EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 7
Issue: 7
45-49
Year: 2020

COMPARISON BETWEEN EARLY AND DELAYED CHOLECYSTECTOMY IN THE TREATMENT OF ACUTE CHOLECYSTITIS

[1]*Dr. Basim Abdulhussein Talib, [2]Dr. Qasim Mohammed Faraj and [3]Dr. Mohammed Hassen Ubaid

[1]M. B. Ch. B, Diploma DGS, College of Medicine - University of Anbar, Faculty of Medicine, University of KUFA.
[2]M B. Ch. B, Diploma, College of Medicine- University of Baghdad, Faculty of Medicine, University of KUFA.
[3]M. B. Ch. B, Diploma DGS, College of Medicine / Al-Mustansiriya University, Faculty of Medicine, University of KUFA.
Department of General Surgery- Al-shahid Al-Sadr General Hospital Baghdad / Iraq.

***Corresponding Author: Dr. Basim Abdulhussein Talib**
M. B. Ch. B, Diploma DGS, College of Medicine - University of Anbar, Faculty of Medicine, University of KUFA.

Article Received on 01/05/2020 **Article Revised on 22/05/2020** **Article Accepted on 11/06/2020**

ABSTRACT
In the whole world including Iraq, the incidence of acute cholecystitis is increasing day by day. Gall stones are the most common cause of acute cholecystitis in 90-95% of the cases. The management of acute cholecystitis was conservative earlier but now there are studies recommending early surgery as the treatment of choice. Our study was conducted on 50 patients divided into two groups (25 for each) aiming to compare the results of early surgery with the delayed surgery in acute cholecystitis. The overall post-operative complication rate was same in both groups but there was significant difference in the total hospital stay in both groups. The average total hospital stay in early group was 5.75±4.50 days and in delayed group was 9.50 ±5.40 days without including the number of days in non-operating admission. It can be concluded that early cholecystectomy was found to be more economical with less total hospital stay and less total cost of the therapy than interval cholecystectomy in acute cholecystitis.

KEYWORDS: Acute cholecystitis, Early cholecystectomy, Interval cholecystectomy.

INTRODUCTION
Cholecystectomy is the definitive treatment for patients with acute cholecystitis. Early cholecystectomy performed within 2 to 3 days of presentation is preferred over interval or delayed cholecystectomy that is performed 6 to 10 weeks after initial medical therapy. About 20% of patients fail initial medical therapy and require surgery during the initial admission or before the end of the planned cooling-off period.[1] Laparoscopic cholecystectomy is the gold standard for the treatment of gallstones. There are studies recommending early surgery as the treatment of choice and Ganey et al support this approach with their remarkably low mortality of 0.5%.[2]

However, Alinder et al made the comment that "most surgeons still look on an early cholecystectomy as hazardous operation and it is still mostly performed only if the patient's condition is deteriorating during the first 24 to 48 hours after admission".[3] The majority of surgeons still prefer to manage acute cholecystitis by conservative management with intravenous fluids and analgesia, usually in conjunction with antibiotics. Elective cholecystectomy is carried out after a period of 4 to 6 weeks when acute attack has settled down. Since most surgeons prefer to delay surgery during the acute phase, this study was conducted with an intention to study the results of early surgery compared with delayed surgery and find optimum treatment for acute cholecystitis.

METHODS
This prospective study was carried out at the department of surgery in Al-Shahid Al-Sadr general hospital-Baghdad/Iraq during the period from June 2017 to June 2019.

All patients presenting with features suggestive of acute cholecystitis and few waiting patients of proven gallbladder stones for whom an elective cholecystectomy was done were included in the study series.

The total number of patients admitted with the features of acute cholecystitis were 50, of whom, 25 cases of acute cholecystitis underwent early definitive cholecystectomy in the same admission. The remaining 25 cases were managed on a conservative regime and discharged thereafter to be readmitted for elective

cholecystectomy after 4-6 weeks. Total number of cases of acute cholecystitis were divided into two groups Group I and Group II by odd-even method of randomization alternatively as per their primary surgical outpatient department presentation sequence in which early laparoscopic cholecystectomy and delayed/interval laparoscopic cholecystectomy was done respectively.

