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ORIGINAL ARTICLE

ACUTE PANCREATITIS IN ADULT ETHIOPIANS: EXPERIENCE FROM ST. PAUL'S MILLENNIUM MEDICAL COLLEGE HOSPITAL, ADDIS ABABA

Girmaye Tamirat, MD[1], Mahteme Bekele MD[2], Reiye Esayas MD[3], Mulat Taye MD[1], Sahlu Wondimu MD[1]

ABSTRACT

***Background**: Acute pancreatitis is a disease of variable severity, and a high index of clinical suspicion supported by relevant laboratory and imaging studies is necessary to make early diagnosis and improve patient outcome.*
***Objective:** This study aims to revise the most common presenting symptoms and signs of acute pancreatitis and the diagnostic modalities used in adult Ethiopian patients.*
***Methods:** A cross-sectional descriptive study was conducted among adult patients with acute pancreatitis admitted to St. Paul's Millennium Medical College Hospital from January 2005 - December 2011. Data on clinical presentation and outcome of illness was collected from medical records using a structured and pretested questionnaire and analyzed using SPSS Version 16.*
***Results:** A total of 40 patients were admitted to the hospital during the study period. Medical records were retrieved for 30 of them. The male to female ratio was 5:1 and the mean age was 40 years. The majority (76.7%) of patients presented within 3 days of onset of illness. Abdominal pain and vomiting were the most common presenting symptoms seen in 86.7% and 60%, respectively. Tachycardia (60%) abdominal distention (73%) and tenderness (80%) were physical findings. Serum amylase level was elevated in all patients, but was highly elevated in 16 (40%). Ultrasound examination showed features of acute pancreatitis in six (31.6%). Acute pancreatitis was diagnosed on clinical evaluation in 18 (60%) of the cases and intra-operatively in 12 (40%). Six (20%) of the cases died and five of them were among those who underwent surgery.*
***Conclusion**: Acute pancreatitis was not a common cause of acute abdomen in our set up. It mainly affects middle aged men. Common presenting symptoms were abdominal pain and vomiting. Diagnosis was made by clinical evaluation and measurement of serum amylase in the majority but a number of cases needed explorative laparotomy to establish diagnosis. Acute pancreatitis in our series was associated with a relatively high proportion of death. A high index of clinical suspicion is mandatory to diagnose the condition and avoid unnecessary surgical intervention.*

INTRODUCTION

AP is an inflammatory disorder of the pancreas capable of causing variable degrees of local parenchymal damage, systemic inflammatory response (SIR) and organ dysfunction/failure (1). It is the commonest of all pancreatic diseases (2).Over the recent years, its incidence has been increasing in the west (Europe and North America) though its case fatality rate is decreasing (3). Alcohol and gall stones are the two most common etiologies accounting for 60-85% of the cases while other causes include hyper triglyceridemia, trauma and idiopathic. Alcohol induced AP mainly affects young males while biliary pancreatitis is commonly seen in women and incidence increases with age. (4-6). AP classically presents with a sudden onset of epigastric abdominal pain, which may radiate to the back, chest or flanks (7).

Diagnosis of AP is made when two of the following criteria are met namely: a) characteristic abdominal pain, b) elevated serum levels of amylase and lipase at least three times higher than the upper limit of the normal and /or c) radiologic features (CT/abdominal ultrasound) of AP (8).

Treatment of AP is mainly medical and includes aggressive hydration, pain control, enteral feeding as early as possible, ERCP with sphincterotomy and pancreatic duct stenting in those with biliary pancreatitis and cholangitis and as early cholecystectomy as possible (1).

In the West, death from AP is reported to be in the order of 2-5% and more than half of the deaths happen during the first two weeks after the onset of the illness (1,2,9).

1-Department of Surgery, College of health sciences, Addis Ababa University, Addis Ababa, Ethiopia
2-Department of Surgery, St. Paul's Millennium medical college Hospital, Addis Ababa, Ethiopia
3-Department of Surgery, College of health sciences, Mekele University, Mekele, Ethiopia.
* Corresponding author: sahlu.wodimu@gmail.com

As in elsewhere in Africa, there is little information about the situation of AP in Ethiopia. This study aims to describe the demographic characteristics, common clinical presentations and means of diagnosis and treatment outcomes of AP in a tertiary teaching and referral hospital in Addis Ababa, Ethiopia.

