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ACUTE PANCREATITIS IN CHILDREN: AN EXPERIENCE AT A TERTIARY CARE CENTRE

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ABSTRACT The present study draw special attention to the demo-graphic profile, clinical presentations, etiologies and biochemical findings in acute pancreatitis in children at a teaching hospital in government medical college and hospital Srinagar, Kashmir. A prospective study observational study was conducted with admitted cases of children with acute pancreatitis over 3 years period. Total 23 cases were included for study. The diagnosis of AP was made based on the INSPIRE criteria and modified Atlanta criteria. All data regarding the aetiology, clinical profile and investigations were recorded and analysed in all patients included in the study. Total of 23 patients were diagnosed to have acute pancreatitis.Male were more affected than females by acute pancreatitis. Maximum patients were in age group of 11-15 years. Abdominal pain was the most predominant complaint presented in all cases followed by nausea and vomiting(60.4%).Idiopathic acute pancreatitis(39.1%) was the most common etiology followed by cholelithiasis (30.4%), hepatobillairy ascariasis and pancreatic ascariasis(13.04%),sludge in gall bladder(8.7%),CBD stone and trauma(4.3%).Biochemical markers like serum amlylase was increased in 21/23(91.3%) and serum lipase was raised in 9/12(75%).USG abdomen and CTscan abdomen have good diagnostic sensitivity and specificity. The studu concluded revealed that Pancreatitis is not uncommon in children. Biliary etiology is a leading cause of AP in which cholelithiasis is the most frequent cause followed by idiopathic, changing trend in endemic areas. Patients usually respond to conservative management, but endoscopic treatment is effective. Surgery is rarely required.

KEYWORDS : Acute Pancreatitis, Hepatobilairy ascaraisis (HBA) and pancreatic ascariasis, Ultrasonography of abdomen(USG) ,serum amylase and lipase

INTRODUCTION

Inflammation of the pancreas (pancreatitis) occurs as a result of the spillage and auto digestion of the pancreatic parenchyma by the digestive enzymes. Acute pancreatitis (AP) is characterized by the presence of inflammatory cells and results in reversible structural and functional changes over a short duration. In contrast, chronic pancreatitis causes irreversible changes that ultimately result in fibrosis and loss of exocrine and/or endocrine function 1.

AP is a rare disorder among individuals aged younger than 20 years, the number of pediatric AP cases recorded worldwide has increased dramatically over the past few years2. A 10-year American study estimated that the incidence of primary AP among children had increased from 6350 cases to 9561 cases between 2000 and 2009, representing a 51% increase 3. A retrospective chart review conducted in the United States of America (USA) found that the incidence of first pediatric AP admission increased from 2.3 per 100,000 children in 1993 to 13.2 per 100,000 children in 20044.

According to the International Study Group of Pediatric Pancreatitis: in Search for a Cure (INSPPIRE), two of three criteria must be fulfilled to diagnose AP in the pediatric population; namely, abdominal pain, serum amylase or lipase levels that are three times the upper normal limit and radiological findings diagnostic of AP 5,6. The aim of this study was to evaluate the etiology and clinical features of acute pancreatitis in children admitted at a tertiary care hospital in Kashmir.

MATERIAL AND METHOD

This prospective observational study was conducted in the department of general surgery, government medical college, Srinagar over a period of 3 years. The diagnosis of AP was made based on the INSPIRE criteria and modified Atlanta

criteria (two of three criteria) – a threefold increase in biochemical markers (amylase or lipase), characteristic abdominal pain, and changes in imaging examinations 5,6 .

Detailed history of patients including sex, age, presenting complains, duration of illness, associated signs and symptoms, family history, history of trauma to the abdomen , history of other systemic disorders, drug history, history of recent infection were recorded.

Baseline investigation were performed included CBC, KFT, LFT, blood sugar, serum amylase, serum lipase, serum calcium, triglycerides. USG abdomen was performed in all cases at the time of admission. CT scan was done after 72 hour of presentation in patients who had moderate to severe pancreatitis. MRCP were done in patients who had doubtful finding on USG. ERCP was done as required. All patients were managed conservatively as per hospital protocol.

