

Timing of cholecystectomy in the treatment of mild acute biliary pancreatitis

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Abstract

Aim: In this study, we aimed to compare the results of emergency and elective cholecystectomy in patients admitted due to acute biliary pancreatitis.

Material and Methods: A total of 632 patients admitted due to acute biliary pancreatitis were retrospectively evaluated. Patients with Ranson ≥ 3 and hour 48 CRP > 15 were considered as severe pancreatitis and excluded from the study. Patients were divided into two groups. Group 1 consisted of the patients who underwent emergency cholecystectomy after 48 hours, while Group 2 included the patients who underwent interval cholecystectomy.

Results: A total of 386 patients were enrolled in the study. Group 1 consisted of 214 patients. The mean Ranson score was found as 1.3 ± 0.9 in Group 1 and 0.92 ± 0.7 in Group 2. A total of 148 patients in Group 1 and 117 patients in Group 2 had comorbidity ($p=0.81$). Conversion was performed in 8 patients in Group 1 and 5 patients in Group 2 ($p = 0.78$). Bile duct injury was not detected in either group. Among the patients in the interval cholecystectomy group, 7 patients were admitted to the hospital due to acute pancreatitis and total 13 patients due to biliopancreatic reasons during the interval period.

Conclusion: No effect of cholecystectomy timing was detected on the conversion rates and development of complications. However, development of recurrence and related complications in the waiting period of the patients could be prevented by performing early cholecystectomy.

Keywords: Biliary; Cholecystectomy; Mild; Pancreatitis; Treatment

INTRODUCTION

Acute pancreatitis is an inflammatory disease of the pancreas with high morbidity and mortality. The most common factors playing a role in the etiology included gallstones and the use of alcohol. There are applications on which consensus was provided in Atlanta 2012 in the treatment of acute biliary pancreatitis (BP). In the consensus; cholecystectomy is recommended at the first admission in patients without morbidity, while conservative and/or minimally invasive methods are recommended in patients with additional comorbidities (1). The recurrence rate in patients with biliary pancreatitis is high, reaching up to 29-63%. In addition, gallstone-related complications such as acute pancreatitis, cholecystitis, cholangitis, or biliary colic may occur after biliary pancreatitis (2,3). Although laparoscopic cholecystectomy is the gold standard procedure in the treatment of bilateral pancreatitis, the timing of cholecystectomy is still controversial and studies with contradictory results

have been published on this issue (4,5). In this study, we aimed to compare the results of emergency and elective cholecystectomy in patients admitted due to acute biliary pancreatitis.

MATERIAL and METHODS

A total of 632 patients admitted to the general surgery department due to acute biliary pancreatitis between January 2010 and December 2014 were retrospectively evaluated. The diagnosis of pancreatitis was set by determination of amylase levels 3 times higher in patients presented with abdominal pain and cholelithiasis was detected by ultrasonography. The severity of pancreatitis was assessed with the result of CRP in addition to the Ranson criteria (Table 1). Patients with Ranson ≥ 3 and hour 48 CRP > 15 were considered as severe pancreatitis and excluded from the study. Patients undergone ERCP due to high ASA, patients with recurrent or severe pancreatitis, patients with accompanying symptoms such as acute

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cholecystitis, choledocholithiasis and biliary colic, and patients who rejected the operation were excluded from the study. Patients were divided into two groups. Group 1 consisted of the patients who underwent emergency cholecystectomy after 48 hours, while Group 2 included the patients who underwent interval cholecystectomy. Cholecystectomy was performed laparoscopically as standard. All patients were preoperatively administered intravenous 1st generation cephalosporin for prophylaxis. All of the surgeons who performed the operations had an experience of more than 100 cholecystectomy operations. Same open and laparoscopic surgical techniques were used in all operations and four trocars (2x5 mm, 2x10 mm) were used with subcostal incision in the open surgery and a 10-14 mmHg insufflation to the abdominal cavity in the laparoscopic operation. Demographic datas, Ranson scores, whether recurrence developed (whether pancreatitis recurred in the postoperative period for Group 1 patients and during the time until operation after pancreatitis and in the postoperative period for Group 2 patients), development of postoperative complications, rates of conversion and postoperative mortality were compared between the groups.

Statistical analysis

The Statistical Package for the Social Sciences statistical software package (version 22.0 SPSS Inc, Chicago, Illinois) was used. Study data were evaluated for descriptive statistical methods such as mean, standard deviation, frequency, ratio, and median were used when. A Student t-test was used for parametric continuous variable and Mann-Whitney U-test was used for nonparametric continuous variable. Chi-square test was used for compare the categorical variables. Significance was set at a p value less than 0.05.

RESULTS

A total of 632 patients admitted to the general surgery department due to acute biliary pancreatitis between January 2009 and December 2014 were retrospectively evaluated. Patients with Ranson ≥ 3 and hour 48 CRP > 15 were considered as severe pancreatitis and excluded from the study. Patients who rejected the operation, patients with recurrent or severe pancreatitis, and patients with accompanying symptoms such as acute cholecystitis, choledocholithiasis and biliary colic were also excluded from the study. Finally, 386 patients were enrolled in the study (Figure 1). The mean age of the patients was 53.25 \pm 16.42 (range, 18-94) with 301 (78%) of the patients were female and 85 (22%) were male. Group 1 which underwent emergency cholecystectomy consisted of 214 patients (55%) and Group 2 with elective cholecystectomy included 172 patients (45%). The mean Ranson score was found as 1.3 \pm 0.9 in Group 1 and 0.92 \pm 0.7 in Group 2. A total of 148 patients (69%) in Group 1 and 117 patients (68%) in Group 2 had comorbidity (p=0.81) (Table 2). The mean time for surgery was 62 hours (range 48-120) in group 1 and 8.4 weeks (range 6-16) in group 2. Conversion was performed

in 8 patients (%3) in Group 1 and 5 patients (%2) in Group 2. There was no statistically significant difference in the rates of conversion to open technique between the groups (p = 0.78). Bile duct injury was not detected in either group. In Group 1, wound infections were detected in 2 patients and port site hernia in 2 patients. While, Group 2, wound infection was detected in 2 patients and port site hernia in 1 patient. Among the patients in the interval cholecystectomy group, 7 patients (4%) were admitted to the hospital due to acute pancreatitis and total 13 patients (8%) due to biliopancreatic reasons during the interval period.

