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CLINICAL AND PARACLINICAL CHARACTERISTICS OF PATIENTS WITH ACUTE PANCREATITIS DUE TO HYPERTRIGLYCERIDEMIA

Bui Duc Thanh*, Diep Hong Khang

Military Hospital 175 - 786 Nguyen Kiem, 3 Ward, Go Vap Dist, Ho Chi Minh City, Vietnam

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ABSTRACT

Objective: To describe the clinical and paraclinical characteristics of patients diagnosed with acute pancreatitis due to hypertriglyceridemia.

Subjects and Methods: A cross-sectional descriptive study was conducted on 71 patients diagnosed with hypertriglyceridemia-induced acute pancreatitis from January 2023 to December 2024.

Results: Among the 71 patients, the mean age was 42.5 ± 10.2 years, and 67.6% were male. Common symptoms included abdominal pain (100%), nausea/vomiting (91.5%), and abdominal distension (87.3%). The mean serum triglyceride level was 1200 ± 650 mg/dL, and the mean blood glucose level was 150 ± 45 mg/dL. The proportions of patients with mild, moderate, and severe pancreatitis were 39.4%, 35.2%, and 25.4%, respectively. Severe cases were associated with higher triglyceride and glucose levels as well as delayed hospital admission ($p < 0.05$).

Conclusion: Acute pancreatitis due to hypertriglyceridemia commonly affects middle-aged men, with disease severity associated with metabolic disturbances and delayed hospital presentation.

Keywords: Acute pancreatitis, hypertriglyceridemia, metabolic disturbances.

1. INTRODUCTION

Acute pancreatitis (AP) is an acute inflammatory condition of the pancreas, typically presenting with severe abdominal pain accompanied by elevated serum levels of pancreatic enzymes such as amylase and lipase [1]. Among its etiologies, hypertriglyceridemia (HTG) is a notable cause, particularly in atypical cases where serum amylase levels may not be significantly elevated [2]. The clinical presentation of hypertriglyceridemia-induced acute pancreatitis (HTG-AP) is highly variable. While some patients may exhibit only mild, nonspecific symptoms, others present with severe manifestations, potentially leading to delays in diagnosis [1]. Several studies have reported that even in the presence of markedly elevated lipid levels, some patients do not display classical signs of AP [2]. This underscores the importance of a comprehensive evaluation of symptoms, medical history, and laboratory findings, especially when lipid metabolism disorders are suspected [3]. Although the diagnosis of AP primarily relies on clinical presentation and pancreatic enzyme levels, imaging plays a supportive role in accurately assessing disease stage and severity. Therefore, we conducted this study with the objective of describing the clinical and paraclinical characteristics of patients diagnosed with hypertriglyceridemia-induced acute pancreatitis at the Intensive Care Department, Military Hospital 175.

2. SUBJECT AND METHOD

2 .1. Subject

This study was conducted on patients diagnosed with hypertriglyceridemia-induced acute pancreatitis (HTG-AP) admitted to the Intensive Care Department of Military Hospital 175 between January 2023 and December 2024.

- Inclusion criteria:

*Corresponding author
Email: drthanhbd175@gmail.com **Phone**: (+84) 975430258 **Https**://doi.org/10.52163/yhc.v66ienglish.2747

Diagnosis of acute pancreatitis based on the revised Atlanta classification (2012);

Serum triglyceride (TG) level ≥ 11.3 mmol/L (1000 mg/dL);

Patients provided informed consent to participate in the study.

- Exclusion criteria:

Patients aged under 18 years;

Acute pancreatitis attributable to other etiologies;

Patients who declined to participate.

2.2. Methods

- Study design:

This was a cross-sectional descriptive study. A convenience sampling method was used to recruit all patients who met the inclusion and exclusion criteria during the specified period. A total of 71 patients were enrolled.

- Data collection and analysis:

This was a retrospective chart review conducted using medical records from the Intensive Care Department of Military Hospital 175. Data collected included demographic characteristics, clinical symptoms documented during hospitalization, and results of relevant paraclinical investigations.

The severity of acute pancreatitis was classified based on the Atlanta 1992 criteria, revised in 2007. The study also investigated the association between disease severity and clinical features, laboratory parameters, age, and sex.

- Data processing and statistical analysis:

Data were entered using Microsoft Excel 2016 and analyzed with SPSS software version 22.0.

3. RESULTS

Table 1. General Characteristics (n=71)

Characteristics		(n)	(%)
Age (Mean ± SD) (year)		42.5 ± 10.2	
Gender	Male	48	67.6
	Female	23	32.4
Age group	≤ 30	7	9.9
	31–40	28	39.4
	41–50	26	36.6
	51–60	8	11.3
	> 60	2	2.8

The study on 71 patients showed a mean age of 42.5 ± 10.2 years, with a male predominance (67.6%). The age distribution was mainly concentrated in the 31–40 (39.4%) and 41–50 (36.6%) age groups.

Table 2. Clinical symptoms (n=71)

Characteristic		(n)	(%)
Time to hospital admission (Mean ± SD) (hours)		6.13 ± 5.03 (1–36)	
Medical history	Dyslipidemia	58	81.7
	Diabetes mellitus	32	45.1
	Alcohol abuse	15	21.1
	Recurrent acute pancreatitis	12	16.9
Clinical symptoms	Abdominal pain	71	100
	Abdominal distension	62	87.3
	Nausea/ vomiting	65	91.5
	Fever	10	14.1
	Jaundice	8	11.3
Triggering factors	After a high-fat meal	45	63.4
	After alcohol consumption	18	25.4
	Unknown	8	11.3

Abdominal pain was present in all patients (100%), accompanied by abdominal distension (87.3%) and nausea/vomiting (91.5%). A high proportion of patients had a history of dyslipidemia (81.7%) and diabetes mellitus (45.1%), with the main triggering factor being the consumption of a high-fat meal (63.4%). The mean time from symptom onset to hospital admission was 6.13 ± 5.03 hours.

