Original Research Article

Incidence and etiology of pancreatitis among alcoholic and non-alcoholic patients

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International Archives of Integrated Medicine, Vol. 4, Issue 5, May, 2017.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 20-02-2017 **Accepted on:** 25-04-2017
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: N L Varunmai, Mudumala Issac Abhilash, M Uma Devi, P Shravan Kumar. Incidence and etiology of pancreatitis among alcoholic and non-alcoholic patients. IAIM, 2017; 4(5): 117-121.

Abstract

Introduction: Etiology of Pancreatitis continues to stir up controversy. The incidence of acute pancreatitis has been reported to vary around the world in different studies. The etiological profile of pancreatitis may be different in different parts of the world and it is therefore important that experiences from different parts of the country be recorded. Alcohol was once thought to be most common etiology. Recent studies in western countries show that non-alcoholic causes include more than 50% of causes of pancreatitis.

Aim: The aim this study was to know the etiological factors of pancreatitis and to compare the serum amylase, lipase levels in alcoholic and non- alcoholic patients.

Materials and methods: This was a prospective observational study conducted in Gandhi Medical College and Hospital, Secunderabad from December 2012 to November 2014 with duration of 2 years. 75 patients were included in this study according to inclusion and exclusion criteria. Detailed history along with physical examination and laboratory investigations for confirmation of diagnosis and etiology were done.

Results: In the present study, out of 75 cases, 40 had significant history of alcohol consumption, while 35 were found to be non-alcoholics. The age group of patients in our study was from 18yrs to 62 years. 20 out of 45 alcoholics were less than 40 years old while 21 out of 35 non alcoholics were less than 40 years old. Out of the 75 cases, 51 were males while 24 were females. In our study alcohol causes pancreatitis in 60% of the cases while non-alcoholic causes of pancreatitis included 40% of cases. Mean amylase, mean lipase and amylase: lipase ratio values were raised more in alcoholics than non-alcoholics. Recurrent pancreatitis was also observed in alcoholics than non-alcoholics.

Conclusion: Within limitations of this study, concluded that alcohol remains to be most common cause of pancreatitis in south India (Telangana), incidence of recurrent pancreatitis was significantly high in alcoholics and Serum lipase: amylase ratio more in alcoholics than non-alcoholics.

Key words

Pancreatitis, Alcohol, Serum amylase, Serum lipase.

Introduction

Etiology of Pancreatitis continues to stir up controversy. The incidence of acute pancreatitis has been reported to vary between 4.8/100000 and 24.2/100000 around the world in different studies.

Pancreatitis, which is most generally described as any inflammation of the pancreas, is a serious condition that manifests in either acute, chronic or acute on chronic forms leading to abdominal pain [1-3]. Acute pancreatitis has a sudden onset and short duration, whereas chronic pancreatitis develops gradually and worsens overtime, resulting in permanent organ damage. It may result in progressive destruction of the exocrine tissue and in some patients a loss of endocrine tissue as well. However owing to the tremendous reserve of pancreatic function, insufficiency may be subclinical at least in the beginning of the disease.

The early diagnosis of pancreatitis and its complication is still difficult and natural history as well as the prognosis of the disease remains yet to be defined. The etiological profile of pancreatitis may be different in different parts of the world and it is therefore important that experiences from different parts of the country be recorded. Alcohol was once thought to be most common etiology. Recent studies in western countries show that non-alcoholic causes include more than 50% of causes of pancreatitis. Hence this study is needful to understand the various etiological factors, occurring in this part of Telangana (South India), one of the leading states in alcohol consumption.

Materials and methods

Method of study: This was a prospective observational study conducted in Gandhi Medical College and Hospital, Secunderabad.

Sample size: 100 cases of pancreatitis admitted in department of medicine who fulfilled the inclusion criteria were taken. Out of them, 6 patients died before all the investigations were done and 14 patients had mixed etiologies in whom cause of pancreatitis could not be made out and 5 patients left the hospital for different causes, so, they were excluded and the remaining 75 cases were included in statistical analysis.

Duration of study: 2 years. December 2012 to November 2014.

