TIMING OF CHOLECYSTECTOMY AFTER MILD ACUTE PANCREATITIS. THE EARLIER THE BETTER.

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ABSTRACT

Objective: The aim of this study was to compare the outcome of early (< 2 weeks) versus delayed (>2weeks) cholecystectomy in patients with mild to moderate biliary pancreatitis.

Methods: This was a retrospective study from March 2009 to February 2013 comprising 83 patients who underwent early (Gp A ; < 2weeks) versus delayed (Gp B ; >2 weeks) cholecystectomy following an attack of mild biliary pancreatitis. The primary endpoint of this study was the rate of biliary complications prior to cholecystectomy. Secondary endpoints included any major complications and length of hospital stay.

Results: Early cholecystectomy was performed on 28 patients (Gp A), with 46.43% having the procedure within 72 hours and 53.57% operated within 2 weeks. Delayed cholecystectomy was planned for 55 patients (Gp B) , 56.36% of whom had the procedue in 2 to 6 weeks while 43.64% had surgery 6 to 10 weeks after being diagnosed with acute pancreatitis. The two groups were found to have no significant difference regards local and systemic complications following surgery (Gp A =4 vs Gp B =6 ; p=.39). However while awaiting cholecystectomy the patients in Gp B had significantly more atttacks of biliary complications (Gp A =1 vs Gp B =12 ; p=.012). A median hospital stay of 4.1 days was recorded for patients in Gp A which was comparable with 3.3 days for patients in Gp B (p = .47).

Conclusion: Early cholecystectomy preferably during the course of same admission is associated with significantly less chances of recurrent biliary attacks.

Key Words: Acute biliary pancreatitis, early cholecystectomy, recurrent biliary attacks.

INTRODUCTION

Biliary and pancreatic duct obstruction secondary to gall stone migration is a challenging health care problem world over, accounting for 30 to 55% cases of acute pancreatitis in the Western world.[1] The mortality rate associated with this disease ranges from less than 1% in mild disease,[2] to 30% in patients diagnosed with severe necrotizing pancreatitis.[3,4] Traditionally surgeons practiced interval cholecystectomy at least 6 weeks following an attack of pancreatitis on the pretext that this gives time for any inflammation to settle reducing the chances of complications and making the procedure technically easier. Acccording to the guidelines issued by the British Society of Gastroenterology published in 1998[5] a 2 to 4 weeks target was set for any intervention. These were later revised in 2005[6] recommending that all patients with mild pancreatitis having gallstones should have definitive treatment of gall stones in the form of cholecystectomy or/ and ERCP during the same admission (as the attack) unless a clear plan is devised for the next 2 weeks. Patients with severe pancreatitis having systemic complications should have a delayed cholecystectomy following resolution of the disease processes. Missing the targets proposed in the guidelines by failing timely removal of the gall bladder, a recurrence rate of biliary acute pancreatitis of 29 – 63% has been reported.[7-10]

Unfortunately in Pakistan no clear guidelines exist regards appropraite timing for cholecystectomy following an attack of acute pancreatitis. Most surgeons base their practice on personal preferences, rather than an evidence based approach taking into account the morbidity associated with recurrent biliary events while definitive treatment is awaited.

It was with this perspective in mind that this study was planned inorder to see the impact of early versus delayed cholecystectomy in patients with acute pancreatitis.

MATERIALS AND METHODS

The notes of all patients admitted between March 2009 and February 2013 to the Surgical unit of Hayatabad Medical Complex Peshawar, with a diagnosis of pancreatitis were reviewed retrospectively. A diagnosis of gallstone pancreatitis was made on the basis of an appropriate clinical history with an increase in serum amylase (more than 360 units/l) and ultrasonographic evidence of gallstones. Severity stratification was carried out with the help of Glasgow Imrie criteria within 48 hours of admission and pa-

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tients with a score of 3 or greater were classified as severe pancreatitis and thereby excluded from the study. Also classed severe and thereby excluded were patients with a CRP of more than 240 at the end of 4 days or more than 120 at the end of a week, patients with evidence of organ failure and patients with CT diagnosis of pancreatic necrosis. Only patients with an ASA grade of I, II or III met the inclusion criteria.