PATIENTS AND METHODS

All consecutive cases of AP admitted to the St. Paul's Millennium medical college Hospital from January 2005 to December 2011 were identified from morning report registries, discharge and death summaries and the operation theatre registration book of the hospital and then their medical files were searched for in the archives. Forty patients were identified but it was possible to retrieve the complete medical files for only 30 patients and these form the basis of the study. Patients aged under 13 years and those whose medical files couldn't be retrieved are excluded from the study.

Data on demographic characteristics of patients, duration, symptoms and signs of the illness, relevant investigations and outcomes of the treatment was collected from the files using a standardized and pretested questionnaire and analyzed using SPSS version 16.0.

No attempt to look for association between variables was made as the number of cases obtained over the study period is not substantial.

RESULTS

Of the 30 patients included in the study, 25 (83.3%) were males and five (16.7%) females with a male to female ration of 5:1. The mean age was 40 years with range of 14-70 years. Abdominal pain was the main presenting symptom in 26 patients (86.7%) followed by vomiting in 18 (60%) and fever in 5(16.7%). Tachycardia (pulse>100beats/min), abdominal distention and tenderness were the commonly detected physical signs seen in 18 (60%), 16 (53%) and, 22 (73%) of the cases respectively. Twenty three (76.7%) of the patients presented within 3 days of the onset of the illness, 5 cases (16.7%) in 4-7days while the rest two (6.6%) patients presented after a week of the illness with a mean duration of presentation being 3 days.

Table 1: Socio-demographic and clinical features of patients admitted with acute pancreatitis at the SPMMH.

Characteristics	Frequency (N=30)	Percentage (100%)
Age		
< 20 Years	3	10
20-40 years	13	43.3
41-60 years	11	36.7
	2	6
Symptoms		
Abdominal pain	26	86.7
Vomiting	18	60
Fever	5	16.6
Constipation	4	13
Tachycardia (PR>100)	18	60
Abdominal distention	16	53
Abdominal tenderness	22	73
Duration of illness		
1- 3 days	23	76.7
4-7 days	5	16.7
8-10 days	1	3.3
11-14 days	1	3.3

Only four (13.3%) patients had history of alcohol use in the past, and history of significant alcohol intake prior to the onset of the abdominal pain was gained in three of these patients. Biliary stones were detected by ultrasound in only five (16.7%) of the patients. One patient (3.3%) had history of abdominal trauma and in the remaining 20 (66.7%) the possible etiology of the AP is unknown.

An initial diagnosis of AP based on clinical evaluation and serum amylase level was made only in 18 (60%) patients. In the remaining 12 (40%), AP was an intra-operative diagnosis during an explorative laparotomy performed for acute abdomen. The intra-operative finding showed edematous boggy pancreas in 10 (83.3%) while the remaining two (16.7%) had necrosis of the pancreas and the peri-pancreatic tissue. The initial preoperative diagnosis in these operated cases was perforated peptic ulcer disease (PUD) in eight (66.7%) followed be mechanical small bowel obstruction in four (33.3%).

Among those patients whose diagnosis was made at admission (18 patients), Serum amylase level was determined on the 1st day of admission in all 18 (100%). However, all patients that underwent surgery had their serum amylase determined on the 2nd post-operative day 12 (40%). It was elevated more than three times of the upper limit of the normal in all. Serum lipase level was determined in only 14 patients (46.7%) and elevated three times the upper limit of the normal only in 6 (42.8%) (Table 2).

Table 2: Serum amylase and lipase levels of Adult Ethiopian patients with AP at St. Paul's Millennium Medical College Hospital, Jan. 2005—Dec. 2011.

Serum amylase in U/L	**Number of patients (%)**	**Serum lipase in U/L**	**Number of patients (%)**
<180*	0	<160*	8 (26.7)
181-360	6 (20)	161-320	4 (13.3)
361-720	8(26.7)	321-640	1 (3.3%)
>720	16 (53.3)	Not determined	16 (53.3)
Total	30 (100)	Total	30 (100)

* 180 =3x upper limit of normal for amylase *160= 3x upper limit of normal for lipase

Abdominal ultrasound examination was performed in 19 (63.3%) of the patients and demonstrated findings compatible with AP only in six (31.6%). It showed biliary stones in five (26.3%), peritoneal fluid in two (10.5%) and nonspecific descriptions in 6 (31.6%).