Table 3. Laboratory characteristics of the patients (n=71)

Blood parameters	Result (Mean ± SD)	Reference value
Triglyceride (mg/dL)	1,200 ± 650	< 150
Amylase (U/L)	450 ± 220	28–100
Lipase (U/L)	800 ± 350	0–60
Glucose (mg/dL)	150 ± 45	70–99 (fasting) ≤140 (2 hours postprandial)

Laboratory indices reflecting pancreatic inflammation were all markedly elevated, with blood triglycerides significantly increased (1200 ± 650 mg/dL), far exceeding the normal range. Amylase (450 ± 220 U/L) and lipase (800 ± 350 U/L) levels were also significantly elevated, while blood glucose was 150 ± 45 mg/dL.

Table 4. The severity of acute pancreatitis according to the Atlanta classification, 1992, revised 2007

Severity	(n)	(%)
Mild	28	39.4
Moderate	25	35.2
Severe	18	25.4
Total	71	100

The distribution of disease severity included mild (39.4%), moderate (35.2%), and severe (25.4%) cases. Notably, severe cases accounted for one-quarter of all hospital admissions.

Table 5. Association between acute pancreatitis severity and clinical characteristics, laboratory findings, age, and gender

Factor			
Group			p-value
Mean ± SD			
Mild (n=28)	Moderate (n=25)	Severe (n=18)	
Age (years)			
40.2 ± 8.5	43.1 ± 9.8	45.6 ± 12.3	>0.05
Time to hospital admission (hours)			
4.8 ± 3.2	6.5 ± 4.1	8.3 ± 7.6	<0.05
Blood triglycerides (mg/dL)			
980 ± 420	1,250 ± 580	1,600 ± 720	<0.01
Blood glucose (mg/dL)			
130 ± 30	155 ± 40	175 ± 50	<0.05
History of diabetes mellitus (n=32) (n%)			
10 (31.3%)	12 (37.5%)	10 (31.3%)	>0.05
Abdominal distension (n=62) (n%)			
22 (35.5%)	23 (37.1%)	17 (27.4%)	>0.05
Male gender (n=48)			
20 (41.7%)	17 (35.4%)	11 (22.9%)	>0.05

The severe group had higher triglyceride levels (1600 ± 720 mg/dL) and blood glucose levels (175 ± 50 mg/dL), along with a longer time to hospital admission (8.3 ± 7.6 hours) compared to the other groups ($p < 0.05$). Age and gender did not show statistically significant differences across severity levels.

4. DISCUSSION

In our study, the mean age of patients with hypertriglyceridemia-induced acute pancreatitis was 42.5 ± 10.2 years, indicating that the affected population primarily consisted of middle-aged adults. This finding is consistent with previous studies, which have shown that hypertriglyceridemia-induced acute pancreatitis commonly occurs in individuals aged 30 to 50 years, a period during which metabolic disorders are more likely to develop due to unhealthy lifestyles and physical inactivity [4]. Additionally, the predominance of male patients (67.6%) reflects a similar epidemiological pattern observed in international studies, which may be attributed to a higher prevalence of metabolic syndrome and alcohol abuse among men [5]

Regarding clinical presentation, the most common symptoms were abdominal pain (100%), nausea/vomiting (91.5%), and abdominal distension (87.3%), which are entirely consistent with the classical description of acute pancreatitis. Compared to other etiologies, such as biliary or alcohol-induced pancreatitis, hypertriglyceridemia-associated pancreatitis often presents with nonspecific clinical features, which may lead to missed or delayed diagnosis if laboratory findings are not carefully considered [6].

The mean triglyceride level in our study was 1,200 ± 650 mg/dL, well above the 1,000 mg/dL threshold considered to represent a high risk for acute pancreatitis according to the American Gastroenterological Association (AGA) [7]. Additionally, the mean blood glucose level was 150 ± 45 mg/dL, reflecting a state of glucose intolerance or underlying diabetes mellitus in this patient group. This supports the hypothesis that lipid metabolism disorders often coexist with glucose metabolism abnormalities, and both factors may contribute to increased severity in acute pancreatitis [8].

The proportions of patients with mild, moderate, and severe acute pancreatitis were 39.4%, 35.2%, and 25.4%, respectively. Compared to the general distribution of severity in acute pancreatitis, the proportion of severe cases in our study was notably higher, suggesting that hypertriglyceridemia is an independent risk factor associated with poorer prognosis. A survey by Nawaz et al. similarly reported that patients with hypertriglyceridemia-

induced pancreatitis had a higher incidence of severe complications and ICU admissions compared to those with other etiologies [9].

Correlation analysis revealed that serum triglyceride levels over 1,000 mg/dL were significantly associated with disease severity ($p < 0.01$), consistent with findings from Nawaz et al. (2015) [9]. This underscores the importance of early triglyceride control in the management of acute pancreatitis. However, in contrast to some earlier reports [10], our study did not find a statistically significant association between age or gender and disease severity.

5. CONCLUSION

The study demonstrates that acute pancreatitis caused by hypertriglyceridemia represents a distinct clinical entity characterized by severe clinical manifestations closely associated with the degree of lipid and glucose metabolic disturbances. Early identification of this etiology is crucial for prognosis and timely treatment guidance, contributing to the reduction of complications and hospitalization duration. Effective control of metabolic factors is a key strategy in the prevention and management of this condition.

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