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Features of Acute Pancreatitis Patients Admitted to a General Surgery Clinic

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Abstract

Acute pancreatitis is an important current problem with a growing frequency and a potentially severe or even fatal evolution in some cases. In recent years, an increase in the incidence of acute pancreatitis has been observed in the population, which emphasizes the importance of establishing optimal therapeutic behavior. We performed a descriptive, retrospective clinical study, from January 2015 to November 2018, single-center, on a number of 57 patients with the diagnosis of acute pancreatitis. The presentation characteristics of patients with acute pancreatitis are largely consistent with the literature, with patient sex being the sure parameter that highlights a significant difference, with a greater number of women being diagnosed with acute pancreatitis.

Keywords: acute pancreatitis, demographics, presentation features.

Rezumat

Pancreatita acută reprezintă o problemă actuală importantă, cu o frecvență în creștere și o evoluție severă, chiar fatală în unele cazuri. În ultimii ani s-a observat o creștere a incidenței pancreatitei acute în rândul populației, ceea ce subliniază importanța stabilirii unei abordări terapeutice optime. Am realizat un studiu clinic descriptiv, retrospectiv din ianuarie 2015 până în noiembrie 2018, într-un singur centru, pe un lot de 57 de pacienți cu diagnosticul de pancreatită acută. Parametrii pacienților cu pancreatită acută la prezentare s-au dovedit similare cu cele din literatura de specialitate, doar raportul pe sexe prezentând o diferență sigură, cu un număr mai mare de femei diagnosticate cu pancreatită acută.

Cuvinte cheie: pancreatită acută, demografie, parametri la internare.

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INTRODUCTION

Acute pancreatitis is an important current problem with a growing frequency and a potentially severe or even fatal evolution in some cases. In recent years, an increase in the incidence of acute pancreatitis has been observed in the population, which emphasizes the importance of establishing optimal therapeutic behavior¹.

Patients with severe acute pancreatitis often have considerable systemic inflammatory response and different grades of organ failure. These patients are exposed to the risk of developing local complications, such as pancreatic necrosis, pseudo-aneurysms and bleeding, fistulae and strictures, or infection of the pancreatic necrosis².

The present study aims to analyze the characteristics of patients with acute pancreatitis admitted to a general surgery clinic in Romania.

MATERIALS AND METHODS

We performed a descriptive, retrospective clinical study, from January 2015 to November 2018, single-center, in the General Emergency Surgery Clinic III of the University Emergency Hospital Bucharest, on a number of 57 patients with the diagnosis of acute pancreatitis.

Inclusion criteria:

1. Patients over 18 years old;
2. Patients diagnosed clinically (according to the criteria), paraclinical and imagistic with acute pancreatitis.

Exclusion criteria:

The criteria for exclusion of patients from the study were:

1. Patients diagnosed and treated in the outpatient setting for acute pancreatitis;
2. Patients diagnosed with a history of acute pancreatitis, whose episode has resolved and is currently being treated for late complications of the pathology.

RESULTS

Of the 57 patients diagnosed with acute pancreatitis, 34 were female and 23 were male. The age of the patients was between 20 and 83 years, with an average value of 51.25 years.

Of all 57 patients diagnosed with acute pancreatitis, most of them, i.e. 42, were subsequently diagnosed

with pancreatitis due to billiary etiology. A less visible numbers of pancreatitis were due to the other etiologies: hypertriglyceridemia (6 patients), alcoholic (5 patients) and idiopathic (4 patients).

The most common risk factor was dyslipidemia, present in 47% of cases, followed by the interventional and therapeutic procedure known as retrograde endoscopic cholangiopancreatography, which was performed in 38% of cases. Alcohol and obesity were present in a similar number of cases, both being present in 22% of cases (separately or together), and lithiasis was found in 15% of cases. In patient's history, surgery performed recently was found in 8% of cases, and hypercalcemia and pregnancy were present in only 3.5% of cases.

Of all 57 patients diagnosed with acute pancreatitis, a majority of 32 had elevated amylazemia levels more than 3 times the normal value, which represents 56%. 32% of patients had normal amylase values, and 12% had elevated values, but below the diagnostic limit. The mean value of amylase among patients was 1022 U / L, with a median of 509 U / L and a standard deviation of 1177 U / L (Table 1).

Compared with patients with elevated amylase values, those with values more than 3 times the normal value of lipase are found in a higher percentage, respectively 65%. 28% had normal lipase values, and 7% of patients had elevated lipase values, but below the diagnostic limit. The average serum lipase values were 4213 U / L, the median of 3713 U / L, and the standard deviation of 3886 U / L.