Source of data: Cases of pancreatitis admitted in dept. of medicine were included. Detailed history along with physical examination and laboratory investigations for confirmation of diagnosis and etiology were done. For the cases in which etiology could not be found, further investigations were done.

Inclusion criteria

- Patients admitted in our Institution with age more than 18years
- All patients should fulfill the diagnostic criteria.

Diagnostic Criteria

It includes clinical history s/o pancreatitis plus at least one of the following

- Elevated serum amylase or serum lipase levels at least 3 times the upper limit of normal.
- Ultrasound or CT scan suggestive of pancreatitis

Exclusion criteria

- Cases with age less than 18yrs were excluded.
- Cases with more than one etiological factors causing pancreatitis were excluded from the study.

Results

The age group of patients in our study was from 18 years to 62 years. 20 out of 40 alcoholics were less than 40 years old while 21 out of 35 non alcoholics were less than 40 years old. 25 patients out of 40 were >40 years old and 9 patients out of 35 were >40 years old.

Out of the 75 cases, 51 were males while 24 were females. Among these 36 (90%) males and 9 (22.5%) females were alcoholics and 15 (42.8%) males, 15 (42.8%) females were non-alcoholics (**Table - 1**).

Table - 1: Demographic data of patients with pancreatitis.

Variable	Alcoholics (n=40)	Non-alcoholics (n=35)	Total
Gender distribution			
Female	9(22.5%)	15(42.8%)	24
Male	36(90%)	15(42.8%)	51
Age distribution			
<40yrs	20(50%)	21(60%)	41
>40yrs	25(62.5%)	9(25.7%)	34

In our study alcohol causes pancreatitis in 60% of the cases while non-alcoholic causes of pancreatitis included 40% of cases. Non-alcoholic causes observed were gall stones in 9 (12%) cases, hypertriglyceridemia in 3 (4%) cases, autoimmune causes in 2 (2.6%) cases, hypercalcaemia in 1 (1.3%) case, Traumatic in 1 (1.3%) case, infections in 1 (1.3%) case, idiopathic in 10 (13.3%) cases, post ERCP in 2 (2.6%) cases and congenital in 1 case (**Table - 2**).

Table - 2: Causes of pancreatitis.

Etiology	No of cases
Ethanolic	45(60%)
Gall stones	9(12%)
Hypertriglyceridemia	3(4%)
Autoimmune	2(2.6%)
hypercalcaemia	1(1.3%)
Traumatic	1(1.3%)
Infections	1(1.3%)
Idiopathic	10(13.3%)
Post ERCP	2(2.6%)
Congenital	1
hereditary	0

Mean serum amylase value was 841.39. It was 669.51 in alcoholics and 1013.27 in non-alcoholics. Mean serum lipase was 1573.61. It was 1965.9 in alcoholics, and 1181.32 in non-alcoholics. Overall lipase: amylase value was, 1.74. Mean value of lipase: amylase ratio was 2.31 in alcoholics, while it was 1.17 in non-alcoholics (**Table - 3**).

Table - 3: Pattern of Serum Amylase, Lipase in Alcoholics and Non Alcoholics.

Variable	Alcoholics (n=40)	Non alcoholics (n=35)
Mean amylase	669.51	1013.27
Mean lipase	1965.9	1181.32
Lipase: amylase	2.31	1.17
Lipase: amylase		
<3	32(80%)	30(85.7%)
>3	13(32.5%)	0

Incidence of recurrent pancreatitis was observed in 16 cases of alcoholics and 2 cases of non-alcoholic (**Table - 4**).

Table - 4: Incidence of Recurrent Pancreatitis in Alcoholics and Non-alcoholic.

Variable	Alcoholics	Non alcoholics
Acute	29	28
Recurrent	16	2

Discussion

Acute pancreatitis is an inflammatory disease of the pancreas. The etiology and pathogenesis of pancreatitis have been extensively investigated worldwide. The etiological profile may be different in different parts of the world and it is therefore important that experiences from different geographical areas be discovered and studied. Numerous etiopathological factors predisposing to pancreatitis have been identified, yet there is a need to further evaluate this entity which has significant morbidity and mortality.
Although advances in pancreatic function testing and imaging procedures have broadened our knowledge of pancreatitis, the early diagnosis of acute, chronic or acute on chronic pancreatitis and its complication is still difficult. Therefore this study was undertaken at Gandhi Medical College and Hospital Secunderabad**,** to study the etiological profile of pancreatitis, and compare alcoholic and non-alcoholic cases.

