

Case Report

Retrospective Evaluation of Elderly and Young Patients with Acute Pancreatitis

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Abstract

Background/aim: Acute pancreatitis (AP) is a clinical situation that should be included in the differential diagnosis of patients presenting with complaints of abdominal pain, nausea, and vomiting. The aim of this study is to investigate the in-hospital morbidity and mortality of patients with acute pancreatitis at our clinic.

Materials and Methods: In total, 159 patients with acute pancreatitis were included in the study and analyzed retrospectively. Patients were divided into two groups: those over 65 years old and those younger than 65 years. The demographic characteristics, severity, treatment, patient prognoses, and hospitalization duration were recorded. The relationship between AP severity, etiological factors, age, gender, length of stay, and prognosis was investigated for both groups.

Results: Acute biliary pancreatitis was detected in 99 (62.3) of the 159 patients. Biliary causes were significantly higher among the elderly group. There was no relationship between disease severity and demographic characteristics or clinical and laboratory findings.

When the hospitalization period was compared between age groups, the hospitalization period for the group over 65 years was found to be significantly longer than that of the other group. The mortality rate was 0% in the group younger than 65 years and 3.2% in the group older than 65 years (three patients). This rate was not statistically significant due to the low incidence of death.

Conclusion: Gallstones are a leading cause in the etiology of AP. Prognostic scoring systems should be used to determine the disease severity and age should be considered an additional risk factor in the increased morbidity and mortality of AP.

Introduction

Acute pancreatitis (AP) is a clinical condition that presents with abdominal pain and increased serum amylase or lipase threefold higher than the normal value (1). Alcohol and gallstones are two of the most common etiological causes of AP. Endoscopic retrograde pancreatography, surgery, drugs, HIV infection, hyperlipidemia, and biliary pathologies are rarer causes of acute pancreatitis (2). Despite advances in treatment, its morbidity and mortality remain high (3). Various scoring systems are available for evaluating AP severity. Ranson, APACHE II and revised Atlanta scores are used with clinical and laboratory data and Balthazar scoring is used radiologically (4, 5).

The physiology and morphology of organs change with aging, which is a natural process; the metabolic response to external factors and diseases also changes. In addition to laboratory

and imaging methods, age is an important predictor of mortality in AP. The rate of hospitalization is higher among the elderly population than the younger population (6). Published studies have shown increased morbidity and mortality among AP in elderly patients (7). In this study, we aimed to investigate the findings, demographic features, etiological factors, treatment approaches, Ranson and revised Atlanta scoring systems, hospital stay, and morbidity and mortality rates among patients younger than 65 years and older than 65 years.

Materials and Methods:

One hundred and fifty-nine patients hospitalized with a diagnosis of AP at Recep Tayyip Erdoğan University Medical Faculty Hospital in April 2014–March 2017 were evaluated retrospectively. Patients were evaluated in two groups: those over 65 and those younger than 65 years. Patient

gender, age, onset of complaints, etiologic cause, admission, and 48th-hour Ranson and revised Atlanta scores, mortality rates, and hospital stay duration were evaluated.

The diagnosis of AP was established if a patient had the presence of two of the three following criteria: 1) constant upper abdominal pain, 2) increased levels of serum amylase and/or lipase to threefold the normal value, and/or 3) characteristic findings from abdominal imaging. Hemogram, aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, electrolytes, and lipid profiles were recorded. Abdominal ultrasound was performed for the gallbladder and the pathways for etiology and abdominal CT were evaluated. Our study was carried out in accordance with the principles of the Declaration of Helsinki and ethics committee approval was obtained.

Statistical Analysis

Statistical analysis was performed using the SPSS for Windows software, version 21 (Chicago, Illinois). Continuous variables were expressed as mean $\pm$ standard deviation whereas categorical variables were presented as numbers and percentages. Student's t and nonparametric Mann-Whitney U tests were used to determine the differences between values for normally and abnormally distributed variables, respectively. Categorical variables were reported as percentages and were analyzed either by the chi-square test or by Fisher's exact test, as appropriate. Pearson rank tests were used as indicators in the correlation analysis. $P \leq 0.05$ was considered significant

Results

Ninety-four (59.1%) females and 65 (40.9%) males were included in the study. The mean age of the patients was 66.2 ± 18.43 years. Ninety-three (58.5%) patients were over the age of 65 and 66 (41.5%) were under the age of 65 years. Eighty-three (52.2%) patients had abdominal pain, 73 (45.9%) had abdominal pain, nausea, and vomiting, and three (1.9%) had abdominal pain with other symptoms. There was no statistically significant difference between the age groups in terms of patients' admission complaints ($p = 0.991$). No significant difference was found between the groups in the comparison of laboratory values for the age groups. Table 1 presents the groups' demographic and clinical characteristics.