RESULTS

Gender:

This study included 23 patients of acute pancreatitis; 14 patients were males and 9 were females. In this study it was observed male were more affected than females by acute pancreatitis as shown in table 1.

Table 1.1: Gender Distribution

Sex	N	%
Male	14	60.8%
Female	9	39.1%

The Mean age of Study group 7.8+2. Maximum patients were in age group of 11-15 years with acute pancreatitis as shown in table 2

Table 1.2: Age Distribution

Age	N	%
3 -6	1	4.3%
7– 10	5	21.7%
11 – 15	18	78.3%

Clinical Presentation

In this study abdominal pain was the most predominant complaint present in all patients followed by nausea and vomiting 14(60.8%).

Abdominal distension was observed in 11(45.8%), 3(13.04%) children had fever, jaundice was reported in 2(8.6%), failure to thrive was seen in 2(8.6%) and ascitis was found in 1(4.3%) patient as shown in table

Table 1.3: Clinical Profile

Clinical features	N	%
Abdominal pain	23	100%
Nausea/vomiting	14	60.8%
Distention/lump	11	45.8%
Fever	3	13.04%
Jaundice	2	8.6%
Failure to thrive	2	8.6%
Ascitis	1	4.3%

Biochemical Profile

Among 23 children who were diagnosed with acute pancreatitis, 21 (91.3%) patients had raised serum amylase and out of 12 patients 9(75%) had raised serum lipase level.

Table 1.4: Biochemical Profile

Amylase	N	N	%
<200 IU	23	3	13.04%
200- 800 IU	23	21	91.3%
Lipase	-	-	-
>165	12	9	75%

Radiological Imaging

USG abdomen was performed in all patients, out of 23 patients 19(82.6%) patients showed finding of acute pancreatitis. 4 patients who had normal USG, contrast CT scan was done which showed evidence of acute pancreatitis in all 4(100%) patients.

Table 1.5: Radiological Profile

	N	N	%
USG positive finding	23	16	69.5%
CT positive finding	7	5	71.4%

Etiology Of Acute Pancreatitis

The most common etiology of acute pancreatitis observed as shown in table. In this study out of 23 patients 7(30.4%) had Cholelithiasis. One patient had associated with cholecystitis along with pancreatitis.

Hepatobilairy ascariasis and pancreatic ascariasis was observed in 3(13.04%) patients. 2 patients had underwent ERCP for removal of worms from CBD and pancreatic duct in the department of medical gastroenterology without any serious complication. Sludge in gall bladder was found in 2(8.7%). Choledocholithiasis was observed in 1(4.3%) patient which latter underwent ERCP. Blunt abdominal trauma due to bicycle handle bar was observed in 1(4.3%) patient and managed conservatively. 9(39.1%) patients had unknown etiology.

Table 1.6: Etiology Of Acute Pancreatitis

Etiology	N = 23	%
Cholelithiasis	7	30.4%
HBA and pancreatic ascariasis	3	13.04%
Sludge in GB	2	8.7%
CBD stones	1	4.3%
Trauma	1	4.3%
Idiopathic	9	39.1%

DISCUSSION

In our study maximum number of children affected by acute pancreatitis was male 14(60.8%) as compared with female children. This finding was in consistent with the study done by Das et al[7] which reported similar finding. In the study by Alka Bhambri et al[8] who reported that the male 12(63.15%) out of 19 patients were more affected than females.

