ISSN 2515-8260 Volume 09, Issue 01, 2022

ORIGINAL RESEARCH

To Evaluate The Role Of Early Vs Delayed Laparoscopic Cholecystectomy In Mild And Moderate Acute Gallstone Pancreatitis

[1]Dr SandipkumarChaudhari, [2]Dr NayanPancholi, [3]Dr LatifBagwan

[1-3]Assistant professor, Department of Surgery, GMERS Medical College, Vadnagar, Mehsana, Gujarat, India

Correspondence:
DrNayanPancholi
Assistant professor, Department of Surgery, GMERS Medical College, Vadnagar, Mehsana, Gujarat, India
Email: drnayan2004@yahoo.co.in

Abstract

Aim: To evaluate the role of early Vs delayed laparoscopic cholecystectomy in mild and moderate acute gallstone pancreatitis

Methods: This randomized prospective study conducted in the Department ofSurgery after taking the approval of the protocol review committee and institutional ethics committee. 100 patients were included in the study. They were divided into two groups with 50 patients in each group. Patients with mild and moderate acute gallstone pancreatitis were included in this study.

Results: The age distribution in both the groups was comparable with no statistically significant difference observed. The mean age in Group A was 42.9±9.24 years and in Group B was 43.025±9.56 years (p=0.857). Out of 100 cases 21 were males and 79 were females. There was no statistically significant difference in the sex distribution between the two groups. There was no statistically significant difference between the two groups with p-value =0.079 and 0.707 for amylase and lipase respectively. Modified CECT severity index was used to assess severity of acute pancreatitis. Group A had a mean score of 3.2±1.20 and Group B had mean score of 3.3±1.28 p-value=0.757 and there was no statistically significant difference between two groups. 16% in Group A and 22% in Group B underwent pre-operative ERCP and the difference was statistically not significant. There was no recurrence of pancreatitis in group A, however 16% cases of group B had recurrent pancreatitis and the results were statically significant which are tabulated as under.There was no recurrence of cholecystitis in group A, however 16% cases of group B had recurrent cholecystitis and the results were statistically significant which are tabulated as under.

Conclusion: We conclude that, early laparoscopic cholecystectomy in the index admission in mild and moderate gallstone induced pancreatitis is a feasible and a safe modality for the treatment of acute mild and moderate gallstone pancreatitis and early cholecystectomy decreases the incidence of recurrent episodes of pancreatitis and cholecystitis in patients with gallstones.

Keywords: Cholecystectomy, Acute biliary pancreatitis, post operative complications

Introduction

Acute pancreatitis is considered one of the critical emergency conditions that necessitate inpatient admission because of its deleterious complications. Variable causes including, gall bladder stones, hyperlipidemia and alcohol consumption are the commonest.[1,2]

Biliary pancreatitis (BP) or gallstone pancreatitis, is a frequent cause of acute pancreatitis (AP) accounting for 40-50% and may reach up to 70% of the cases especially in developed countries.[3]

The main pathogenesis of biliary pancreatitis is caused by gallstones migration that leads to either bile, pancreatic or both duct obstruction. This obstruction increase the intraductal pressure with subsequent disturbance of pancreatic digestive enzymes.[4]

Most of attacks of mild biliary pancreatitis resolve itself within one week without serious complications but leaving the gall stones in place will lead to high incidence of recurrence up to 90% that may lead to more complications.[5,6]

Cholecystectomy is the main stay of treatment in biliary pancreatitis to avoid the high recurrence rate. Timing of cholecystectomy in mild BP is still a matter of debate among surgeons.[5]

Although The British Society of Gastroenterology recommended definitive treatment of mild biliary pancreatitis by cholecystectomy during the same hospital admission[7], a study in England showed that only one third of the patients underwent early cholecystectomy during the same admission. This also was observed in USA and Europe.[8,9] Many factors may contribute this contradiction, risk of intraoperative complications because of hostile field, non availability of sufficient emergency theatre capacity, surgical resources and also the great advent of ERCP that reduce the risk of recurrence of biliary pancreatitis after sphincterotomy.[10]

