Pattern of acute pancreatitis

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ABSTRACT

Objective: The aim of this communication was to study the clinical pattern of acute pancreatitis with special reference to aetiology, severity, seasonal variation and outcome in the high altitude region of Asir.

Methods: This is a cross-sectional, hospital-based study. All consecutive cases of acute pancreatitis admitted to Asir Central Hospital, Abha, Saudi Arabia over a two and half-year period (May 1996 - October 1998) were included. Clinical and laboratory data were analyzed to determine the severity of the attack according to Ranson's criteria.

Results: There was a total of 73 attacks of acute pancreatitis in 69 patients. Mean patient age was 51.01 years (range = 13-120 years) and the male to female ratio was 0.6:1. In 68.5%, gallstones were the associated cause and idiopathic acute pancreatitis was diagnosed in 25%. Using Ranson's severity prediction criteria, 44% of the attacks were classified as "severe", but only 22% of the patients so classified developed complications. Pseudocysts and Pancreatic abscess complicated three cases. Complications were significantly correlated with cold seasons (P=0.04), intervention by Endoscopic retrograde cholangiopancreatography (P=0.02) and severity (P=0.02).

Conclusion: This study revealed that acute pancreatitis seen in Asir region is predominantly biliary-associated and is more frequent in females. Although near half of the attacks were classified as severe pancreatitis, according to Ranson's criteria, complications occurred in only 22% of the attacks and this may indicate that Ranson's criteria needs to be modified before application in our setting.

Keywords: Pancreatitis, acute, pattern, high altitude, seasonal.

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Acute pancreatitis is a disease with a variety of incidence and etiology, and a wide spectrum of severity, complications and outcome. Although about 80% of the attacks are mild with accelerated recovery on conservative management, 20% are severe with high rates of morbidity and mortality.[1] It is therefore important to identify those cases with predicted complications in order to implement vigorous treatment at the right time. In Saudi Arabia, the incidence of acute pancreatitis (AP) in the whole community has not yet been determined, and only few reports from different hospitals described the pattern of the disease as seen in those centers.[2,3] In Saudi Arabia and perhaps in other Arab countries, gallstone is the most common cause.[3,4] Little is known about the pattern of AP in regions with high altitude. Therefore, this study was undertaken to report on the pattern of AP in Asir region, with a view to test the reliability of Ranson's criteria in predicting the severity of AP in this region.

Methods. Seventy-three consecutive cases of acute pancreatitis, seen during the two and half-year period (May 1996 - October 1998) were included in this study in order to determine the aetiology, severity, and outcome of the disease. All patients were admitted and treated at Asir Central Hospital. Only patients with a clinical picture suggestive of AP together with elevated serum amylase of at least 1000

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u/l were included in the study. Demographic data on age, sex and seasons of admission were obtained. The clinical progress and biochemical data during the course of the attack were studied, together with the management and outcome. Laboratory data were analyzed in relation to the severity of the AP attack according to Ranson's criteria (Table 1). The attack was considered severe if three or more of the parameters were present during the first 48 hours of admission.[5] Diagnosis of biliary pancreatitis was based on the above criteria in the presence of biliary stones, as demonstrated by Ultrasonography (USS).

Data analysis. Statistical analysis was performed using the SPSS statistical program. The association between complication rate and some independent variables, namely sex, season (cold vs. hot), severity (severe vs. mild according to Ranson), type (biliary vs. non-biliary), comorbidities (present vs. Absent) and ERCP (done vs. not done), were analyzed using the Chi-squared or Fisher's exact test (one-tailed), at 5% level of significance, whichever was appropriate.

Results. Over the two and half-year study period, 73 attacks of AP in 69 patients fulfilled the diagnostic criteria for entry in this cross-sectional study. Four patients had repeated admissions. The mean patient age ± standard deviation (SD) was 51.01 ± 20.62 years (range: 13-120 years), and the male to female ratio was 0.6:1. Comorbidities (hypertension, diabetes mellitus, ischaemic heart disease, chronic obstructive airway disease, chronic liver disease, cerebrovascular accident, hypothyroidism or past history of pancreatitis) were encountered in 28 (38%) patients. USS showed calcular gallbladder in 47 (64%) patients. Table 2 details the underlying causes of AP in this series. The mean ± SD serum amylase value at admission for all attacks was 3529.01 ± 2005.75 u/l. There was no significant difference in the level of serum amylase between biliary-related cases of AP and those of the non-biliary type. According to Ranson's criteria (Table 1), 32 (44%) of the 73 attacks of AP were classified as severe, but only 7 (22%) of those developed complications. Twenty-six (36%) patients responded to conservative management, and 21 (29%) had initial conservative treatment followed by urgent cholecystectomy. Endoscopic retrograde cholangiopancreatography (ERCP) was performed in 26 (36%) patients, 5 of them had added sphincterotomy and in 9 patients, ERCP was followed by urgent (6 patients) or emergency (3 patients) cholecystectomy. One patient had ERCP carried out after a period of conservative treatment followed by cholecystectomy. Two patients were discovered to have pancreatic divism, one was a 13 year old male and the other one was a 70 year-old female. Two other patients in the series were pregnant and were treated conservatively without complications. About half (52%) of the attacks of AP

Table 1 - Ranson's criteria, the eleven early objective signs used to classify the severity of pancreatitis.

