Original Article

IAHS Medical Journal
Volume 05 Issue 02 December 2022; 2-5

Aetiology and Risk Factor Analysis of Patients with Chronic Pancreatitis Admitted in a Tertiary Hospital

Jishu Deb Nath[1*] Rajat Sanker Roy Biswas[1]

ABSTRACT

Background: *Chronic pancreatitis is defined as a continuing inflammatory disease of the pancreas characterized by irreversible morphologic changes that typically cause pain and/or permanent loss of both exocrine and endocrine function. Chronic pancreatitis can result from episodes of acute pancreatitis of any cause, most commonly in those with multiple relapsing episodes of acute pancreatitis. The objective of our study is to determine the aetiology and risk factor in chronic pancreatitis patients admitted in the hospital.*

Materials and methods: *A retrospective observational study was conducted in the Department of Medicine, Maa-Shishu-O-General Hospital, Chattogram from July 2020 to September 2022. Total 29 patients were selected, as presenting in Medicine Department with documented presentation. All data were taken meeting exclusion criteria and analysed.*

Results: *Mean age, weight, waist circumference and BMI is 35.6 year, 57 kg, 32 cm and 24.5 respectively. Almost 2/3 of the patients admitted from urban area and mostly belong to average socioeconomic groups and male are little bit more affected n=15, 51.7%. Maximum cases were non alcoholic n=18, 62.1%. and found raised Triglyceride n=10, 34.5%. Pancreatic calcification found in significant cases n=14, 48.3%.*

Conclusion: *Chronic pancreatitis is one of the common causes of recurrent abdominal pain. Malnutrition and hypertriglyceridimia is the commonest cause in our country and abdominal x-ray have dramatic role in diagnosis and prognosis also.*

Key words: Chronic pancreatitis; Hypertriglyceridimia; Fibrocalcific pancreatic diabetes.

Introduction

Chronic pancreatitis is defined as a continuing inflammatory disease of the pancreas characterized by irreversible morphologic changes that typically cause pain and/or permanent loss of both exocrine and endocrine function.[1]

Limited evidence suggests that the incidence of chronic pancreatitis ranges from 5 to 12/100,000 with a prevalence of approximately 50/100,000 persons.[2]

There is wide variation in the prevalence of a form of chronic pancreatitis that is endemic to tropical countries (20 to 125/100,000 persons reported in two parts of South India).[3]

Chronic pancreatitis can result from episodes of acute pancreatitis of any cause, most commonly in those with multiple relapsing episodes of acute pancreatitis. Diverse group of risk factors have been identified including environmental and genetic causes for both initiation and disease progression with variable clinical and imaging features and complications. Presentation of acute pancreatitis is florid but chronic cases present with recurrent abdominal pain or present as relapsing cases of acute pancreatitis.

The 2021 clinical practice guidelines for CP, is based on the 2019 revision of the clinical diagnostic criteria for CP, which incorporate the concept of a pathogenic fibro-inflammatory syndrome, which involves persistent inflammation and fibrosis of the parenchyma.[4,5]

Diagnostic elements consist of characteristic imaging findings, characteristic histological findings, and five evaluation elements such as repeated upper abdominal pain, abnormal serum or urinary pancreatic enzyme level, abnormal exocrine pancreatic function, past history of acute pancreatitis, typical alcohol history or pancreatitis associated gene mutation. Patients are diagnosed as having early CP if they have three or more of the five evaluation items and characteristic imaging findings. The objective of this study is to determine the aetiology and risk factor in chronic pancreatitis patients admitted in the hospital.