Material and methods

This randomized prospective study conducted in the Department ofSurgery after taking the approval of the protocol review committee and institutional ethics committee. 100 patients were included in the study. They were divided into two groups with 50 patients in each group. Patients with mild and moderate acute gallstone pancreatitis were included in this study. Patients with gallstone pancreatitis were initially treated conservatively with IV fluids, nasogastric suction and antibiotics and CT was done within 48 hours of admission to assess severity. Conservative management was continued till patients clinical profile, laboratory and biochemical parameters indicated termination of attack of acute pancreatitis. After termination of acute attack of pancreatitis patients were randomly allocated into two groups using proper statistical technique viz. Group A and Group B. Group A included the patients of mild and moderate gallstone pancreatitis in whom early cholecystectomy was performed (within two weeks of index admission). Group B included the patients of mild and moderate gallstone pancreatitis in whom delayed cholecystectomy was performed (after two weeks of index admission). Any CBD stone detected preoperatively was subjected to endoscopic retrieval before taking up the patient for surgery. The two groups were compared as per the presetproforma and the difference between the two groups was statistically analyzed.

The diagnosis of acute gallstone pancreatitis was made on a combination of a clinical evaluation and the use of supportive laboratory (amylase and Lipase level) and ultrasound evidence of gallstones, and severity were assessed according to modified CT severity index. Data was collected from the patients and recorded on a preset proforma and promptly entered into a computer data base. The results were tabulated and subjected to appropriate statistical analysis to calculate the p-value. A p-value of <0.05 was taken as significant.

Results

The age distribution in both the groups was comparable with no statistically significant difference observed. The mean age in Group A was 42.9±9.24 years and in Group B was 43.025±9.56 years (p=0.857).

Table 1: Age Distribution

Age-group	Group A		Group B		p-value
	No.	%age	No.	%age	
20-30	7	14	8	16	0.857
30-40	11	22	10	20	
40-50	21	42	22	44	
50-60	11	22	10	20	
Total	50	100	50	100	
Mean±SD	42.9±9.24		43.025±9.56		

The cases were included in the study irrespective of their sex. Out of 100 cases 21 were males and 79 were females. There was no statistically significant difference in the sex distribution between the two groups. The statistics are represented in the table.

Table 2: Sex Distribution

Sex	Group A		Group B		Total	
	No.	%age	No.	%age	No.	%age
Male	9	18	12	24	21	21
Female	41	82	38	76	79	79
Total	50	100	50	100	100	100

p-value = 0.566; Chi-square test

The amylase and lipaselevel's are used in the diagnosis of acute pancreatitis. There was no statistically significant difference between the two groups with p-value =0.079 and 0.707 for amylase and lipase respectively. Modified CECT severity index was used to assess severity of acute pancreatitis. Group A had a mean score of 3.2±1.20 and Group B had mean score of 3.3±1.28 p-value=0.757 and there was no statistically significant difference between two groups. The statistics is represented in the table.

Table 3: Modified CECT Severity Index Score

Group	No.	Mean	SD	p-value
Group A	50	3.2	1.20	0.757
Group B	50	3.3	1.28	

ERCP was used before taking up cases for surgery where CBD calculi where detected. 16% in Group A and 22% in Group B underwent pre-operative ERCP and the difference was statistically not significant. The statistics is represented in the table.

Table 4: Pre-Operative Intervention (ERCP)

Pre-operative (ERCP)	Group A		Group B		p-value
	No.	%age	No.	%age	
Yes	8	16	11	22	0.659
No	42	84	39	78	
Total	50	100	50	100	

There was no mortality in either group. Morbidity was studied in terms of intraoperative and postoperative complications in a presetproforma. Intraoperatively there was no visceral, diaphragmatic or CBD injury in either groups, however 3 (6%) cases of Group A and 2 (4%) cases in Group B had intraoperative bleeding but the difference was not statistically significant. Postoperatively 14 complications were met in Group A and 10 complications were met in Group B but results were not statistically significant as represented in the table.

