Original Research Article

Assessment of Acute biliary pancreatitis: a prospective observational hospital-based study

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Abstract

Background: Pancreatitis is quite common problem, it may present either as abdominal emergency with fulminant course or as an indolent process leading to long-term medical as well as surgical complications often leading to poor prognosis if not intervened timely. **Methods:**This was a prospective hospital based observational study conducted at Department of General Surgery, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India.from November 2015 to July 2016. All cases of ABP admitted over a period of one year were included in the study. The clinical presentation, severity and course of the disease, imaging studies, duration of ICU and hospital stay and timing of ERCP and cholecystectomy were studied. **Results:** A total of 100 cases were included in the study. Average age was 53.45 years. Pain abdomen was the most common symptom at presentation. About 88% patients had mild to moderate disease while the rest had severe disease. The mean duration of intensive care unit stay was 8-10 days. ERCP was done in 12 cases. Cholecystectomy during the same admission was done in 34 cases. **Conclusion:** Early intervention definitely reduces morbidity, mortality and recurrent admissions in cases of acute biliary pancreatitis. Same admission laparoscopic cholecystectomy is preferable in mild ABP. All cases of severe ABP must undergo early ERCP irrespective of biliary obstruction.

Keywords: pneumonia, hyponatremia, sodium level, childrens

Introduction

Acute pancreatitis (AP) is a common diagnosis in cases presenting with acute abdomen. AP is an inflammatory process of the pancreas with variable degrees of severity and multi organ involvement[1].In India alcohol is the most common cause for pancreatitis followed by gall stones. Acute biliary pancreatitis (ABP) is a complication of gallstone disease with a variable course from mild to one with significant morbidity and mortality. Cholecystectomy in cases of ABP is known to prevent complications and recurrence. A high rate of recurrence is reported for patients who do not undergo cholecystectomy[2].

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A debatable topic however is the timing of the cholecystectomy. While interval cholecystectomy was recommended in the past a shifting trend towards early cholecystectomy is being seen. The indications and timing of endoscopic retrograde cholangio-pancreatic-ography (ERCP) have also been debated[3]. Various aetiological factors have been known to cause pancreatitis which include: gall stones, structural lesions like Stenosis or spasm of sphincter of oddi, pancreas divisum, traumatic, microlithiasis, toxins, alcohol, drugs, (frusemide tetracycline), infection (mumps, Coxsackie B-virus, viral hepatitis, HIV, salmonella, shigella, ascariasis lumbricoides),Metabolic (hyper-lipidemia, hypercalcemia) vascular (atherosclerosis, vasculitis, SLE, Wegener's disease. Behcet's disease) iatrogenic (ERCP, endoscopic sphincterotomy, coronary artery bypass) cystic fibrosis etc[4]. Various

studies have been undertaken in India and abroad about pancreatitis, its presentation and role of various laboratory and imaging techniques for diagnosis and prognostication. In this study we discuss assessment of acute biliary pancreatitis of cases of ABP in jan nayakkarpoori medical college and hospital madhepurabiharindia.

Material and Methods

This was a prospective hospital based observational study conducted at Department of General Surgery, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India. from November 2015 to July 2016. We have conducted a study on 100 cases of pancreatitispatients admitted with biliary pancreatitis during this time were observed during their course of hospital stay. Institutional ethical approval was obtained before conducting this study. Diagnostic criteria for biliary pancreatitis were presence of at least two of the following:

Acute abdominal pain and tenderness suggestive of pancreatitis

Serum amylase/lipase ≥3 times the normal (>160 U/l).

Imaging findings suggestive of biliary pancreatitis i.e. calculi or sludge in the gall bladder or biliary tree.

Inclusion criteria

- Biliary pancreatitis
- Fulfilling the diagnostic criteria and giving consent to be part of the study.

Exclusion criteria

- Patients with history of alcohol intake,
- Suffering from alcoholic pancreatitis,
- Chronic pancreatitis and pancreatic malignancy.

Universal sampling was done, where all patients satisfying inclusion criteria were studied. A total of 100 patients were followed up in this study. A written informed consent was taken from all the patients. All the variables were collected in a pretested standard proforma. Patient demographic details, signs and symptoms along with detailed history were recorded. Laboratory investigations including a complete blood count, serum amylase or lipase, renal profile, lipid profile, liver function test and serum electrolytes were done and data recorded. Further radiological evaluation was done with contrast enhanced CT and/or magnetic resonance cholangiopancreatography (MRCP).

Results

Table 1: Age distribution

Age in years	Number of patients	%
30 to 40	19	19.0
40 to 50	10	10.0
50 to 60	27	27.0
60 to 70	18	18.0
Above 70	26	26.0
Total	100	100.0
Mean (Years)	53.45	

Table 2:Gender base distribution

Gender	N=100	%
Male	59	59.0
Female	41	41.0

Table 3: Clinical presentation and incidence

Symptom/sign	Acute pancreatitis	
	Total	%
abdominal pain	98	98.0
Nausea	62	62.0
vomiting	58	58.0
jaundice	46	46.0

Pain radiating back	11	11.0
Abdominal tenderness	98	98.0
Trauma	1	1.0
Fever	24	24.0
Tachycardia	6	6.0
Hypotension	2	2.0

Table 4: Classification of severity based on CT severity index

CT severity index	Percentage of cases
Mild	19.0
Moderate	69.0
Severe	12.0

Table 5: Computed tomography scan finding in acute pancreatitis

CT scan finding	Acutepancreatitis	
	Total	%
Pancreatic necrosis	16	16
Hepatomegaly	23	23
Splenomegaly	23	23
Splenic vein thrombosis	18	18
Pancreatic pseudocyst	3	3
Gall stone	8	8
Ascites	47	47
Pleural effusion	49	49