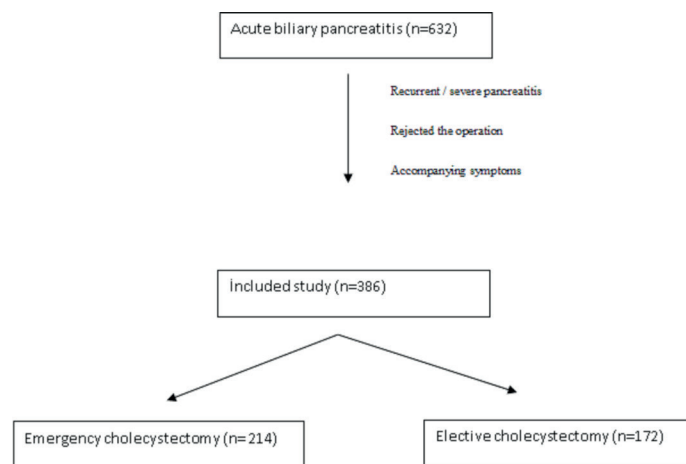


Figure 1. Flow diagram of study

Table 1. Ranson criteria	
At admission*	In 48 hours*
Age >70	Drop in hematocrit 10%
Leukocyte count > 18,000 mm ³	BUN increase >2 mg/dl
LDH >400 U/l	Calcium <8 mg/dl
AST >250 U/l	PaO2 <60 mmHg
Glucose > 220 mg/dl	Bases deficits >5 mEq/l
	Fluid loss >4 lt
* Each parameters is 1 point	

Table 2. Comparison of demographic datas between groups			
Variables	Group 1	Group 2	p
Age	53.82 \pm 16.48	52.86 \pm 16.41	0.764
Gender	301/85		
Female	168	133	0.805
Male	46	39	
Ranson score	1.3 \pm 0.9	0.92 \pm 0.7	0.840
Morbid illness	148	117	0.826

DISCUSSION

The incidence of acute pancreatitis is increasing and the rate of mortality from this disease ranges between 5-10% (6,7). Conservative treatment modalities such as fluid resuscitation and antibiotic therapy are administered. Cholecystectomy is recommended in the treatment of biliary pancreatitis, although its timing is controversial. Laparoscopic cholecystectomy is the gold standard (8,9). Whereas some studies suggest cholecystectomy within 2-4 weeks in acute biliary pancreatitis, other studies and Atlanta 2012 consensus recommend early cholecystectomy (1,10-12). Many studies have reported that, emergency cholecystectomy which is recommended in guidelines could be performed only in 39% to 51% of the cases (13). Surgeons may prefer interval cholecystectomy because of the fear of perioperative risk. In our study, Groups 1 and 2 were respectively composed of the patients who underwent emergency cholecystectomy 48 hours after the same admission and those underwent interval cholecystectomy, thus the groups were standardized.

According to the updated Atlanta classification, pancreatitis cases are divided into two types as mild and severe [8,9]. Mild pancreatitis is known as interstitial edematous pancreatitis. It is characterized by pancreatic inflammation without necrosis or organ failure, and is usually self-limiting and resolves within about one week (14). Early laparoscopic cholecystectomy may reduce the time to hospitalization and the frequency of recurrence and biliopancreatic episodes during the period of time until late cholecystectomy in patients with mild acute pancreatitis. For these reasons, early laparoscopic cholecystectomy may be preferred over delayed laparoscopic cholecystectomy in patients with mild acute pancreatitis (15).

In the literature, biliary pancreatic attacks and recurrence were reported in 18% of patients in the 4-8 week of waiting period after pancreatitis (16). In our study, 7 patients (4%) presented to the hospital due to acute pancreatitis and 13 patients (8%) because of biliopancreatic reasons during the interval period. In our study, the low rate is explained by the fact that emergency cholecystectomy is performed at a high rate and the interval time is shorter in our hospital.

In the past, it was believed that the dissection of the Callot triangle was difficult in the laparoscopic cholecystectomy after acute pancreatitis and complications due to it were more frequent. However, recent studies report that complications (10-15%) and conversion rates (3-5%) of cholecystectomy performed in the early period are similar to those of elective cholecystectomy patients (17-19). Conversion was performed in 8 patients (%3) in Group 1 and 5 patients (%2) in Group 2. There was no statistically significant difference in the rates of conversion to open technique between the groups ($p = 0.78$). Bile duct injury was not detected in either group. In our study, complication and conversion rates were similar between the groups and no statistically significant difference was observed.

CONCLUSION

Cholecystectomy can be performed safely in mild pancreatitis acute attack. No effect of cholecystectomy timing was detected on the conversion rates and development of complications. However, development of recurrence and related complications in the waiting period of the patients could be prevented by performing early cholecystectomy.

Competing interests: The authors declare that they have no competing interest.

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Ethical approval: The ethical committee approval was not needed due to the retrospective design of the study.

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