Immediate cholecystectomy was performed on Group I patients, while interval cholecystectomy after initial conservative management was performed in Group II patients. In this study, Group II (delayed group) were investigated afresh for the subsequent operative intervention.

Patients were admitted to the study based on clinical, laboratory and radiological evidence of acute calculous cholecystitis. The diagnosis was based on the presence of two of the following four features: abdominal pain characteristic of acute cholecystitis, positive Murphy's sign, total leucocyte count >10000/ul, and ultra-sonographic evidence of acute calculous cholecystitis. Initial surgical management was planned for cholecystectomy whether in immediate or interval cholecystectomy.

Patients with ultra-sonographic findings of common bile duct calculi/pancreatitis/gall bladder perforation/gall bladder gangrene/gall bladder abscess. Patients with other associated abdominal pathology, patients with any previous abdominal surgery, septic shock, pregnancy/breast-feeding mothers, patients with any significant systemic disease were excluded.

All patients were subjected to detailed history including, chief complaints, history of present and past illness, personal history, family history, treatment and drug history. Then detailed physical examination like general survey, abdominal examination, other systemic examinations were carried out.

The selected patients underwent some baseline investigations like routine blood examination which included hemoglobin estimation, total leucocyte count, differential leucocyte count, ESR, RBS, urea and creatinine. Liver function tests including total serum bilirubin, liver enzymes, total protein, coagulation profile including prothrombin time were performed. Chest X-ray postero-anterior view and electrocardiogram were done as a part of preanesthetic workup of the patients. Straight X-ray of abdomen was also done to rule out other acute abdominal conditions.

In our study, the patient were subjected to ultra-sonography including liver, gallbladder, pancreas and common bile duct to confirm the diagnosis of acute cholecystitis. Ultrasonographic signs of acute cholecystitis included distension of gallbladder, pericholecystic fluid collection, oedematous gall bladder, sludge or stones in gallbladder, omental adhesion and ultrasonographic Murphy's sign.

First, the general condition of patients was made stable by fluid, electrolyte correction, IV antibiotics and other supportive measures like antiemetics. Then the patients were subjected to pre anaesthetic work up. The cases presented with features of acute cholecystitis were subjected to early cholecystectomy in the next available elective optional list.

In cases of early cholecystectomy all the patients were subjected to laparoscopic cholecystectomy but had to be converted to open cholecystectomy in two cases due to technical difficulties like gall bladder wall thickening, omentum adherence at the gall bladder, tight adhesion in the calot's triangle and empyema formation. In cases of early cholecystectomy with lap to open conversion cholecystectomy abdominal drainage kit (ADK) drain no. 28 was placed and in cases of laparoscopic cholecystectomy ADK drain no. 20 was placed. All operations were done within the same hospital admission in the early surgery group.

In the other group, elective cholecystectomy after 4-6 weeks of acute attack, managed conservatively in the first hospital admission. The bile collected from gallbladder was sent for culture sensitivity. The specimen of gallbladder was sent for histopathological examination.

Post-operative managements

All patients were managed post-operatively by antibiotics, intravenous fluid for 24-48 hours and analgesic. Post-operative complications, total duration of hospitalization needed and cost-effectiveness of individual procedures were taken into account.

Follow up

All patients were keenly followed up in surgical OPD. Though some patients had irregular follow up but majority were seen after 2 weeks, 6 weeks and 6 months.

Statistical analysis

Data were analyzed using SPSS-20 program, and the paired Student's t test and chi square tests were applied. The p value was determined finally to evaluate the levels of significance. The p value of >0.05 was considered non-significant.

RESULTS

The mean age in Group I was 45.12±15.25 and Group II was 47.31±12.95 which were statistically not significant ($p>0.05$) as shown in table (1). From the below observations, female predominance was present in both groups and the data were not statistically significant ($p>0.05$) as depicted in table (2).