Table 5: Intraoperative Morbidity

Intra operative morbidity	Visceral injury	Diaphragmatic Injury	CBD Injury	Bleeding	Total No. of Complications
Group A	0	0	0	3 (6%)	3
Group B	0	0	0	2 (4%)	2

Table 6: Postoperative Morbidity

Post operative morbidity	Fever	Jaundice	Port site infection	Port Site haematoma	Port Site Seroma	Ileus	Retained Stone in CBD	Total No. of Complications
Group A	3	1	3	1	1	3	2	14
Group B	1	0	1	3	3	1	1	10

There was no recurrence of pancreatitis in group A, however 16% cases of group B had recurrent pancreatitis and the results were statically significant which are tabulated as under.

Table 7: Pancreatitis

	Group A		Group B		
Pancreatitis	**No.**	**%age**	**No.**	**%age**	**p-value**
Yes	0	0	8	16	
No	50	100	42	84	
Total	50	100	50	100	0.03

There was no recurrence of cholecystitis in group A, however 16% cases of group B had recurrent cholecystitis and the results were statistically significant which are tabulated as under.

Table 8:Cholecystitis

	Group A		Group B		
Cholecystitis	**No.**	**%age**	**No.**	**%age**	**p-value**
Yes	0	0	8	16	
No	50	100	42	84	
Total	50	100	50	100	0.03

Hospital stay was calculated as total no of days spent in hospital and loss of work days was calculated from hospital stay and first follow up. The hospital stay and loss of work days was

significantly shorter in Group A cases in comparison with Group B cases. The results and statistics are tabulated below.

Discussion

Worldwide gallstones are the most common cause of acute pancreatitis accounting for approximately 45% of cases. The migration of biliary calculi or impaction of a stone at the ampulla of vater is the probable cause of gallstone pancreatitis.[24]The diagnosis of acute pancreatitis relies on combination of clinical evaluation and the use of supportive laboratory and radiological investigations.[11]

The main utility of sonography is in its ability to image the biliary system in the search for cholelithiasis/choledocholithiasis as the etiology in order to guide further management.[12] Compared with the currently used CT severity index, the modified CT severity index (Mortele, 2004) has a similar interobsever variability but correlates more

closely with patients outcome in all the parameters studied, especially with the length of hospital stay and development of organ failure.[13,14] Cholecystectomy is the established treatment for patients suffering from acute biliary pancreatitis, with the trend in recent years towards laparoscopic approach given its established safety and efficacy.[15-18] Definitive correction of cholelithiasis should usually be carried out as soon as evidence of acute pancreatitis has resolved.[14] In patients with mild to moderate gallstone pancreatitis, a policy of early cholecystectomy reduces hospital stay.[19]

It is proposed that delayed cholecystectomy may result in recurrence of gallstone pancreatitis which may increase the mortality, morbidity and length of hospital stay.[20] Delayed cholecystectomy is associated with recurrent biliary attacks in 25- 61%[21,22] and delaying cholecystectomy has no advantage regarding intraoperative complications[23] and may even increase overall morbidity, leading to prolonged hospital stay.[22] Recent literature recommends an early LC after an episode of mild to moderate biliary AP.A cholecystectomy during the same admission is favored.[23]

Conclusion

We conclude that, early laparoscopic cholecystectomy in the index admission in mild and moderate gallstone induced pancreatitis is a feasible and a safe modality for the treatment of acute mild and moderate gallstone pancreatitis and early cholecystectomy decreases the incidence of recurrent episodes of pancreatitis and cholecystitis in patients with gallstones. Early cholecystectomy does not increase the morbidity (intraoperative and post operative complication) or mortality in mild and moderate gall stone induced pancreatitis, it results in lesser hospital stay and time lost from work, however early definitive surgery should not be attempted in cases with severe gall stone pancreatitis as it results in significantly increased morbidity and mortality.

Reference

1. Adiamah A, Psaltis E, Crook M, et al. A systematic review of the epidemiology, pathophysiology and current management of hyperlipidaemic pancreatitis. ClinNutr 2018; 37(Part A): 1810–1822.
2. Spanier BW, Dijkgraaf MG and Bruno MJ. Epidemiology, aetiology and outcome of acute and chronic pancreatitis: an update. Best Pract Res ClinGastroenterol 2008; 22: 45–63.
3. Shir Li Jee, RazmanJarminB , Kin Foong Lim A, et al. Outcomes of early versus delayed cholecystectomy in patients with mild to moderate acute biliary pancreatitis: A randomized prospective study. Asian journal of surgery(2018) 41, 47-54.