In our study majority of children belongs to age group 11 - 15years, with mean age 8.2years (3-15yrs). Our finding was comparable with other studies.[8-11]

In our study the biliary etiology involved nearly 56.7% of cases of AP, and it was also one of the dominant causes of AP among children from the older age group. This finding was similar with the study and confirmed by Gul javid et al[12] in Kashmir which repoted bilairy etiololgy constitute about 75.6%. In our study cholelithaisis constitute 30.4%, which was in comparable with previous studies, inwhich cholelithiasis was the cause of 10–30% of pancreatitis in children.[13-17] In our study it was also observed that the hepatobilairy and pancreatic ascaraisis comprises 13.04% of children. In the study by Gul javid et al [12] which was in condradictory with our finding, which report HBA and pancreatic ascaraisis in Kashmir as predominant in bilairy etiology.The reasons for small percentage of HBA and pancreatic ascaraisis in our study is due to deworming programme in school children are active after previous studies. In other studies, similar to our work, the frequency of biliary aetiology was higher among older children.[13]

In our study idiopathic aetiology was observed in 39.1% of children, which is slightly higher than reported in the literature, Werlin et al 8% to DeBanto et al 34% [15, 18, 19]. It is observed that the idiopathic aetiology most frequently involved younger children. In our study acute pancreatitis due to trauma constitute 4.3% which was in favour with the reported studies.[8] and contrast with the study by Bai HX et al[1]

and Sutherland I et al[20] who reported 10 to 40% of the etiology of the cases of acute pancreatitis.

In our study among 23 children the most common symptom was the abdominal pain in all patients followed by vomiting (60.8%). These finding was in agreement and confirmed by studies[8-11].our study was in contrast to some other studies which states that abdomen pain in 96% and vomiting in 40% [13,15,21,22]. Fever was reported in 13.04% of children, which was in favour with study by Alka Bhambri et al[8] .in our study fever was observed in small percentage was in contrast with the studies by Kandula and Lowe[14] reported fever in 40% of patients, Chen *et al.*[15] in 33%, and Sanchez- Ramirez *et al.*[23] in 27%.

In our study 45% of children of acute pancreatitis presented with abdominal distension, 8.6% jaundice, 8.6% of children had failure to thrive and only one child had ascitis. These finding was in similar with the other studies.[8]

Biochemical evidence of pancreatitis is the serum amylase and serum lipase activity at least three times greater than the upper limit of normal. In our study raised amylase was recorded in 91.1% of children. This was in consistent with the study done in UK and the US [13,24], Park *et al*[13] *reported 50% of children which is contrast with our finding.* Serum amylase was within normal limits in 2 children but the lipase enzyme activity was increased. It is estimated that approximately 20% of patients with pancreatitis have normal amylase levels[25].serum lipase level was raised in 95.6% of children. This was in agreement with the study by park et al[13] which reported that the measurement of lipase activity might be a more sensitive indicator of AP than amylase among younger patients (100% vs. 40–60%).[13,14] In addition Park *et al.*[13] in their study showed that a 1.5-fold increase in lipase activity above the upper limit of normal in young children might be associated with the occurrence of AP.

USG abdomen was done in all children,and positive changes were documented in 69.5% of children, it was slightly more than in the studies by Werlin *et al*[22]. and Sanchez-Ramirez *et al.*[23] Computed tomography scan of the abdomen was done in 30.4% of children, positive finding was reported in 71.4%. Studies have reported that frequency of CT is lower in younger age of chilldren (about 60%), which is related to saving children from exposure to ionising radiation and relatively low sensitivity of this test [15,25].

According to guidelines from the Atlanta and INSPIRE group of experts, if there are two criteria of AP, i.e. characteristic abdominal pain and three times greater than the upper limit of normal pancreatic enzymes activity, there is no need to perform CT of the pancreas[5,6,26]. Computed tomography is not recommended, especially in the first phase of pancreatitis (edematous); however, it is recommended when pancreatic necrosis is suspected [1,5,6]. The sensitivity of CT for the diagnosis of AP is estimated at 47–81%[13-15].

LIMITATION

Due to financial restrictions and unavailability of metabolic workup incidence of cases with idiopathic pancreatitis may have been reduced.

CONCLUSION

Pancreatitis is not uncommon in children. Biliary etiology is a leading cause of AP in which cholelithiasis is the most frequent cause followed by idiopathic,changing trend in endemic areas. Patients usually respond to conservative management, but endoscopic treatment is effective. Surgery is rarely required.

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