1. Associate Professor of Medicine
Chattogram Maa-O-Shishu Hospital Medical College, Chattogram.

*Correspondence : **Dr. Jishu Deb Nath**
Cell : +88 01716 40 50 56
Email : jishudebnath2007@gmail.com

Date of Submission : 6th November 2022
Date of Acceptance : 20th November 2022

IAHS Medical Journal
Volume 05 Issue 02 December 2022; 2-5

Material and methods

A retrospective observational study was conducted in the Department of Medicine, Maa-Shishu-O-General Hospital, Chattogram from July 2020 to September 2022. Total 29 patients were selected, as presenting in Medicine Department with documented presentation. All data were taken meeting exclusion criteria and analysed. Initially 42 patients were enrolled but clinically debilitated patients, multiple comorbidity such as HTN, CKD, Bronchial asthma, COPD, and age less than 18 and advanced age such as more than 65, previous stone removal by ERCP, past history of pancreatic surgery and incomplete data were excluded.

Results

Mean age, weight and BMI is 35.6 year, 57 kg and 24.5 respectively. Almost 2/3 of the patients admitted from urban area and mostly belongs to average socioeconomic groups and male are little bit more affected n=15, 51.7%. Maximum cases are non alcoholic n=18, 62.1%. and found raised Triglyceride n=10, 34.5%. Pancreatic calcification found in significant cases n=14, 48.3% (Table I).

Table I Demographics of the study patients

Factors		Frequency	Percent
Gender	Male	15	51.7
	Female	14	48.3
Residence	Rural	7	24.1
	Urban	22	75.9
	Current smoker	9	31.0
Smoking	Non smoker	18	62.1
	Ex smoker	2	6.9
	Occasional Alcoholic	5	17.2
Alcohol	Non alcoholic	22	75.9
	Heavy alcoholic	2	6.9
Diabetes	Diabetic	13	44.8
Socioeconomic condition	Poor	10	34.5
	Average	13	44.8
	High	6	20.7
Hypercalcaemia	Present	1	3.4%
Gall stones	Present	4	13.8%
Dyslipidimia	Isolate increased TG	10	34.5
	Increased TG and LDL	5	17.2
	Increased LDL	1	3.4
Calcifications	Present	14	48.30

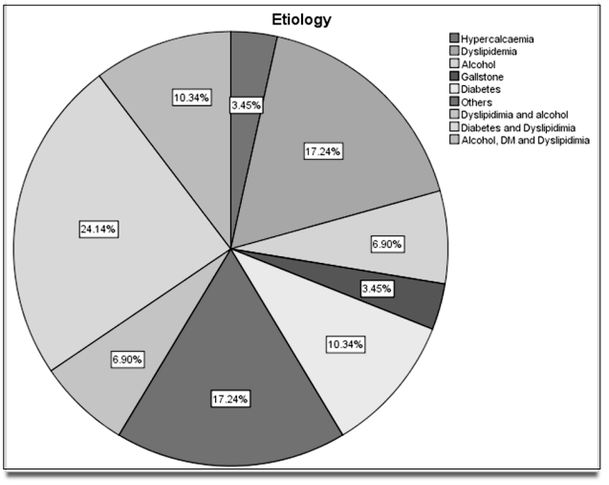

Figure 1 Aetiology of chronic pancreatitis patient

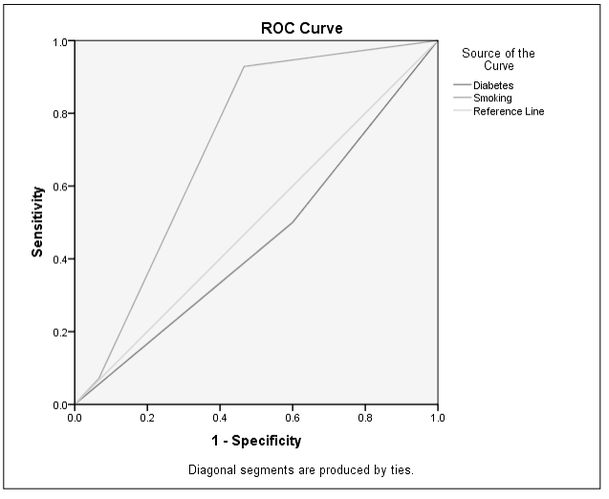

Figure 2 ROC curve showing strong correlation with smoking and pancreatic calcification