Table (1): Age distribution of patients undergoing early and elective cholecystectomy.

Age group (years)	Group-I		Group-II	
	N	%	N	%
20-30	5	20.00	6	24.00
31-40	5	20.00	3	12.00
41-50	6	24.00	2	8.00
51-60	5	20.00	10	40.00
>60	4	16.00	4	16.00
Total	25	100.00	25	100.00
Mean age	45.12±15.25		47.31±12.95	
P value	0.429			

Table 2: Sex incidence in patients undergoing early and elective cholecystectomy.

Gender	Group-I		Group-II	
	N	%	N	%
Female	20	80.00	18	72.00
Male	5	20.00	7	28.00
Total	25	100.00	25	100.00
X^2=0.439; df: 1; p value=0.741.				

Laparoscopic cholecystectomy was done to all the 25 cases of Group I, but in 1 case it had to be converted to open cholecystectomy due to tight adhesion in the Calot's triangle and empyema formation in one case and gall bladder (GB) wall thickening, omentum adherence to GB.

In Group-II, laparoscopic cholecystectomy was done in all the 25 cases but in 3 cases it had to be converted to open cholecystectomy due to GB wall thickening, omentum adherence, mucocoele formation in two cases, empyema formation in one case as shown in table (3). The data mentioned in table (3) were statistically not significant (p>0.05).

Table 3: Details of different operative procedures.

Type of operation	Group-I		Group-II	
	N	%	N	%
Lap cholecystectomy	24	96.00	22	88.00
Lap to open conversion	1	4.00	3	12.00
Total	25	100	25	100
X2=1.078; df: 1; p value=0.609				

In early surgery group, we had 2 patients with wound infection, 4 patients had mild to moderate biliary drainage via the peritoneal drain.

In delayed surgery group, we had 3 patients with wound infection, 6 patients had mild to moderate biliary drainage via the peritoneal drain, mild biliary drainage being <200 ml and moderate bile drainage >200 ml. All these patients with mild to moderate biliary drainage were subjected to MRCP where no leak from the cystic duct and the duct of Luschka was seen. Therefore, these patients were managed conservatively. The data as mentioned in table (4) were statistically not significant (p>0.05).

Table 4: Post-operative complications in both groups.

Complications	Group- I	Group- II	P value
Wound infection	2	3	0.171
Biliary leaks	4	6	0.147
Stricture	0	0	Nil
Re-op due to haemorrhage /bile leakage	0	0	Nil
Injury of CBD	0	0	Nil
Injury of the duodenum	0	0	Nil
Pulmonary oedema	0	0	Nil
Pulmonary embolus	0	0	Nil
Lung complication	0	0	Nil

Table 5: Mean hospital stays in different groups (in days).

Hospital stay	Group-I		Group-II	
	N	%	N	%
1-5	20	80.00	6	24.00
6-10	2	8.00	8	32.00
11-15	2	8.00	6	24.00
16-20	1	4.00	5	20.00
Total	25	100.00	25	100.00
Mean	5.75±4.50		9.50±5.40	
P value	0.010			

In ES group, the average total hospital stay in our series was 5.75±4.50 days and 9.50 ±5.40 days in groups I and II respectively without including the number of days in non-operating admission. The data as mentioned in table (5) was statistically significant (p<0.05).

DISCUSSION

Sokhi et al conducted a study and found the complication rate in early and delayed group was 30% and 27% respectively.[4] Jarvinen et al found the complication rate in early and delayed group was 13.8% and 17.3% respectively[5] Bhaumik et al found the complication rate in early and delayed group was 39% and 33.3% respectively.[6]

In a study by Norrby et al, they found the complication rate in early and delayed group was 14.9% and 15.2% respectively.[7] In our study, we found that the complication rate in early and delayed group was 24.0% and 36% respectively. The overall post-operative complication rate was almost equal in both the groups in our study with the p value of >0.05 which is statistically not significant. The previous data supports the data of our study.

