

Original Research

Comparison of early versus delayed cholecystectomy in patients with mild to moderate acute biliary pancreatitis

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ABSTRACT:

Background: Acute pancreatitis is a sudden inflammation of the pancreas, an organ behind the stomach. This condition can range from mild to severe and is characterized by the development of pancreatic inflammation and digestive enzyme activation within the pancreas. The present study was conducted to evaluate outcomes of early versus delayed cholecystectomy in patients with mild to moderate acute biliary pancreatitis. **Materials & Methods:** 80 acute biliary pancreatitis patients of both genders were divided into 2 groups of 40 each. In group I, patients underwent early cholecystectomy and in group II, delayed cholecystectomy was done. Cholecystectomy was performed as a laparoscopic procedure by a single surgeon. **Results:** Group I had 21 males and 19 females and group II had 18 males and 22 females. The conversion to open was seen in 4 patients in group I and 5 patients in group II. The mean duration of surgery was 74.2 minutes in group I and 80.4 minutes in group II. Perioperative complications were 1 in group I and 3 in group II, postoperative complications were 2 in group I and 4 in group II and overall complications were 3 in group I and 7 in group II patients. The difference was significant ($P < 0.05$). **Conclusion:** For individuals with mild to moderate acute biliary pancreatitis, the authors advise an early laparoscopic cholecystectomy.

Keywords: Acute biliary pancreatitis, digestive enzyme, laparoscopic cholecystectomy

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INTRODUCTION

Acute pancreatitis is a sudden inflammation of the pancreas, an organ behind the stomach. This condition can range from mild to severe and is characterized by the development of pancreatic inflammation and digestive enzyme activation within the pancreas. The severity of acute pancreatitis can vary, and complications can arise, making prompt diagnosis and treatment crucial. The most common causes of acute pancreatitis include gallstones.¹ They can block the pancreatic duct and lead to inflammation. Excessive alcohol intake is a significant risk factor for acute pancreatitis. Injury to the pancreas, such as during surgery or abdominal trauma, can trigger inflammation. Viruses or bacteria can cause pancreatitis in some cases. Some medications, such as certain antibiotics, can contribute to pancreatitis. In rare cases, genetic factors may predispose individuals to acute pancreatitis.²

Up to 75% of instances of acute pancreatitis in affluent countries are caused by gallstone disease. The majority of individuals with acute biliary pancreatitis (ABP) experience moderate symptoms that resolve on their own, while 10–20% go on to develop severe pancreatitis, which has a significant morbidity and death rate. Cholecystectomy is purposefully postponed until local difficulties have resolved, usually after about six weeks, in patients with clinically severe pancreatitis who also have local consequences such as pancreatic necrosis and organ failure.³ International recommendations suggest early cholecystectomy for mild to moderate ABP. However, general advancements in intensive care, such as early therapy with fluid resuscitation and therefore enhanced microcirculation, dietary concerns, and the use of antibiotics, have frequently been ascribed to the improved outcomes in patients with acute pancreatitis.⁴ The present study was conducted to

evaluate outcomes of early versus delayed cholecystectomy in patients with mild to moderate acute biliary pancreatitis.

MATERIALS & METHODS

The present study comprised 80 acute biliary pancreatitis patients of both genders. The written consent was obtained from all selected patients. Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 40 each. In group I, patients underwent early cholecystectomy and in group II, delayed cholecystectomy was done. In

group I, patients with blood C-reactive protein concentrations less than 100 mg/L had cholecystectomy with IOC during the index admission. About six weeks following the pancreatitis event, group II underwent an elective interval cholecystectomy with IOC following hospital discharge from the index stay. Cholecystectomy was performed as a laparoscopic procedure by a single surgeon. Data thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Early cholecystectomy	Delayed cholecystectomy
M:F	21:19	18:22

Table I, graph I shows group I had 21 males and 19 females and group II had 18 males and 22 females.