Ranson's criteria	No. of patients (%)
At admission or diagnosis:	
Age over 55 years (n=73)	27 (37)
White blood count over 16,000/cu mm (n=73)	11 (15)
Blood glucose over 200 mg/dL (n=72)	4 (6)
Serum lactic dehydrogenase (LDH) over 350 U/L (n=55)	48 (87)
Serum glutamic oxaloacetic transaminase (AST) over 250 U/L (n=69)	21 (30)
During initial 48 hours:	
Hematocrit fall greater than 10% points (n=64)	20 (31)
Blood urea nitrogen rise more than 5 mg/dL (n=59)	6 (10)
Arterial Po2 below 60 mm Hg (n=44)	15 (34)
serum calcium below 8 mg/dL (n=48)	11 (23)
Base deficit >4 meq/L	missing
Estimated fluid sequestration more than 6000 ml (n=25)	0 (0)
Ranson's score: ($\chi \pm SD$)	2.5±1.5 0-6

Table 2 - The aetiology of acute pancreatisis in 73 attacks.

Causes of pancreatitis	Number of attacks (%)
Biliary	50 (68.5)
Idiopathic	18 (24.5)
Hyperlipidemia	1 (1.4)
Alcoholic	1 (1.4)
Post upper abdominal surgery	1 (1.4)
Post ERCP	1 (1.4)
Post abdominal trama	1 (1.4)
Total	**73 (100)**

Table 3 - Association between complication rate and some independent variables.

Variables		No (%)	P value
Sex	Male	5 (18.5)	0.12
	Female	3 (6.5)	
Season	Cold	7 (18)	0.04*
	Hot	1 (3)	
Severity	Severe	7 (20)	0.02*
	Mild	1 (3)	
Type	Biliary	7 (14)	0.21
	Non-biliary	1 (4)	
Comorbidities	Present	6 (19)	0.06
	Absent	2 (5)	
ERCP	Done	6 (23)	0.02*
	Not done	2 (4)	

ERCP-Endoscopic retrograde cholangiopancreatography
*Significant at P<0.05

occurred during cold seasons (autumn and winter). Complications were encountered in only 8 (11%) cases, 7 of them belonged to the severe group. Two patients developed pancreatic pseudocysts, of which one was complicated by pancreatic abscess. A further patient had pancreatic abscess. Two patients suffered chest complications and 2 had wound infection. One 75 year-old patient (1.4%) suffered severe biliary pancreatitis and was treated conservatively, but died one year later due to respiratory distress complicating acute cholecystitis. Table 3 details the association between complications and some clinical criteria. A significant association was detected between complications on one hand and cold season, ERCP and severity on the other hand.

Discussion. The incidence of AP varies in different countries depending upon the prevalence of etiological factors. In this report, biliary pancreatitis was the most common type (68.5%), followed by "idiopathic" pancreatitis (25%). This finding is in agreement with similar series from Saudi Arabia, the gulf and other western countries.[2,3,6-9] The high proportion of "idiopathic" pancreatitis is not unusual in retrospective as well as in prospective studies because of possible overlooking of underlying causes such as drugs, covert hyperlipidemias or even cholelithiasis and choledocholithiasis.[7,10] By the use of endoscopic ultrasonography, Liu et al from China could detect cholelithiasis and choledocholithiasis in 14 out of 18 patients who were labelled as idiopathic pancreatitis.[10] Alcohol consumption, which is the second most common cause of AP and the first cause of recurrent attacks in the west,[11] ranked third in our series as well as in other series from Muslim countries, possibly for religious and social reasons.[2,3,6-8] The predominance of AP in females is possibly explained by the much higher prevalence of cholelithiasis among females in Saudi Arabia.[2] Ranson and his colleagues,[5] in 1974, found that out of 43 clinical, biochemical and hematological factors determined within 48 hours of admission, only 11 factors had prognostic significance in their patients and could achieve a 63% accuracy rate. Imrie et al discarded three of the Ranson's factors and introduced serum albumin to provide nine criteria.[1] In their reports, all patients who died were correctly predicted as severe by the new scoring criteria. However, Ranson's and Imrie's prognostic indices were more accurate in diagnosing alcoholic rather than gallstone-related pancreatitis.[12] They proposed a modified scoring system for gallstone pancreatitis.[12] In view of all these differences, the predictive value of individual factors must be verified within each clinical and regional setting. According to Ranson's criteria, 44% of the AP attacks in our series were classified as severe, a finding, which agrees with that reported by Al-Qasabi et al from Riyadh (39.5%), and Toh et al from England (32%) though slightly higher.[6,9] Identifying the severity of the disease is important in order to target intensive therapy at critically ill patients who need it early. Complications, which occurred most commonly in severe AP, were encountered in only 22% of our patients so classified. Al-Qasabi et al from Riyadh found that only 36% of the severe group, according to Ranson's criteria, developed complications and death or both.[6] This suggests that application of the severity criteria as originally proposed by Ranson may have resulted in misclassification of our patients. A further study is going to be carried out to test the validity of each of Ranson's criteria in our patients.

In conclusion, it was found that in Asir region: [1] Gallstones were the predominant cause of AP and females outnumbered males and [2] Ranson's prognostic criteria classified 44% of our cases as severe, but its accuracy in terms of complications was only 22%. This casts a shadow of doubt on the validity of Ranson's criteria if applied rigorously to our patients.

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