etiology of non-gall stone induced pancreatitis (an observational hospital-based study carried in department of general surgery, school of medical science and research, Sharda University, Greater Noida.

METHODS

Study design and the participants

It was an observational hospital-based study was designed and conducted in the department of general surgery, school of medical science and research, Sharda university, Greater Noida.

Data collection

The study was conducted for a period of 2 years from January 2019 to December 2021 and included all admitted patients who showed clinical, biochemical or radiological evidence of pancreatitis. Total 100 patients were enrolled in this study.

Inclusion criteria

Patients with classical symptoms of acute pancreatitis like: Pain abdomen, rise in serum amylase and lipase>3 times normal value and ultrasonography /CECT findings consistent with diagnosis of acute pancreatitis were included in the study.

Exclusion criteria

Patients with cholelithiasis/ choledocholithiasis on ultrasonography of abdomen and patients with previous ERCP for CBD stones were excluded from the study.

First consecutive hundred patients who met the above criteria were enrolled in this study after their consent and proper history and a meticulous clinical examination was done. All the data was tabulated and analysed.

As this was an observational study, ethical clearance was not required.

Data management and statistical analysis

The data collected was analyzed using Statistical Package for the social sciences (SPSS) for the window's version 20.0.

RESULTS

The present study was conducted in the postgraduate department of general surgery, school of medical science and research, Sharda University, Greater Noida. The study population consists of 100 patients who met the inclusion criteria, and the following observations/data were collected and analyzed.

Age distribution in the study population

The mean age of study population was 33 years. Among 100 patients 5 patients were in age group of ≤ 20 years, 47 in 21-40 years, 31 in 41-60 years and 17 in >60 years as shown in Table 1. P>0.05.

Table 1: Age distribution of the patients.

Age distribution (Years)	Male	Female
≤ 20	3	2
21-40	31	16
41-60	21	10
>60	12	5

Gender distribution of the patients

The study consisted of 100 patients among which the male to female ratio was 1.7, p>0.05.

Table 2: Gender distribution of the patients.

Sex	No. of patients	Percentage (%)
Male	63	63
Female	37	37
Total	100	100

Socioeconomic status of the study population

The study consisted of 100 patients and most of the patients belong to lower socioeconomic status (as per modified Kuppuswamy scale (2018)-for urban population and Udai pareek scale-for rural population), shown in Table 3.

Table 3: Socioeconomic status of the patients.

Socioeconomic status	No. of patients	Percentage (%)
Higher socioeconomic status	42	42
Lower socioeconomic status	58	58
Total	100	100

Distribution of the patients as per the cause

In our study, in 18% of the patient's alcohol was found to be the causative agent of acute pancreatitis. Hypertriglycerdemia and drugs as causative factor were seen in 15 and 7 patients respectively. There was clear cut history of blunt trauma with CECT abdomen showing isolated pancreatic laceration and possible cause of pancreatitis in 9 cases. Findings of pancreatic divisum and choledochal cyst were found in 7% of subjects. History of upper gastrointestinal surgical intervention was present in 5 patients and may be the possible cause of pancreatitis in them. No cause could be identified in 30% subjects.

Table 4: Distribution of patients as per cause.

Etiological factors	No. of patients	Percentage (%)
Alcohol induced	18	18
Drug induced	7	7
Hypertriglyceredemia	15	15
Obustructive causes	7	7
Auto immune	4	4
Post traumatic	9	9
Post-surgical	5	5
Viral	2	3
Hypercalcemia	3	5
Idiopathic	30	30

Presenting complaints of the patients

In our study most of the patients presented to surgical emergency department with chief complaints of pain upper abdomen p=0.05

Table 5: Presenting complaint of the patients.

Clinical features	No. of patients	Percentage (%)
Pain upper abdomen	91	91
Pain abdomen with vomiting	95	95

DISCUSSION

Acute pancreatitis is a relatively common disease with varied etiology and clinical presentation. Severe acute pancreatitis has a very high morbidity and mortality rate. Early hospitalization and management, according to disease severity may be beneficial to identify those who require aggressive intervention, to prevent further attacks of pancreatitis as well as to reduce morbidity and mortality.

Age distribution

In our study acute pancreatitis was found to be more common in younger people. Most of the patients in the study population were below 40 years of age as shown in Table 1. Milheiro et al in their study "acute pancreatitis-an analysis of consecutive 91 cases" found that mean age of patients was 59±19 years.[8]

Gender distribution

In our study males outnumbered female patients in number as shown in Table 2. The ratio of male:female is 1.7. Chang et al in study "Etiology of acute pancreatitis-a multi-center study in Taiwan" which was conducted from July 1, 1998 to June 30, 2000.[9] In their study, a total of

1,193 patients with acute pancreatitis were identified. There were 852 (71.4%) men and 341 (28.6%) women with a male: female ratio of 2.3:1 (9-100 years).

Etiological factor

In our study the most common etiological factor was idiopathic followed by alcohol induced pancreatitis-18% as shown in Table 4. Patients with unknown etiology: In 30% of the cases in our study no etiological factor could be identified and were labeled as idiopathic (Table 4). This figure is consistent with the studies done earlier. Lee SP et al[10] in their study Biliary sludge as a cause of acute pancreatitis, studied 86 patients from 1980-1988, and labelled 31 patients (36 percent) as idiopathic, of whom 23 had microscopical evidence of biliary sludge showing that biliary sludge appears to be an underestimated cause of acute idiopatic pancreatitis.

Socioeconomic status

Moreover, in our study acute pancreatitis, was found to be a disease of lower socioeconomic group (Table 5). Alsamarrai et al factors that affect risk for pancreatic disease in the general population-their analysis included 51 population-based studies with more than 3 million individuals and nearly 10000 patients with pancreatic disease.[11] A total of 31 factors were investigated. Tobacco use was single most risk factor for pancreatic diseases followed by obesity and heavy use of alcohol.

Limitations

This study suffers from limitations of having a small sample size which could not be a representative for the whole population. Larger sample studies with longer follow up periods are requiring to ascertain the facts in our region.

CONCLUSION

Acute pancreatitis is a disease with high morbidity and mortality throughout the globe. Among the non-gall stone induced pancreatitis idiopathic and alcohol was found to be the commonest causative factor followed by others. Acute pancreatitis needs active investigations and aggressive management so as to avoid any complications and mainly if a cause is found treatment is guided accordingly.

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