Blood glucose levels were increased at 37 patients, representing a majority of 65%. 35% had normal blood glucose levels at admission. This may be explained by decreased insulin release in acute pancreatitis or because of increased release of hyperglycemic hormones in acute stroke.

67% of patients presented with normal triglyceride values, 23% with normal-raised values and only 10% of them had significantly increased values. The mean serum triglyceride values were around 130 mg / dL, with a median of 120 mg / dL and a standard deviation of 56 mg / dL. Although a large proportion of patients presented as the main risk factor dyslipidemia, this was probably due to other changes in the lipid formula and not to hypertriglyceridemia. At the same time, many of these patients may already be on medication to reduce serum triglyceride levels.

Most patients, representing 72%, had a normal serum bilirubin value, while the remaining 28% had an increased bilirubin. This percentage is slightly higher

Table 1. Distribution of patients in relation with biological parameter values

	Mean	SD	Median	Minimum	Maximum
Hemoglobin	12.41	4.127	11.9	5.2	16.1
Leukocytes	11129,84	4234,987	9800	1200	21300
Glucose	129,07	49,886	120	74	340
Lipase	4213,56	3886,261	3713	13	13899
Amylase	1022,57	1177,706	509	14	5137
ALT (SGPT)	175,17	224,144	83	11	1144
AST (SGOT)	126,40	135,708	67	15	640
Triglycerides	129,75	55,980	120	37	269
Cholesterol	165	59,065	167	68	290
LDH	314,08	470,453	238	130	3749
Direct bilirubin	0,84	1,426	0,300	0,1	8,80
Total bilirubin	1,539	1,888	0,850	0,30	10,50
Urea	29,87	11,339	29	10	67
Creatinine	0,88	0,249	0,840	0,30	1,40
Fibrinogen	470,43	136,621	440	247	918
K	3,984	0,545	4,200	3,10	4,90
Ca	8,800	0,871	8,800	6,90	10,80
Na	138,526	4,049	139	120	145

than expected (10%) from previous studies, but it does not make a difference. Of these, 25% had increased direct bilirubin, and the remaining 3% implicitly the indirect one.

The value of serum LDH was normal in 29 patients out of 47, representing 51% of the total. Slightly higher values were observed in 35% of cases, and values over 350 mg / dL were reported in 14% of cases. These percentages could inform us about the percentage of patients who would fall into an increased risk category, with values above 350 mg / dL being a strong predictor of persistent organ failure. The mean LDH was 314 mg / dL, with a median of 238 mg / dL and a standard deviation of 470 mg / dL.

The highest percentage of patients, ie 72%, presented with normal values of serum calcium upon admission. 3% of them had high levels of calcium, and 25% had low values, this being explained by the process of fixing calcium at the level of cytosteatonecrosis stains and representing a predictor of severity of pancreatitis.

The hemoglobin value was found to be normal in 36 patients out of 57, with the remaining 21 showing low values. 63% had normal hemoglobin values and only 37% had low hemoglobin. The value of hemoglobin is important given the fact that it may decrease dramatically in the case of severe hemorrhagic pancreatitis.

Out of the total number of 57 patients included in the study, 33 were presented with normal leukocyte values, 21 with increased values, but not over 20.000 /

mmc, and only 3 patients had leukocyte numbers over 20,000 / mmc. The mean value was 11.130 leukocytes / mmc, the median was 9.800 leukocytes / mmc, and the standard deviation was 4.235 leukocytes / mmc. As a percentage, 58% of patients had normal values, 37% had high values and only 3% of them had a very large increase in leukocytes. Considering that at the onset of pancreatitis, high levels of leukocytes and inflammatory syndrome can be recorded without the presence of an infection, these data could provide information about the very small percentage of patients who could actually present an infection at the local inflammatory process.

The presence of increased fibrinogen was reported in 41 of 57 patients, the remaining 16 presenting with normal values. The increase of fibrinogen suggests the existence of an inflammatory syndrome, present in only 28% of cases. 72% of patients presented with normal fibrinogen values. At the same time, the growth of fibrinogen and leukocytes should not point to the suspicion of an infectious process, especially at the onset of acute pancreatitis, these increases being expected during this pathology.

Usually, the clinical, biochemical and imaging aspects facilitate a quick and easy diagnosis in the case of acute pancreatitis, especially when it comes to the mild ones and without the high risk of complications. In moderately-severe cases or when the presence of infection, fluid collections and other complications is

Table 2. Distribution of patients according to severity using Balthazar computed tomography score

	Balthazar score				
	A	B	C	D	E
Number of patients	5	8	9	4	11

suspected, it is recommended to perform a computed tomography or magnetic resonance imaging. For the patients included in the study, a computed tomography was performed in a number of 37 patients, representing 65% of the total number. The remaining 35% of patients did not require this investigation.