4. Guo-Jun Wang, Chun-Fang Gao, Dong Wei, et al. Acute pancreatitis: Etiology and common pathogenesis. World J Gastroenterol 2009 March 28; 15(12): 1427-1430.
5. Tom K. Lin, Joseph J. Palermo, y Jaimie D. Nathan, et al. Timing of Cholecystectomy in Children With Biliary Pancreatitis. (JPGN 2016;62: 118–121) .
6. Kelly TR and Swaney PE. Gallstone pancreatitis: the second time around. Surgery 1982;92:571–575.
7. Toouli J, Brooke-Smith M, Bassi C, et al. Guidelines for the management of acute pancreatitis. J GastroenterolHepatol. 2002:17. Suppl:S15-39.
8. El-Dhuwaib Y, Deakin M, David GG, et al. Definitive management of gallstone pancreatitis in England. Ann R CollSurgEngl 2012; 94: 402–406.
9. Bakker OJ, van Santvoort HC, Hagenaars JC, et al. Dutch Pancreatitis Study Group. Timing of cholecystectomy after mild biliary pancreatitis. Br J Surg 2011; 98: 1446–1454.
10. N. Moody, A. Adiamah, F. Yanni and D. Gomez. Meta-analysis of randomized clinical trials of early versus delayed cholecystectomy for mild gallstone pancreatitis. BJS 2019; 106: 1442–1451
11. Symmers W.S.C. Acute alcoholic pancreatitis. Dublin J Med Sci 1917; 143: 244-247.
12. Morgan Rosenberg, Ariel Klevan and EranShlomovitz. Acute biliary pancreatitis. Pancreatic Treatment and Complication. Gastroenterology &Hepatology 2010; 7: 495-502.
13. Mortele KJ et al. A modified CT severity index for evaluating acute pancreatitis: improved correlation with patients outcome. AJR Am R Roentgenol 2004 Nov; 183(5): 1261-5.
14. John HC, Ranson MD. The timing of biliary surgery in acute pancreatitis. Ann Surg May 1979; 654-63
15. Shikata S, Noguchi Y, Fukui T. Early versus delayed cholecystectomy for acute cholecystitis: a meta-analysis of randomized controlled trials. Surg Today 2005; 35: 553-60.
16. Stevens KA, Chi A, Lucas LC, Porter JM, Williams MD. Immediate laparoscopic cholecystectomy for acute cholecystitis: no need to wait. Am J Surg 2006; 192: 756- 61.
17. Lau H, Lo CY, Patil NG, Yuen WK. Early versus delayedinterval laparoscopic cholecystectomy for acute cholecystitis: a meta-analysis. SurgEndosc 2006;20: 82-7.
18. Soffer D, Blackbourne LH, Schulman CI, et al. Is there an optimal time for laparoscopic cholecystectomy in acute cholecystitis? SurgEndosc 2007;21:805-9
19. Dube MG, Beckingham IJ, Fang CS, Rowlands BJ. Audit of management of acute pancreatitis based on national guidelines. Br J Surj 2000; 87(Suppl) 1): 62-63
20. Parans H, Mayo A, Paran D. Octreotide treatment in patients with severe acute pancreatitis. Dig Dis Sci.2000; 45: 2247- 2251.
21. Cameron DR, Goodman AJ. Delayed cholecystectomy for gallstone pancreatitis: re-admissions and outcomes. Ann R CollSurgEngl 2004; 86: 358-62.
22. Alimoglu O, Ozkan OV, Sahin M, Akcakaya A, Eryilmaz R, Bas G. Timing of cholecystectomy for acute biliary pancreatitis: outcomes of cholecystectomy on first admission and after recurrent biliary pancreatitis. World J Surg 2003; 27: 256-9
23. Schachter P, Peleg T, Cohen O. Interval laparoscopic cholecystectomy in the management of acute biliary pancreatitis. HPB Surg 2000; 11: 319-22.