Following diagnosis of AP, all patients were initially managed conservatively by fluid resuscitation, analgesia, antibiotics and other supportive care.

Two (6.7%) of them required laparotomy for clinical deterioration where debridement (necrosectomy) was performed.

Six of the patients eventually died giving mortality rate of 20%. Of the six that died, five underwent laparotomy either before diagnosis or to address complication of AP. The serum amylase level was significantly elevated (>12x of the upper limit of the normal) in all the cases that died.

DISCUSSION

Our study showed that AP mainly affected middle aged men with a mean age of 40. This finding is compatible with studies from South Africa, India, Pakistan, Thailand and European countries (4,10-13) though female preponderance is occasionally reported (14,15). Similar to reports from America, India, Pakistan, Thailand, Jamaica and others, abdominal pain is the main presenting symptom in our patients though a significant number (60%) of patients also complained of vomiting (7,11-14). Similar to these studies, abdominal tenderness is also the commonest physical finding in our patients.

In the majority of our patients (66.7%), the etiology of AP is unknown (Idiopathic) and alcohol and gallstones together account for only 30% of the cases. Since ultrasound is done in only 19 (63.3%) of the patients, it is not known if more cases of biliary stones could have been discovered from the remaining 11. Though a similar trend with predominance of idiopathic AP is reported from Pakistan and Bangladesh (12,16), the findings of most of the studies from the above mentioned countries confirms alcohol and biliary stones as the leading causes of AP in alternating sequences (4,10,11-15).

Most of our patients (76.7%) presented within 72 hours of the onset of the illness. Unfortunately AP based on clinical presentation and elevated serum levels of amylase and lipase was diagnosed only in 60% of the cases. Abdominal ultrasound done in these patients (total of 19) could confirm the diagnosis on AP only in six (31.6%). The remaining 40% had to undergo explorative laparotomy for the diagnosis of AP to be made as other causes of acute abdomen especially perforated PUD were the primary diagnosis considered. In a study from South Africa, intraoperative diagnosis of AP was made only in four of 282 (1.4%) (10). A high index of clinical suspicion followed by relevant biochemical and imaging investigations would have avoided these unnecessary laparotomies. However these investigative modalities aren't readily available in many developing countries especially at night forcing the surgeon to explore the abdomen so that conditions requiring immediate surgical intervention won't be missed.

Serum level of amylase was elevated in all our patients and confirmed the diagnosis in 60% of the cases unlike ultrasound, which was suggestive of AP only in 31.6% of the 19 cases it was performed on. Transabdominal ultrasound was the only imaging modality used in our study as CT scan wasn't available in our institution at the time and its low yield might have been due to limitations in the experience of the operator.

The case fatality rate of AP in our study is 20% which is significantly higher than the figure mentioned from reports from Europe (7.8%), South Africa (9%), India (5.7%), Pakistan (8.4%), Thailand (6%), Jamaica (2%), Australia (1%) and the Americas (7%) (4,6,10-15). The limited quality of medical care with meager resources characteristic of health facilities in developing countries including our hospital might have contributed to this high mortality rate. Besides, 83.3% of the deaths happened in those who underwent surgery either due to unsettled diagnosis (three cases) or for complications of AP (two cases). These unnecessary surgeries might have contributed to the poor outcome of those patients. Most of AP described in our patients is idiopathic whose outcome is poor compared to biliary and alcoholic pancreatitis (5). A higher index of suspicion with biochemical and imaging investigations would have avoided the unnecessary explorative laparotomies. Minimal access (laparoscopic) and image guided percutaneous interventions for complications avoid the morbidities and mortalities associated with the conventional open surgeries.

***Conclusions and Recommendations**:* AP is an occasional cause of acute abdomen in our set up mainly affecting middle aged men and presenting primarily with abdominal pain and vomiting. Most of AP is idiopathic. Diagnosis was settled by clinical evaluation and measurement of serum amylase and lipase in the majority but a significant number of our patients needed explorative laparotomy for establishing diagnosis. AP is found to have a relatively high mortality. AP should be considered and maintained as differential diagnosis in all cases of acute abdomen especially in young and middle aged men until proven otherwise. Further study is recommended to determine more clinical characteristics, severity levels and factors associated with poor prognosis.

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