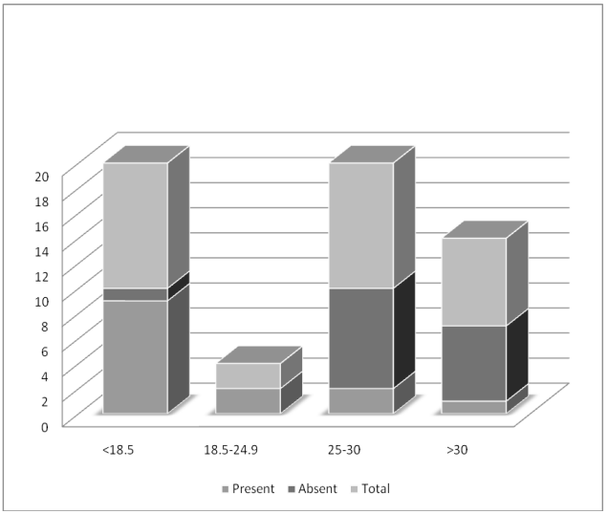

Figure 3 Correlation between BMI and abdominal calcification

IAHS Medical Journal
Volume 05 Issue 02 December 2022; 2-5

Table II Assicociation of pancreatic calcification with anthropometry

Variables	Calcification in AXR	n	Mean	Std. Deviation	p value*
Age	Present	14	31.2857	12.85678	0.125
	Absent	15	39.7333	15.64091	
Waist Circumference	Present	14	28.4286	5.06442	0.001
	Absent	15	35.4667	3.39888	
BMI	Present	14	20.1857	6.16727	0.001
	Absent	15	28.6000	4.39643	

Discussion

Women were less likely to have CP than men and constituted between 14% and 45% of all patients across different studies and our study result it was observed as little more n=14, 51.7%.[6]

Analysis of age distribution of the study found that mean age is 35.6 and most are affected as male preponderance n=15, 51.7%. In one large multicentric Study, age distribution is ranged from 40 to 62 years.[7]

Regarding etiology significant number of patients are related to alcohol . Most are occasionally alcoholic n=5, 17.2% and 2 were found heavy alcoholic n=2, 6.9%. According to different studies conducted by Pham and Forsmark and Weiss et al. the most common cause of CP is chronic alcoholism, followed by idiopathic causes, hyperlipidemia, hereditary and genetic causes, and obstructive CP.[8]

Regarding risk factors in this study significant number of patient had smoking history, n=11, 37.9% and pancreatic calcification was observed in 18.18% of male smoker patient n=11 and p value is 0.027.

In a meta-analysis of 10 observational studies (n=22, 850), smoking significantly increased the risk of developing CP [RelativeRisk (RR) 2.29, 95% CI 2.08–2.51, p<0.00001]. [9]

Furthermore, smoking was found to promote pancreatic calcification (RR 1.44, 95% CI 1.25–1.67, p<0.00001).[10]

In this study ascertained, smoking significantly increases the risk of pancreatic calcification (AUC 0.71, 95% CI 0.52–0.91, p=0.47)

Pancreatic calcifications were significant findings in under nutrition and malnourished group (BMI less than 18.5), 64.2% , n=9 compared to obese patient 7.1%, n=1 and p value is 0.01. Weight loss was another prominent findings in pancreatic calcification. Under 50 years of age it was 71.4%, n=10 and p value is 0.026. Diabetes is common findings in chronic pancreatitis patients and found n=13, 44.8%. According to one study, 118 (20.1%) out of 587 patients with chronic pancreatitis developed diabetes.[11]

Concomitant pancreatic calcification and DM was observed in our study is 53.8%, n=7, comparing to 43.8%, n=7 in non diabetic. Malka et al. previously reported a two-to three fold increased risk of DM with pancreatic calcifications.[12] It may be related to less operative intervene for stone removal and socioeconomic conditions.

