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Acute Pancreatitis In 3 Years Old Girl : A Case Report

Johan Christian Silaen
Departement of Child Health,Faculty of Medicine, Universitas HKBP Nommensen, RSIA Stella Maris Medan

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ABSTRACT
Acute pancreatitis (AP) is clinically defined as a sudden onset of abdominal pain associated with increased digestive enzymes in the blood and urine. Acute pancreatitis is not necessarily a rare disease, even in children and adolescents and may be life-threatening if it is severe. Therefore, acute pancreatitis should always be considered during the differential diagnosis of prolonged and reccurent abdominal pain in children, and appropriate treatment should be started promptly when necessary. In general, laboratory tests for the diagnosis of AP are not specific, yet amylase and lipase enzyme examination remain helpful to rule out the diagnose. In this report, we present a recurrent abdominal pain 3 years old girl with acute pancreatitis.

Corresponding Author:
Johan Christian Silaen
Universitas HKBP Nommensen
Jalan Sutomo No.4 Medan
johansilaen@uhn.ac.id

INTRODUCTION

AP is not common in childhood and it needs high index suspicious to avoid delayed and misdiagnosis.[1,2] Over the last years, the amount cases of acute pancreatitis is increasing, the etiology is still uncertain, but most likely occur in preadolescent age.[3] Recently, there has been a growing interest in pediatric AP, as the incidence of AP in children has been on the rise over the last two decades. It is estimated that AP affects 3–13 per 100,000 children each year, approaching the incidence seen in adults (5–40 per 100,000 persons per year).[4]

Nearly a quarter of children with acute pancreatitis develop a severe complication, and the mortality rate is approximately 4% despite significant advances in the treatment of this disease.[5] Since most cases are mild or moderate pancreatitis the evolution of AP patients is good and does not require nutritional support. However, in patients with acute malnutrition or with more severe cases of AP, nutritional support becomes important. This support can be parenteral, enteral or a combination of the two.[6]

METHODS

A 3 years old girl came in complaining of recurrent abdominal pain experienced since 2 weeks ago. Abdominal pain is felt increasingly aggravated, especially when patient eat and drink. Patient also experience nausea and vomiting after every meal and drink. The patient also complained that she had not defecated since a week before admitted. The patient had a fever, swelling behind the both ears, sore throat 3 weeks before the current complaint and diagnosed with mumps. One week before the abdominal pain, she also had cough dan coryza. The patient has been treated and is taking paracetamol, ranitidine, domperidone, laxatives

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and probiotics. After the medicine ran out, the complaints did not decrease at all, and it actually became more aggravated. This was the first time she suffered prolonged abdominal pain. From the physical examination obtained a body weight of 15 kg, normal temperature, sunken eyes, pain in the entire abdominal field, especially in the epigastrium, and increased intestinal noise. Patient carried out complete blood tests, amylase and lipase anzyme serum. The result showed leucocytosis (17,400 /mm3), increased amylase enzyme 144 U/L and lipase 156 U/L, then the patient was diagnosed with acute pancreatitis. Patient received parenteral nutrition for 72 hours, intravenous antibiotic, and other treatments according to symptoms. After 72 hours, we reevaluate leucocyte (9800/mm3), amylase (46 U/L) and lipase (33 U/L) enzyme. Since the results showed improvement, patient began with enteral nutrition with tropic feeding and gradually increase while the parenteral nutrition stopped. Clinical symptoms improved after 72 hours of parenteral nutrition and antibiotics, and patients were allowed to discharge from hospital and continue outpatient treatment 72 hours after tolerance to enteral nutrition.

RESULTS AND DISCUSSION

Pancreatitis is an inflammatory condition of the pancreas. Two major forms are recognized as acute and chronic pancreatitis. Acute pancreatitis is a reversible process, whereas chronic pancreatitis (CP) is irreversible. Acute pancreatitis is more prevalent, and most patients have a single episode of pancreatitis.[7] Acute pancreatitis should be considered in every child with unexplained acute or recurrent abdominal pain.[2] Acute pancreatitis occurs in all age groups, including in infants. Recent studies from the United States, Mexico, and Australia have reported an increasing incidence of pediatric acute pancreatitis over the past 2 decades. Currently, the best estimates suggest that there are 3.6 to 13.[2] Pediatric cases per 100,000 individuals per year, an incidence that approaches the incidence of disease in adults.[7] Randall *et al*, found the median age for all visits of the acute case was 8 years old (5-11 years in range).[3] Meanwhile, Lal et al, found from 101 children with AP, the median age was 9 years old.[8]

AP in children is usually caused by viral infections, trauma, or drugs, but may also be related to systemic diseases. These include Reye syndrome, hemolytic uremic syndrome, erythematosus Lupus, and complications of metabolic disease.[6] Systemic illnesses, traumatic injury, metabolic conditions, and various infections can also predispose to the development of AP. Rare etiologies include congenital malformations, or specific gene mutations.[4] Our case was a 3 years old girl with AP has history illness of respiratory infection and mumps prior to the symptoms of AP.