Discussion

AP is one of the most common conditions presenting as acute abdomen in the emergency department[5].Although alcohol induced AP is the most common aetiology in India, the incidence of biliary pancreatitis is increasing. In western countries, ABP is more common than AP secondary to alcohol. ABP is one of the most serious complications of gall stone disease with a high risk of morbidity and mortality[6].Hence accurate diagnosis and prompt management of ABP is very crucial.In our study ABP accounted for 25.51% of all cases of AP admitted to the hospital. This is lesser than studies conducted in the west but is comparable to a study done by Chauhan et al in Dehradun. The average age of presentation was 53.45 years and male to female ratio was 1:1.43 which was similar to most other studies. The most common presenting symptom was pain abdomen seen in all the patients. All the patients were evaluated with ultrasonography initially followed by contrast enhanced computed tomography (CECT) abdomen and pelvis. Ultrasonography is the most sensitive for picking up gall stones. However, evaluation of the distal cannabidiol and pancreas is usually made difficult by bowel gas artifacts. CECT is useful in diagnosing pancreatitis and its local complications and defining the severity of the disease. The modified CT severity index was used to define severity of the disease. MRCP was done in selected cases for evaluation of the biliary tree which also was used as a road map for ERCP. Laboratory investigations done to confirm the diagnosis were serum amylase and lipase levels. Serum lipase levels were elevated in all the cases of ABP. Serum lipase levels are the most definitive laboratory investigation for confirming the diagnosisof acute pancreatitis. This is consistent with most of the studies where serum lipase elevation is diagnostic.In our study about 81% of cases had moderate to severe pancreatitis on CT. 49% cases had pleural effusion and 47% ascites with pancreatic necrosis noted in 16 % cases. The probable cause for large number of cases having complications may be attributed to delayed presentation or incorrect diagnosis and patients being wrongly treated for gastritis before referral. The patients with

mild and moderate pancreatitis were managed conservatively. Those with severe pancreatitis were admitted in the ICU. 12 cases with pancreatic necrosis were managed conservatively. A step-up approach was used in the management of these cases. 4 of these patients had per cutaneous pig tail catheters inserted under radiological guidance to drain the necrosis. They responded to the same and catheters were removed after radiological conformation of the resolution of the necrotic collections. They were discharged and underwent interval cholecystectomy. They had a stay in the ICU of 10-12 days with IV carbapenems thereby escalating the cost and prolonged hospital stay. Those patients underwent ERCP either for biliary duct disruption or for choledocholithiasis. These patients also recovered and underwent interval cholecystectomy after 6-8 weeks. There were no intraoperative complications reported like biliary injuries or conversion to open surgery. The 2case which expired had severe pancreatitis with all the complications and a fulminant course with persistent hemodynamic instability. The tube drainage of the necrosis and ERCP in this case was done late during the course of the disease which proved detrimental to the prognosis of the patient. Although infective myocarditis was final complication after which the patient succumbed to death, an early intervention would probably have altered the course of disease in this patient.Conservative management of ABP with interval cholecystectomy has been an accepted line of management for long. Interval cholecystectomy has been preferred following an attack of pancreatitis[7].The proponents of this line of management attribute it to the higher risk of biliary injuries due to a difficult dissection of Calot's triangle following pancreatitis. There is also a presumed higher risk of conversion to open surgery. Also, the non-availability of operating rooms and logistic problems in the emergency setup were also impediments which prompted surgeons to prefer interval cholecystectomy. There was also a belief that early cholecystectomy would have a pronged hospital stay and an escalation in costs to be borne by the patients[8]. The PONCHO trial has been one of the biggest multicentre randomised control trials for same admission cholecystectomy in cases of biliary pancreatitis. The results of the trial suggest that in cases of mild biliarypancreatitis same admission cholecystectomy within 72 hours of admission reduced the rate of recurrent gall stone related complications. Also, the cholecystectomy related complications were also fewer[9].The cost effectiveness of the same was also studied. Same admission cholecystectomy had the benefit of lesser readmission rate due to gall stone related complications like a recurrent attack of pancreatitis. Early cholecystectomy cases had reduced morbidity and fewer conversions to open surgeries thereby reducing the costs[10]. A study by Kim et al also proved that a delayed cholecystectomy increases the risk of pancreatico-biliary complications[11].The role of ERCP too was not clearly defined in ABP. Hence it was reserved for cases with proven choledocholithiasis with cholangitis or if there was a biliary duct disruption demonstrated on imaging. Most studies now suggest that an early ERCP must be done. As per a study by Fogel and Sherman all cases of severe pancreatitis must undergo ERCP with sphincterotomy within 72 hours of admission. Even cases without any biliary obstruction with severe pancreatitis must undergo ERCP with sphincterotomy. However, cases of mild biliary pancreatitis without any biliary obstruction may not require ERCP. They may undergo early cholecystectomy.[12] A study by Fan et al suggests early ERCP within 24 hours of admission.[13] A study in Germany by Folsch et al suggested that ERCP has no benefit in cases without biliary obstruction[14].In our study most of the cases were managed conservatively. The number of cases undergoing ERCP was much lower. Hence protocols for early interventions would have definitely helped in reducing the morbidity, mortality, duration of stay and costs incurred by the patients. As most recent studies indicate early intervention has to be the rule in managing acute biliary pancreatitis[15].

Conclusion

The study suggests that early intervention definitely reduces morbidity, mortality and recurrent admissions in cases of acute biliary pancreatitis. An early laparoscopic cholecystectomy may be done in all mild biliary pancreatitis cases with very little risk of complications. An early ERCP is required in severe cases irrespective of biliary obstruction

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