Table 1: Patients' demographic characteristics and laboratory findings

	<65 (n = 66)	≥ 65 (n = 93)	Total (n = 159)	(n)
Age (years)	66.2 $\pm$ 18.43 79.75 $\pm$ 8.22	-	47.15 $\pm$ 9.96	
Gender(M/F)			65/94 32/61	33 0.006
Admissioncompliant				
Abdominalpain			83	35
Abdominalpain, nausea, and vomiting			73	30
Abdominalpain and others			3	1
Glucose (mg/dl)			118.1 $\pm$ 58.5 106.3 $\pm$ 44.1 121.2 $\pm$ 47.7	0.18
Leukocyte(10^3 /L)			12760 $\pm$ 3600 12669 $\pm$ 4557 13565 $\pm$ 1232	0.44
Hb(g/dl)			12.6 $\pm$ 1.8 13.1 $\pm$ 1.5 12.2 $\pm$ 1.7	0.61
BUN(mmol/L)			42 $\pm$ 18.6 40.7 $\pm$ 18.3 46.7 $\pm$ 11.6	0.21
Cr(mg/L)			0.92 $\pm$ 16 0.91 $\pm$ 0.25 0.96 $\pm$ 0.33	0.31
ALT(U/L)			148 $\pm$ 112 139.5 $\pm$ 26.1 154.7 $\pm$ 35.5	0.29
AST(U/L)			116 $\pm$ 139.7 112.0 $\pm$ 24.6 167.9 $\pm$ 36.0	0.27
Amylase $\pm$ 141			855 $\pm$ 151.2 876 $\pm$ 149	836 0.41
LDH (U/L)			306 $\pm$ 151.6 301 $\pm$ 135 0.39	321
Ca(mg/dl)			8.66 $\pm$ 0.47 8.9 $\pm$ 0.8 8.8 $\pm$ 0.9	0.56
CRP(mg/L)			7.7 $\pm$ 8.1 8.2 (0.1–57)	7.6 0.02
Lengthof stay (day)			7.7 $\pm$ 4.3 $\pm$ 3.59	6.39 0.016

Hb: Hemoglobin, BUN: Blood ureanitrogen; Cr: Creatine, AST: Aspartate amino transferase; ALT: Alanine amino transferase; LDH: Lactatedehydrogenase; Ca: Calcium, CRP: C-reactive protein

The etiologies of AP were 99 (61%) biliary, eight (4.4%) alcohol, 31 (23.2%) idiopathic, eight (5%) drugs, seven (3.7%) malignancy, and six (2.5%) hypertriglyceridemia. When the etiology was evaluated according to age group, biliary causes were found to be significantly higher in the etiology of patients over 65 years of age ($p = 0.013$)(Table 2). In addition, the admission and 48th-hour Ranson scores were significantly higher in the over 65 years group ($P < 0.001$ and < 0.001 , respectively). According to the modified Atlanta criteria; 77 (48%) were mild, 79 (49.7%) were moderate, and three (1.9%) severe. However, there was no significant difference in Atlanta score according to age group ($p = 0.150$)(Table 3).

Table2: Etiology of acute pancreatitis

	Total ≤65 (n = 159)	>65 P (n = 66)	(n
= 93)			
Biliary	99 65	34 0.013	
Alcohol	8	7	1
Malignancy	7	6	1
Hyperlipidemia	6	4	2
Drug	8	2	6
Idiopathic	31 18	13 0.22	

Table3: Admission and 48th-hour Ranson

>65	65 ≥	P (n:66)	(n:93)
Admission Ranson score			
0	23	0	
1	25	46	
2	16	35	
<0.001			
3	2	10	
4	0	2	
48 th -hour Ranson score			
0	17	0	
1	23	28	
2	23	42	
<0.001			
3	3	21	
4	0	2	

The mean hospitalization duration was 7.7 ± 4.3 days. The hospitalization duration was found to be significantly longer in the group over 65 years compared to the group under 65 years ($p = 0.016$). One hundred and fifty-six (98.1%) patients were discharged after recovery and three (1.9%) patients died. All three of patients who died were also older than 65 years but the number of deaths was low and thus not statistically significant ($p = 0.197$)(Table 1).

Discussion

The main two main causes of acute pancreatitis are alcohol use and biliary stone (8). In Western societies, gallstone-associated AP is 40–60% (9). In our society, this rate was reported as 64.3% in a study performed by Ayten et al. (10). In our study, we found that 61% were biliary caused in the AP etiology. Biliary causes were 51.5% among those under the age of 65 and 69.9% among those over 65 years old.

In our study, hemoglobin, BUN, creatinine, AST, ALT, LDH, amylase, and calcium values were not significantly different between the two groups. In addition, no significant difference was found in the inflammation parameters leukocyte and CRP elevation between the two groups. In our study, the mean hospital stay length was 7.7 ± 4.3 days.