Graph I Distribution of patients

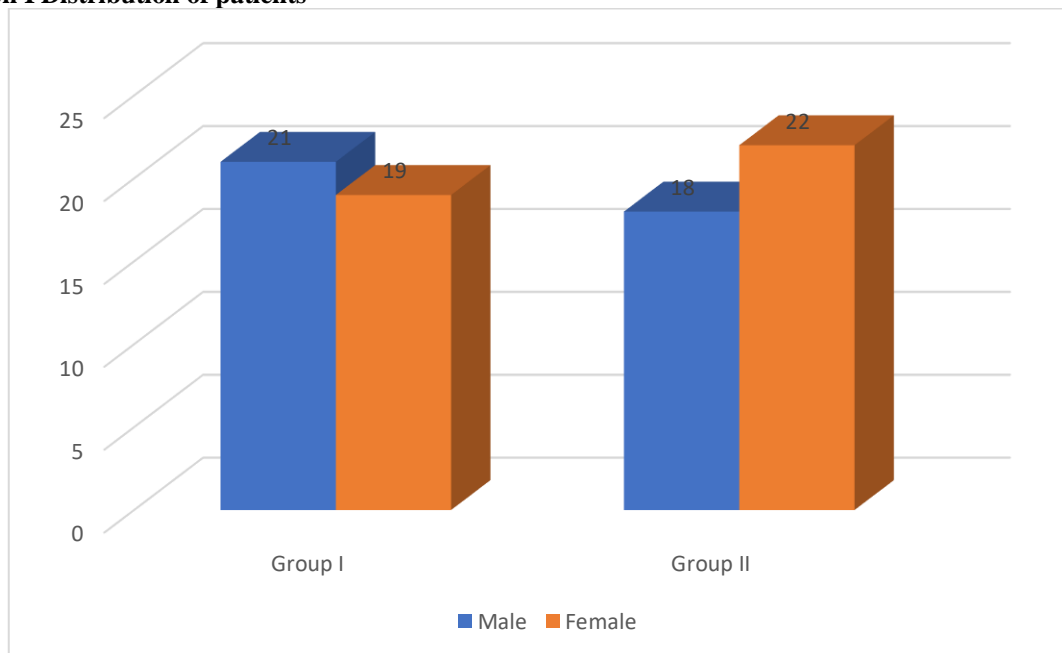
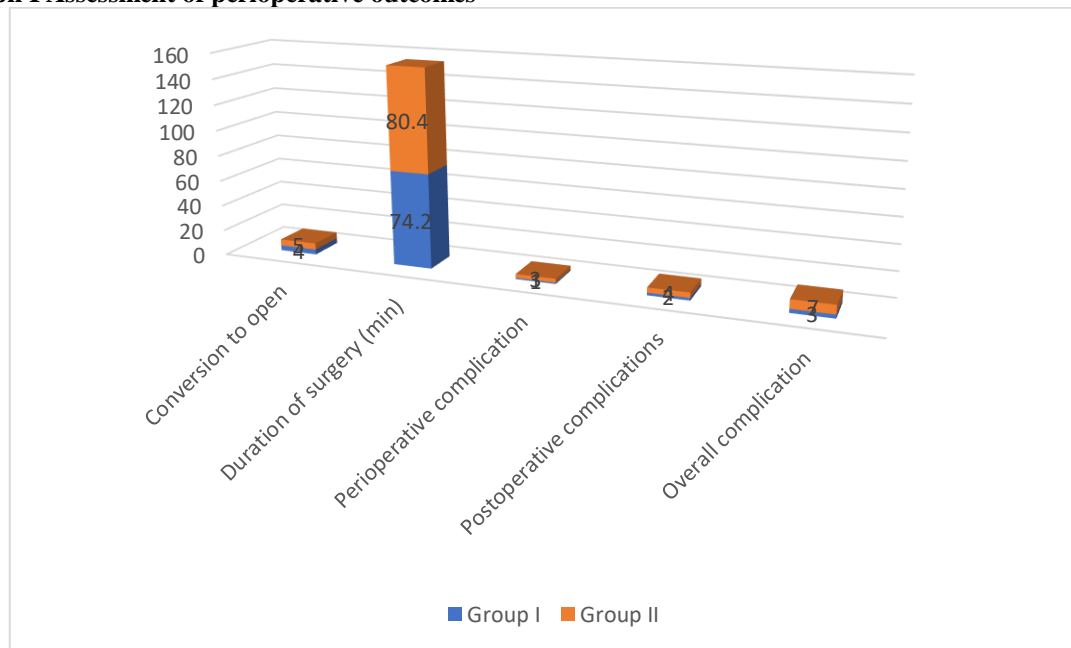


Table II Assessment of perioperative outcomes

Parameters	Group I	Group II	P value
Conversion to open	4	5	0.94
Duration of surgery (min)	74.2	80.4	0.05
Perioperative complication	1	3	0.05
Postoperative complications	2	4	0.21
Overall complication	3	7	0.01

Table II, graph I show that conversion to open was seen in 4 patients in group I and 5 patients in group II. The mean duration of surgery was 74.2 minutes in group I and 80.4 minutes in group II. Perioperative complications were 1 in group I and 3 in group II, postoperative complications were 2 in group I and 4 in group II and overall complications were 3 in group I and 7 in group II patients. The difference was significant (P < 0.05).