Norrby et al demonstrated that the average time spent in hospital during non- operative stay was 7.2 days.[7] In their studies, the mean post-operative stay was exactly the same (6.6 days) but the difference was found in the total hospital stay, being 6.4 days shorter in the ES group.

They had total hospital stay in ES group of 9.1 days and that of DS group was 15.5 days. In another study by Addison et al, who found that the number of days between operation and discharge to be approximately the same (elective 12.8, early 13.6).[8] This agrees with the study of others who claim that there is no increase in the number of days from operation to discharge in the early group compared to the delayed group and the former therefore, it is more cost-effective. In comparison to above studies, our study showed that the total hospital stay in early group was 5.75±4.50 days and in the elective group was 9.50±5.40 days, which is statistically significant with p value of <0.05.

The longer stay of elective group in our study might be attributed to the intraoperative difficult fibrotic adhesions at the Calot's triangle leading to high incidence of biliary leak in this group as more time was required to manage this. In our study, there were 6 biliary leaks in Group II and 4 in Group I which was statistically non-significant (p>0.05). Patients treated with early surgery had also the advantage of not paying the double bed charges and medicinal cost like antibiotic as in case of delayed group due to previous hospital admission. Therefore, the former group in our study was more cost effective as the total cost of therapy was reduced due to less total hospital stay. The previous data support our present study.

According to Arther et al, there was no mortality in either group.[9] This compares favorably with the mortality of 19% reported by Houghton et al.[10] Wright et al showed mortality rate in only 4% of the cases.[11] They concluded that in acute cholecystitis, urgent or early cholecystectomy is a very safe procedure in patients under 70 years of age. Even for patients over 70 years, traditional conservative management may prove fatal and despite cardiorespiratory disease, obesity and other associated diseases of the aged, early cholecystectomy is recommended despite high mortality. In our present study of early and elective cholecystectomy, there was no mortality cases.

REFERENCES

1. Ahndt S, Pitt H. Sabiston - Textbook of Surgery. 17 editions. Volume 52. Elsevier Saunders, 2004; 1611-1612.
2. Ganey JB, Johnson PA, Prillaman PE, McSwain GR. Cholecystectomy: clinical experience with a large series. Am J Surg, 1986; 151(3): 352-7.
3. Alinder G, Nilsson U, Lunderquist A, Herlin P, Holmin T. Pre-operative infusion cholangiography compared to routine operative cholangiography at elective cholecystectomy. Bri J Surg, 1986; 73(5): 383-7.
4. Sokhi GS, Longland CJ. Early and delayed operation in acute gall-stone disease. Br J Surg, 1973; 60(12): 937-9.
5. Jarvinen HJ, Hastbacka J. Early cholecystectomy for acute cholecystitis: a prospective randomized study. Ann Surg, 1980; 191(4): 501-5.
6. Bhaumik N, Pal R, Konar SR. A case of concomitant perforated acute cholecystitis and pancreatitis. Indian J Surg. 1982; 44: 75.
7. Norrby S, Herlin P, Holmin T, Sjodahl R, Tagesson C. Early or delayed cholecystectomy in acute cholecystitis? A clinical trial. Br J Surg, 1983; 70(3):

163-5.
8. Addison NV, Finan PJ. Urgent and early cholecystectomy for acute gallbladder disease. Br J Surg, 1988; 75(2): 141–3.
9. Arthur MP, Cuschieri A, Sells RA, Shields R. Controlled clinical trial comparing early wif interval cholecystectomy for acute cholecystitis. Br J Surg, 1975; 62(10): 850-2.
10. Houghton PW, Jenkinson LR, Donaldson LA. Cholecystectomy in the elderly: a prospective study. Br J Surg, 1985; 72(3): 220-2.
11. Wright HK, Holden WD. The risks of emergency surgery for acute cholecystitis. Arch Surg, 1960; 81(3): 341-7.