The pathophysiology of acute pancreatitis remains obscure. The current belief is that despite having multiple etiologies, inflammation in acute pancreatitis appears to be the result of a common pathway.[9] Pancreatitis is caused by autodigestion of the pancreas by its own secretions including hormonal exocrine enzymes (gastrin, cholecystokinin, secretin and repeated vasoactive intestinal peptide). Neural networks if the vagus nerve and adrenergic and dopaminergic nerves are stimulated by the presence of nutrients such as amino acids, oligopeptides, long-chain fatty acids and monoglycerides as well as by gastric dilatation and olfactory, visual and taste stimuli.[6] The most common findings in older children are pain and

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epigastric tenderness, whereas younger children more commonly present with vomiting and irritability. Infants can present solely with fever. Given that symptoms are often nonspecific and can be subtle, the diagnosis requires a high index of suspicion.[4] In a study of 36 children with AP, Sanchez et al, found that the most common symptoms are abdominal pain, vomiting and ileus.[10] In pediatric studies of AP, 80% to 95% of patients presented with abdominal pain. The second most common symptom was nausea or vomiting, which was reported in 40% to 80% of patients.[9] Our patient came with reccurent abdominal pain, vomiting, and nausea which previously not suspected as acute pancreatitis due to non specific symptoms.

The promt measurement of serum amylase is useful for a diagnosis of acute pancreatitis. However elevated levels are also seen in gastrointestinal diseases such as pancreatobiliary tract obstruction and perforative peritonitis, as well as in salivary gland disease and renal failure.[11] Most pediatric pancreatologists would recommend obtaining liver transaminases, serum triglyceride and calcium levels, and abdominal ultrasound as part of their routine evaluation for a child presenting with AP with unclear etiology and negative family history.[4] Atlanta criteria require that patients in adults meet at least 2 of the following 3 parameters to qualify as having acute pancreatitis: typical abdominal pain, elevated amylase/lipase >3 times the upper limit of normal (reference ranges: amylase 20-90 U/L, lipase 10-45 U/L), and/or confirmatory findings on cross-sectional abdominal imaging.[3,9] The INSPPIRE (INternational Study Group of Pediatric Pancreatitis: In Search for a CuRE) definition of pediatric AP is an expert definition modeled after the Atlanta criteria in adults. As per INSPPIRE criteria, Va diagnosis of AP requires at least 2 of the following: (1) abdominal pain compatible with AP, (2) serum amylase and/or lipase values ≥3 times upper limits of normal, (3) imaging findings consistent with AP.[12] INSPPIRE or other criteria do not address phases (early or late) of AP in children or types (interstitial edematous pancreatitis, necrotizing pancreatitis, infected pancreatic necrosis) or severity of AP (mild, moderate or severe AP with multisystem organ failure).[13] Acute pancreatitis, acut recurrent pancreatitis, and chronic pancreatitis are defined for pediatric patients. Pediatric acute pancreatitis is classified into mild acute pancreatitis, moderate acute pancreatitis, and severe acute pancreatitis using pediatric based criteria of organ dysfunction and systemic inflammatory response.[14]

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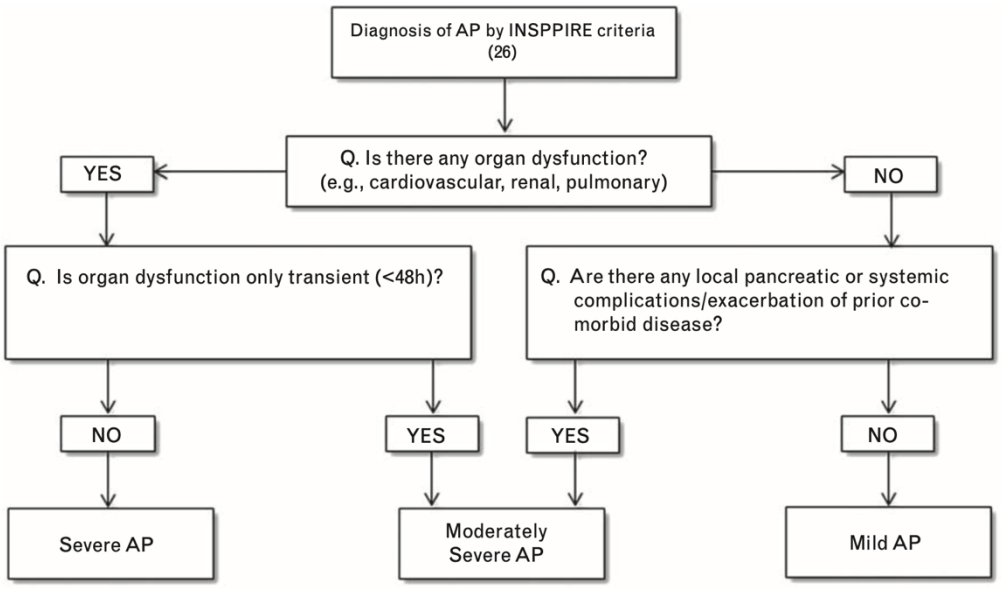