Graph I Assessment of perioperative outcomes

DISCUSSION

Acute pancreatitis (AP) means sudden inflammation of the pancreas. It is clinically characterized by sudden onset of abdominal pain and elevated levels of pancreatic enzymes in the blood.¹ Its incidence ranges from 10 to 50/1 lakh per annum. This disease has an overall mortality of approximately 4–6 %, and the mortality increases to 17–39 % in severe cases.⁵ The prevalence of acute pancreatitis is rising, and it is a frequent illness with significant clinical diversity. In cases of severe acute pancreatitis, the typical death rate is close to 2–10%. About 25% of people with acute pancreatitis go on to develop severe acute pancreatitis (SAP).⁶ Acute pancreatitis with severe symptoms is a biphasic systemic illness. Extensive pancreatic inflammation and/or necrosis characterize the first phase. Within the first week, a systemic inflammatory response syndrome (SIRS) may develop, which may thereafter evolve to multiple organ dysfunction syndrome (MODS). The extrapancreatic organ failure that results from the patient's systemic inflammatory response syndrome (SIRS), which is triggered by acinar cell injury, is linked to the clinical characteristics and severity of AP.⁷ The spectrum of acute pancreatitis (AP) includes interstitial pancreatitis, a mild, self-limited disorder to necrotizing pancreatitis. Nearly all AP patients experience acute upper abdominal discomfort at first, which is usually followed in 90% of cases by nausea and vomiting. The goal of the current study was to compare the effects of an early cholecystectomy to a delayed one in individuals who had mild to moderate acute biliary pancreatitis.⁸

We found that group I had 21 males and 19 females and group II had 18 males and 22 females. The conversion to open was seen in 4 patients in group I and 5 patients in group II. Alimogluet al⁹ evaluated the

outcomes of cholecystectomy on first admission for ABP and in patients with recurrent biliary pancreatitis. Patients were classified into two groups. Group I included 27 patients who underwent cholecystectomy on first admission before discharge from the hospital. Group II comprised 16 patients who had recurrent biliary pancreatitis and then underwent cholecystectomy. The severity of the pancreatitis was determined by Ranson's criteria. Age, gender, length of hospital stay, severity of pancreatitis, amylase level, and complications of cholecystectomy were evaluated in both groups. Patients in group I underwent cholecystectomy during the original hospital admission and patients in group II during an admission for a recurrence. There were 24 patients with a Ranson's score ≤ 3 in group I and 12 in group II. The mean hospital stays were 15.29 days (range 4–48 days) and 36.66 days (range 15–123 days) in groups I and II, respectively. Morbidity was 11% without mortality in group I and 43% with one mortality in group II. Definitive treatment of ABP can be accomplished effectively and safely by cholecystectomy following clinical improvement, with selective ERC performed during the first admission (delayed cholecystectomy). Waiting to perform cholecystectomy (interval cholecystectomy) may result in recurrent biliary pancreatitis, which may increase morbidity and the length of the hospital stay. We found that the mean duration of surgery was 74.2 minutes in group I and 80.4 minutes in group II. Perioperative complications were 1 in group I and 3 in group II, postoperative complications were 2 in group I and 4 in group II and overall complications were 3 in group I and 7 in group II patients. The results of early versus delayed cholecystectomy were evaluated by Jee et al.¹⁰ A prospective randomization process was used to assign patients with mild to moderate ABP to

the early or delayed cholecystectomy group. Between the two groups, recurrent biliary occurrences, peri-operative complications, conversion rate, duration of surgery, and overall length of hospital stay were assessed. One public hospital has 72 patients registered in total. Thirty-four patients were assigned to the delayed group and 38 individuals to the early group. Regarding the duration of the procedure, the conversion rate to open surgery (10.53% vs. 11.76%; $p < 1.000$), peri-operative problems (7.78% vs. 11.76%; $p < 0.700$), and length of time spent performing the surgery (80 vs. 85 minutes, $p < 0.752$). However, the delayed group had a higher prevalence of recurrent biliary episodes (44.12% vs. 0%; $p < 0.0001$), and their length of hospital stay was longer (9 vs. 8 days, $p < 0.002$).

Johnson et al¹¹ identified a total of 523 patients with gallstone pancreatitis, of which 363 (69%) underwent cholecystectomy (72 during the primary admission or within 2 weeks of discharge; 291 following this). Overall, 7% of patients had a complication related to cholecystectomy of which a greater proportion occurred when cholecystectomy was performed within guideline parameters (13% vs 6%; $p = 0.07$). 11% of patients were readmitted with recurrent pancreatitis before surgery, with those undergoing cholecystectomy outside guideline parameters being most at risk ($p = 0.006$). Mustafa et al¹² suggested that ERCP and ES should be used as an alternative to cholecystectomy in the treatment of ABP in high-risk surgical patients and the elderly.

CONCLUSION

For individuals with mild to moderate acute biliary pancreatitis, the authors advise an early laparoscopic cholecystectomy.

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