When the hospitalization period was compared according to age group, the hospitalization period of the group over 65 years old was found to be significantly longer than the group under 65 years old ($p = 0.016$); 8.1% of the patients were discharged cured. All three patients who died were also older than 65 years, but the number of deaths was low and not statistically significant ($p = 0.197$).

Clinical symptoms and findings in acute pancreatitis may vary depending on age and attack severity; abdominal pain is the most common clinical presentation. In our study, 83 of the 159 patients had abdominal pain, 73 patients had abdominal pain, nausea, and vomiting, and three patients had abdominal pain and non-specific complaints. There were no statistically significant differences between the admission complaints and age group ($p = 0.991$).

Among the elderly, comorbidities such as cholelithiasis, biliary tract infection, and coronary heart disease are more common than among young people, so AP may be aggressive. Although Osborne et al. found that age was not a prognostic factor in patients with pancreatitis (11), another

study reported that age may be a prognostic factor (12). Xin et al. demonstrated that mortality was 17% among elderly patients with severe AP (13) while Carvalho et al. demonstrated that age was an independent predictor of mortality in AP(14).

With the increase of the geriatric population, acute pancreatitis cases have increased among geriatric patients. In our study, mortality rates due to acute pancreatitis were found to be higher in patients over 65 years old but this rate was not statistically significant. This may be due to the few patients who died. Studies on this subject with more patients may be more enlightening.

In conclusion, although it varies between societies, the most common causes of AP are gallstones and alcohol. However, the most common cause in the elderly population is gallstones, which has a worse prognosis.

Conclusions

Age is strongly associated with a more severe course of AP. Geriatric patients have a more severe course for AP than among the non-geriatric population. The geriatric population has longer hospital stay duration and a higher mortality rate than the non-geriatric population. Early recognition and prompt action are essential to improving outcomes in elderly patients.

References

1. Byrne MF , Mitchell RM , Stiffler H , Jowell PS , Branch MS , Pappas, TN , et al. Extensive investigation of patients with mild elevations of serum amylase and/or lipase is of low yield. *Can J Gastroenterol* 2002;16:849
2. Sekimoto M, Takada T, Kawarada Y, JPN Guidelines for the management of acute pancreatitis: epidemiology, etiology, natural history, and outcome predictors in acute pancreatitis. *J Hepatobiliary Pancreat Surg* 2006;13:10-24.
3. Cappell MS. Acute pancreatitis: etiology, clinical presentation, diagnosis, and therapy. *Med Clin North Am* 2008;92:889-923-54. PMID:12522473
4. Ranson JH, Rifkind KM, Roses DF, Fink SD, Eng K, Spencer FC. Prognostic signs and the role of operative management in acute pancreatitis. *Surg Gynecol Obstet* 1974;139(1):69–81.
5. Balthazar EJ, Robinson DL, Megibow AJ, Ranson JH. Acute pancreatitis: value of CT in establishing prognosis. *Radiology* 1990;174(2):331–6.
6. Patel K, Li F, Luthra A, Hinton A, Lara L, Groce R, et al. Acute Biliary Pancreatitis is Associated With Adverse Outcomes in the Elderly: A Propensity Score-Matched Analysis. *J Clin Gastroenterol*. 2018 Aug 28
7. Yadav D, Lowenfels AB. Trends in the epidemiology of the first attack of acute pancreatitis: a systemic review. *Pancreas* 2006;33:323–30.
8. Menecier D , Pons F , Arvers P , Corberand D , Sinayoko L , Harnois F , et al. Incidence and severity of non alcoholic and non biliary pancreatitis in a gastroenterology department. *Gastroenterol Clin Biol* 2007;31:664-7.
9. Carroll JK, Herrýck B, Gýpson T. Acute pancreatitis: diagnosis, prognosis, and treatment. *Am Fam Physician* 2007;75:1513-20.
10. Ayten R, Çetinkaya Z, Yeniçerioglu A. Akut pankreatitli olgularımızın retrospektif değerlendirilmesi. *FÜ Sağ Bil Derg* 2007;21:133 -6.
11. Osborne, DH; Imrie, CW; Carter, DC. Biliary surgery in the same admission for gallstone-associated acute pancreatitis. *Br J Surg*. 1981 Nov;68(11):758–761. 50
12. S L Blamey, C W Imrie, J O'Neill, W H Gilmour, D C Carter Prognostic factors in acute pancreatitis. *Gut* 1984;25:1340-1346; doi:10.1136/gut.25.12.1340.
13. Xin MJ, Chen H, Luo B, Sun JB. Severe acute pancreatitis in the elderly: Etiology and clinical characteristics. *World J Gastroenterol* 2008;14(16):2517–21.
14. Carvalho JR , Fernandes SR , Santos P , Moura CM , Antunes T , Velosa J, Acute pancreatitis in the elderly: a cause for increased concern?, *European Journal of Gastroenterology & Hepatology*. 30(3):337–341, MAR 2018