Figure 1. Algorithm to categorize severity of acute pediatric pancreatitis[14]

Our case meet the Atlanta and INSPIRE criteria for the abdominal pain and elevated amylase/lipase serum > 3 times of the upper limit of normal and diagnosed with acute pancreatitis, and categorized as mild AP based on the algorithm of INSPIRE criteria. Treatment of AP is mainly supportive, symptomatically, with the goal to provide and maintain hydration, adequate pain control, and early nutritional support while also monitoring for and managing potential complications. Until recently, management of pediatric AP has been largely influenced by data experienced from adult guideline.[4] Early fluid management (at a rate of more than 1.5-2 times the maintenance rate of IV fluids) is recommended in children in the first 24 hours. Administration of dextrose containing crystalloids is recommended as the initial choice for replacement fluid therapy in AP.[15] Analgetic should be given and provided when indicated. No specific pain management guidelines are available in pediatric AP.[15,16] Complete parenteral feeding is recommended in AP when enteral nutrition is not tolerable for the patient and additional nutrition is necessary.

Oral feeding can be started as soon as tolerated even in the presence of systemic inflammation and before the amylase or lipase values have decreased and children with mild acute pancreatitis should be started on a general (regular) diet and advanced as tolerated.[15,16] Haija et al in 2016 found no difference in the reported scores in pain severity between the groups that received feeds of any kind (low-fat, regular diet) but affected the long of stay (LOS) shorter in patients received higher fat diet.[16] No studies have been reported on the use of low-fat versus regular-fat diets between episodes of AP. No evidence supports an indication for a diet differing from a regular diet between episodes of AP in children.[17] Regardless of the severity of the pancreatitis or existing necrosis or chronic pancreatitis, routine use of prophylactic antibiotics is not recommended in AP.[15] Our patient received hydration in the first 24 hours due to dehydration symtomps and parenteral nutrition within

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72 hours during admission. Antibotic was given due to evidence of bacterial infection (leucocytosis) and strong potention of analgectic administered due to the pain. As soon as clinical manifestation improved and level of amylase/lipase decrease, enteral nutrition started with tropic feeding gradually with fullfeed.

The stage of admission and etiology of pancreatitis determine its management an outcomes. Outcomes in acute pancreatitis are similar among pediatric age groups, are better than in adults, and are not correlated with initial amylase and lipase levels. Death is uncommon in pediatric patients who have pancreatitis, and most reported deaths occur in patients who have other significant disease, such as trauma or sepsis, or complications from pancreatitis.[18,19] Our patient's prognosis was good due to mild symptomps and speed improvement in both clinical and laboratory findings.

CONCLUSION

Acute pancreatitis (AP) in pediatric patients is an increasingly recognized condition, with an incidence approaching that of adults. While the etiology varies, viral infections, trauma, and systemic diseases are common contributing factors. Diagnosis is often challenging due to nonspecific symptoms, necessitating a high index of suspicion and the use of diagnostic criteria such as the Atlanta and INSPPIRE guidelines. Early recognition and appropriate management are essential for favorable outcomes. Supportive care remains the cornerstone of treatment, focusing on hydration, pain management, and early nutritional support. Although adult guidelines have influenced pediatric AP management, emerging pediatric-specific criteria are refining treatment approaches. Most pediatric cases have mild to moderate severity, with good prognosis and low mortality rates, particularly in the absence of significant comorbidities. Our case highlights the importance of considering AP in children with recurrent abdominal pain and gastrointestinal symptoms. Prompt diagnosis and appropriate supportive care resulted in a positive outcome, reinforcing the need for early intervention and individualized management strategies in pediatric AP.

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