The patients were divided into two groups based on the timing of their cholecystectomy following a diagnosis of mild to moderate acute pancreatitis. Group A consisted of patients who had an early cholecystectomy (laparoscopic or open) within 2 weeks of an attack. This group was further subdivided into those who had the procedure within 72 hours and those who had the surgery from 72hrs to 2 weeks of an attack of gallstone pancreatitis. Group B constituted patients who had a delayed cholecystectomy more than 2 weeks after suffering an acute attack. They were further subdivided on the basis wheter they had the operation within 2 – 6 weeks or 6 – 10 weeks.

Patients who had any previous abdominal surgeries (3) or concomittant procedure along with the cholecystectomy eg bile duct exploration (2), pacreaticco-jeujenostomy (2) or abdominal hernia repair(1) were excluded from the study.

Study outcome/ endpoints : The primary endpoint of the study was to assesss the rate of recurrent biliary attacks in the two groups, further analyzed in the subgroups mentioned above. These include events such as recurrent biliary pancreatitis, acute cholecystitis, symptomatic cholelithiasis and cholangitis. Secondary endpoints included any postoperative complications both local (eg wound infection, haematoma, CBD injury, missed CBD stone) and systemic (eg chest infection,myocardial infarction, prolonged ileus). The mortality rate and hospital stay ere also recorded.

Data collection : Data was collected from the hospital record on specially designed forms and promptly entered into a computer data base

Statistical analysis : SPSS 19 was the desired package used for statistical analysis. Chi-square test was used for analszing qualitative data while t test was reserved for quantitative data. Level of significance was defined as $p = 0.05$.

RESULTS

A total of 128 patients who underwent cholecystectomy for acute pancreatitis were identified from the hospital record. Of these 27 were excluded for having sufferred severe pancreatitis according to the Glasgow imrie criteria, CRP, systemic involvement and CT evidence of pancreatic necrosis. A total of 10 patients with ASA IV & above and 8 patients with previous or concomittant surgeries were also excluded. Record of 83 patients who met the inclusion criteria were subjected to further analysis. 28 patients (33.73%) who underwent cholecystectomy within 2 weeks were designated Group A and 55 patients (66.27%) having the procedure more than 2 weeks after a mild to moderate attack of acute pancreatitis were included in Group B. Both the groups were further subdivided into two (Table 1), for a more critical analysis of the events specially in terms of the timing of recurrent biliary events (Table 3). The patients charecteristics in Table 1 further show that there was no statistically significant difference between the two groups in terms of age, gender and ASA grade.

Patients with a suspicion of retained bile duct calculus on USS or CT/ MRCP were subjected to ERCP with or without sphincterotomy. In group A, 3 of the 28 patients had a preliminary ERCP, while 7 of the 55 patients in group B had this intervention prior to their cholecystectomy.

Table 2 shows the rate of recurrent biliary events

Table 1: Patient characteristics

	Group A (< 2 weeks)	Group B (>2 weeks)	P value
Total Patients	28 < 72 hrs = 13 (46.43%) 72 hrs – 2 w = 15 (53.57%)	55 2-6 weeks = 31 (56.36%) 6 – 10 w = 24 (43.64%)	.34
Median Age (Range)	58 (35 – 73)	60 (37 – 78)	.51
Female Gender	18 (64.29%)	29 (52.78%)	.12
ASA			
I	9	16	.27
II	14	25	.58
III	5	14	1.00

Table 2: Recurrent biliary events

	Group A (< 2 weeks)	Group B (>2 weeks)	P value
Total No of recurrent biliary events	1	12	.012
Rec biliary pancreatitis	1	8	
Acute cholecystitis	0	2	
Symp cholelithiasis	0	1	
Cholangitis	0	1	

Table 3: Timing of recurrence of biliary events

	Group A (< 2 weeks)	Group B (>2 weeks)
Within 72 hrs	0	
72 hrs – 2 weeks	1	
2 – 6 weeks		5
2 – 6 weeks		7

Table 4: Post operative complications

	Group A (< 2 weeks)	Group B (>2 weeks)	P value
Total complications	4	6	.39
LOCAL			
CBD injury	1	1	
Haematoma	1	0	
Wound infection	1	2	
Retained stone	0	1	
SYSTEMIC			
Chest infection	0	1	
MI	0	1	
Post op ileus	1	0	
Mortality	0	0	

in the two groups. There was a significant (p=.012) preponderance of these events including recurrent biliary pancreatitis, cholecystitis, cholelithiasis and cholangitis in patients in group B. As against 8 patients suffering a recurrent attack of biliary pancreatitis in group B, only one patient in group A had the said episode necessiating re-admission a week after discharge and ending up with an immediate cholecystectomy to prevent any further attacks. Rest of the biliary attacks were witnessed only in group B.