Of the total number of 37 patients who underwent CT imaging, 5 were classified as Balthazar severity score A, 8 as B score, 8 as C score, 4 as D score, and as 11 as E (Table 2).

Balthazar score brings us information on the severity of the episode of pancreatitis and can be used to formulate the prognosis of patients regarding complications and mortality. However, this score is by far not the most accurate score that can be used in severity grading, which will be confirmed later, with the description of the proportions of the types of acute pancreatitis found in the patients in the study and their good outcome.

43 patients were diagnosed with edematous pancreatitis, representing 75% of the total. Necrotic pancreatitis was present in 12 cases, and hemorrhagic in only 2 cases (Table 3). The evolution of edema-like pancreatitis is milder and less affected by the occurrence of complications.

In terms of severity, of the total 57 patients, 46 were diagnosed with mild pancreatitis, 8 with moderate pancreatitis and the remaining 3 patients with severe pancreatitis. As a percentage, 81% of the cases were

mild pancreatitis, 14% moderate pancreatitis and 5% severe pancreatitis (Table 4).

The most common complication during the evolution of acute pancreatitis among the patients included in the study was pleuritis, present in a percentage of 21.05%. The next complication by the frequency is represented by the systemic inflammatory response syndrome, present in a percentage of 19.20%. In almost equal proportions, of 8.77% and 7% were found pneumonia, respectively the pseudo-cyst, and the peritonitis was present in a percentage of 5.26%. In the proportion of 3.5%, the occurrence of diabetes, sepsis and / or multiple organ failure was reported. The rarest complication, occurring in 1.75% of cases, is fistula (Table 5).

Most patients, totaling 48, fall within the limits of 0-2 of the BISAP score, and the remaining 9 patients fall into the BISAP scores 3-5. As a percentage, 84.21% of cases belong to scores 0-2 BISAP and 15.79% to scores 3-5 BISAP. This prognostic score provides information on the risk of mortality from acute pancreatitis, which in this case is below 2% for the vast majority of patients (those in grades 0-2) and over 15% for the rest of patients (those in scores 3-5).

DISCUSSIONS

Demographic data, on which there are still inconsistencies in the literature, showed a higher incidence of acute pancreatitis among women. This contradicts the information known to date, which places male sex as the first place of incidence¹.

Table 3. Distribution of patients according to the histological type of pancreatitis

	Pancreatitis type		
	Edematous	Necrotic	Hemorrhagic
Number of patients	43	12	2

Table 4. Distribution of patients according to the severity of the episode of pancreatitis

	Severity		
	Mild	Moderate	Severe
Number of patients	46	8	3

Table 5. Frequency of complications of acute pancreatitis

	Number of patients	
	Complications	
	Pleuritis	12
	SIRS	11
	Pneumonia	5
	Pancreatic pseudocyst	4
	Peritonitis	3
	Diabetes Mellitus	2
	Sepsis	2
	MSOF	2
	Fistula	1

Regarding the age with the highest susceptibility to acute pancreatitis, according to the data recently found, it varies according to the main etiology of the disease. However, the study has shown a high incidence in people over 40 years, regardless of etiology, but this peak tends to decrease dramatically after age 80, most likely due to reduced survival after this age².

Regarding the etiology of acute pancreatic disease, the data currently known bring us information regarding the frequency of etiologies in populations according to the gender and age of the patients, not having reached a consensus regarding the superiority of an etiology in the general population. Regarding the etiology of the cases of acute pancreatitis among the patients included in the study by gender, the study data correspond to those currently recognized which attribute to the female sex a higher frequency of the biliary etiology and the male sex of the alcohol etiology. A difference was observed, however, with the attempt to compare etiologies by age category. Although alcoholic etiology was known to be the main cause in the 40-60 age group, bile etiology was also in the first place³⁻⁶.

Consistent with the frequency of etiologies of acute pancreatitis episodes developed by the patients in the

study, hypertriglyceridemia was ranked first in frequency (obviously contributing to biliary pathology), being present in 47.3% of cases. Although alcohol consumption is not in the second place, it is occupied by the ERCP (also in accordance with the frequency of the biliary etiology), it ranks third among the risk factors, being present in a percentage of 22.8%, equal to that of obesity⁷⁻¹⁰.

CONCLUSIONS

The presentation characteristics of patients with acute pancreatitis are largely consistent with the literature, with patient sex being the sure parameter that highlights a significant difference, with a greater number of women being diagnosed with acute pancreatitis.

Compliance with ethics requirements: The authors declare no conflict of interest regarding this article. The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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