Recent studies have shown that lipase: amylase ratio in pancreatitis was higher in alcoholics than non-alcoholics. This study has focused on this hypothesis, to support the previous studies.

A total of 78 patients who presented during the period of 12 months (December 2012 to November 2014) were studied. Three of them had mixed etiologies making it difficult to differentiate the cause, so, they were excluded from the study. An attempt has been made to compare this study with other studies on pancreatitis after adopting comparable standards of diagnosis and modification.

Among the remaining 75 cases, 40 had significant history of alcohol consumption, while 35 were found to be non-alcoholics.

The age group of patients in our study was from 18 years to 62 years. 20 out of 45 alcoholics were less than 40 years old while 21 out of 35 non alcoholics were less than 40 years old.

Out of the 75 cases, 51 were males while 24 were females. Among these, 36 (90 %) males and 9 (22.5 %) females were alcoholics.

Though alcohol was thought to be the most common cause of pancreatitis, recent studies have shown that the nonalcoholic causes of pancreatitis include more than 50% of etiology of pancreatitis. The recent advances in diagnostic methods have limited the number of cases labeled idiopathic.

In our study, non-alcoholic causes of pancreatitis included 40 % of cases of pancreatitis. As this study is done in a state which is found to the top most in alcohol consumption, the results were in this manner. This study still shows that alcohol is the most common cause of pancreatitis, at least in this part of south India.

Among the non-alcoholic causes, after the idiopathic cases, gallstones had highest incidence of 12% which is actually lower than the incidence of 35-40% shown in other studies [4], probably because the cases were taken from department of medicine and not surgery.

Incidence of hypertriglyceridemia causing pancreatitis was 1.3-3.8% in other studies [5]. It is found to be 4% in our study. Both the cases of pancreatitis post ERCP underwent ERCP for diagnostic purpose.

Smoking which is considered as an independent cause of pancreatitis in various studies, can be considered as an independent etiology, confirmation of which would need further studies in larger groups.

Alcohol was found to be associated with recurrent pancreatitis in 70-80-% of cases in previous studies. In this study, Incidence of recurrent pancreatitis was high in alcoholics, and in elderly patients compared to non-alcoholic and younger age group.

Mean serum amylase value was 841.39. It was 669.51 in alcoholics and 1013.27 in non-

alcoholics. Mean serum lipase was 1573.61. It was 1965.9 in alcoholics, and 1181.32 in non-alcoholics. Overall lipase: amylase value was, 1.74. Mean value of lipase: amylase ratio was 2.31 in alcoholics, while it was 1.17 in non-alcoholics.

A study of "The admission serum lipase: amylase ratio differentiates alcoholic from non-alcoholic acute pancreatitis." Done by Tenner SM and Steinberg W[6], showed that mean amylase value was significantly high in non-alcoholics compared to alcoholics, and lipase: amylase was high in alcoholics, which are being supported in our study. In that study lipase: amylase ratio of more than 5 was seen (100%) only in alcoholics, while in our study the ratio of more than 3 was seen in only alcoholics. The mean lipase was same in both groups in that study, while it was more in alcoholics in our study.

Conclusion

- Alcohol remains to be most common cause of pancreatitis in this part of India where consumption of alcohol is high.
- Incidence of Recurrent pancreatitis was significantly high in alcoholics.
- Serum lipase: amylase ratio more than 3 is found in 32.5% of alcoholics compared to 0% of non-alcoholics, so, it may be used as an indicator to differentiate alcoholic from non-alcoholic pancreatitis, after further studies.

Limitations

- The study group is smaller compared to the higher incidence of the disease.
- Etiology could not be found out in all the cases, at least few of which were labeled idiopathic due to lack of diagnostic techniques.
- The amylase and lipase values were done on day of admission, but all the patients did not reach the hospital on the first day of symptoms.

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