Table 4 highlights the main complications encountered post operatively. Fortunately no mortality was reported in either group. Overall there was no significant difference (p=0.39) in local and systemic complications between the 2 groups after cholecystectomy.

Finally the median hospital stay was comparable between patients having early and delayed cholecystectomies with the former staying for a median of 4.3 days compared to 3.1 for the later (p=0.47). One patient in group A stayed for nine days following inadverent CBD injury. Similarly a patient in group B who had a similar operative complication had to be hospitalised for ten days.

DISCUSSION

Cholecystectomy is the established definitive treatment for patients suffering from acute biliary pancreatitis, with the trend in recent years towards laparoscopic approach given its established safety and efficacy.[11-14] This view has been fortified in guidelines published in different countries around the globe, which have also endeavoured to address the issue of timing of surgery for gall bladder removal following an acute attack. The UK guidelines for management of acute pancreatitis now propose definitive treatment in the form of ERCP and/or cholecystectomy during the course of same admission unless a plan is in place for the next 2 weeks.[6] However even in the west these guidelines are ignored by a substantial number of clinicians. Audits from the UK, the USA, Germany and Italy have shown that most patients undergo cholecystectomy weeks or even months after discharge from the hospital for mild biliary pancreatitis.[15-18] This study showed that over the course of four years, from March 2009 to February 2013, only 33.33% of the patients selected for the purpose of this study underwent early cholecystectomy (ie within 2 weeks) for acute biliary pancreatitis. Rest were managed by the more traditional approach of delayed cholecystectomy. Amongst those having early cholecystectomy less than half had the procedure within the recommended 72 hours. A prospective Dutch multicentre study from 2004 to 2007 reported that only 6.7% of the patients had cholecystectomy during initial admission for mild biliary pancreatitis.[19]

The main finding of this study was that there is a significant difference regards timing of recurrent biliary events when comparing patient who have any early cholecystectomy (<2 weeks) as compared to those who have a delayed procedure (>2weeks). Only one patient with the former approach had recurrent biliary pancreatitis – one week after the initial attack and had the surgery immediately afterards thereby still being classes as early cholecystectomy. On the other hand 21.81% patients awaiting delayed cholecystectomy had recurrent biliary attacks with 66.67% of these patients suffering another acute attack of pancreatitis. A Dutch study showed an 18% readmission rate for acute biliary pancreatitis in patients awaiting cholecystectomy for more than 4 weeks.[20] Similarly unplanned readmissions for biliary events was seen in 18.4% of patients in a UK based prospective audit where only 44.7% of patients who suffered from acute pancreatitis were found to have had a definitive cholecystectomy by 8 months[21]. Another study found a 21 % readmission rate in patients waiting more than 8 weeks for a definitive cholecystectomy[22].

Taking into account the frequency of recurrent biliary events, this study showed a serial rise in these events with the passage of time. In patients undergoing delayed cholecystectomy, 12.73% had the recurrent biliary attack when surgery was delayed by more than six weeks as compared to 9.09% when the wait was less than 6 weeks This trend has been observed in a UK based study which showed the frequency of biliary events needing readmission in the region of 21% for patients waiting more than 8 weeks for definitive surgery which was decreased to 6% when the lead time between an attack of pancreatitis and cholecystectomy was reduced to less than 4 weeks.[22] Hence the notion “the earlier the better” for definitive cholecystectomy, preferably the same admission as acute biliary pancreatitis.

As secondary outcomes of this study, complications following surgery for gall bladder removal were also observed. No significant difference was observed in the context of local or systemic complications and hospital stay between patients who had early or delayed cholecystectomy. This conforms with a study from Basel, Switzerland which showed local complication rate of 3% vs 4% (p=1) a systemic complication rate of 0% vs 3% (p=1) and mean post operative hospital stay of 4.7 vs 5.7 days (p=.40) when comparing early with delayed cholecystectomy in each case respectively.[23] No mortality was observed in our study in either group.

In conclusion, a definitive cholecystectomy either during the course of same admission or within 2 weeks of an attack of mild biliary pancreatitis, guards against a significant risk of recurrent biliary events that can occur if the operation is delayed. Furthermore contrary to previous assumptions by clinicians early cholecystectomy is not associated with an increased risk of morbidity or mortality.

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