In our study majority of the patients 40% n=12 was found mildly raised Triglyceride, between 200 to 300 mg/dl group comparatively 6.9% n=2 had high TG level in more than 500 mg/dl group. LDL was found normal 75.9% n=22 in less than 150 mg/dl group. In one Indian study of chronic pancreatitis patients, mean serum TG and LDL level was 200.21 ± 92.06 and 91.62 ± 19.89 respectively.[13]

Limitation

The limitation of this study is that the sample size is relatively small. Large sample size and multicentre data are required for conclusive results.

Conclusion

Chronic pancreatitis is one of the commonest ignorable causes of recurrent abdominal pain in our country and delayed diagnosis. The result of this study shows that incidence is more in male middle socioeconomic group patients living in urban area and closely related to smoking, and diabetic patients. Though it is more common in non alcoholic patients but those with with occasional intake of alcohol are also vulnerable and relates to consumption of indigenous homemade alcohol rather any brand. Mild hypertriglyceridimia is the commonest cause in our country and pancreatic calcification developed relatively early ages can guide the role in diagnosis and concomitant sequelae. The quality of life gradually deteriorates in chronic pancreatitis as most were found wasted and significant weight loss. So, multidisciplinary approach helps the patient's wellbeing.

Disclosure

Both the authors declared no competing interest.

References

1. Meena B.L., Roy A., Singh V. Chronic Pancreatitis. In: Singh, V., Roy, A. (eds) Clinical Rounds in Hepatology. Springer, Singapore. 2022.

2. Hirota M, Shimosegawa T, Masamune A, et al. The sixth nationwide epidemiological survey of chronic pancreatitis in Japan. Pancreatology. 2012;12:79–84.

3. Yadav D, Lowenfels AB. The epidemiology of pancreatitis and pancreatic cancer.Gastroenterology. 2013;144(6):1252-1261.

IAHS Medical Journal
Volume 05 Issue 02 December 2022; 2-5

4. Japan Pancreas Society. Clinical diagnostic criteria for chronic pancreatitis. J Jpn Pancreas Soc (Suizou). 2019;34:279–281.

5. Masamune A, Kikuta K, Kume K, et al. Nationwide epidemiological survey of chronic pancreatitis in Japan: introduction and validation of the new Japanese diagnostic criteria 2019. J Gastroenterol. 2020;55:1062–1071.

6. Ryu JK, Lee JK, Kim YT, et al. Clinical features of chronic pancreatitis in Korea: A multicenter nationwide study. Digestion. 2005;72:207–211.

7. Conwell DL, Banks PA, Sandhu BS, et al. Validation of demographics, etiology, and risk factors for chronic pancreatitis in the USA: A report of the North American Pancreas Study (NAPS) Group. Dig Dis Sci. 2017; 62:2133–2140.

8. Weiss FU, Laemmerhirt F, Lerch MM. Etiology and risk factors of acute and chronic pancreatitis. Visc Med. 2019;35:73–81.

9. Yadav D, Hawes RH, Brand RE, et al. Alcohol consumption, cigarette smoking, and the risk of recurrent acute and chronic pancreatitis. Arch Intern Med. 2009;169:1035–1045.

10. Luaces-Regueira M, Iglesias-García J, Lindkvist B, et al. Smoking as a risk for complications in chronic pancreatitis. Pancreas. 2014;43:275–280.

11. Aslam M, Jagtap N, Karyampudi A, Talukdar R, Reddy D N. Risk factors for development of endocrine insufficiency in chronic pancreatitis. Pancreatology. 2021; 21:15–20.

12. Malka D, Hammel P, Sauvanet A et al. Risk factors for diabetes mellitus in chronic pancreatitis. Gastroenterology. 2000; 119:1324–1332.

13. Yuvraj K C, Bhupati B D, Sushanta K D, Niranjan S et al. Nalysis of Serum Lipid Profile in Patients with Pancreatitis. J. Evolution Med. Dent. Sci. 2016;5(43):2278-4802.