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Acute cholecystectomy Vs Interval Cholecystectomy

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DEDICATION

I dedicate this humble work to my father , who always urge me to study

And to my mother who gave me affection and love

And to my brother and my sisters who are always proud of me .

ABSTRACT

Background: In the whole world including India, 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.

Methods: Our study was conducted on 60 patients divided into two groups of 30 each to compare the results of early surgery with the delayed surgery.

Results: The overall post-operative complication rate was same in both the groups but there was significant difference in the total hospital stay and total cost of the therapy in both the groups. The average total hospital stay in early group was 6.50±4.44 days and in delayed group was 10.80±5.55 days without including the number of days in non-operating admission.

Conclusions: So, 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

The prevalence of gallstones is reported to range between 10% and 15% among adults, making it one of the most common gastroenterological conditions. In Western societies, cholesterol gallstones account for 80%- 90% of the stones analyzed after cholecystectomy. Approximately 80% of gallstones remain asymptomatic.[1] Gallstones can obstruct the cystic duct, which can cause gallbladder (GB) distension and biliary colic. Prolonged obstruction results in inflammation, infection, and even ischemia, a common condition known as acute cholecystitis (AC). Approximately 1%- 2% of individuals with gallstones become symptomatic each year. Of those with symptomatic gallstones, 10% will develop AC.[2] In people under 50 years of age, women are three times more likely than men to develop AC. Repeated episodes of AC can result in chronic cholecystitis, a condition characterized by thickened GB wall, GB mucosal atrophy, and scarring.

Laparoscopic cholecystectomy (LC) is the standard treatment for AC. LC has replaced open cholecystectomy (OC) as the first- line treatment for AC, as it confers comparable effectiveness, lower morbidity, and lower costs. An analysis of the National Hospital Discharge Survey (NHDS) from 2000 to 2005 revealed that compared to OC, LC resulted in an increased likelihood of same-day discharge from the hospital (91% vs 70%), reduced morbidity (16% vs 36%), and lower unadjusted mortality (0.4% vs 3%).[3] Furthermore, the conversion rate from LC to OC was 9.5%. Interestingly.

Not all results are consistent with this data. A 2- year prospective multicenter survey of over 1000 patients in Belgium, including all centers, revealed that LC and OC approaches were employed in 93.2% and 6.8% of patients, respectively. Independent predictive factors of an initial OC approach included history of upper abdominal surgery, age over 70 years, surgeons with more than 10 years of experience, and gangrenous cholecystitis. The conversion rate from LC to OC was 11.4%. Bile duct injuries, a devastating complication, occurred in 2.7% of the OC group and 1.1% of the LC group. However, in those patients whose operation was started laparoscopically but who were converted to open, 13.7% suffered some form of biliary complication. These results suggest that operation for AC can still be associated with a significant complication rate and that we need to continue to evaluate our approach to the difficult cholecystectomy. [4]

Aim of this study is to compare the outcome in early vs. delayed laparoscopic cholecystectomy and to demonstrate the complications of both them and to determine the rate and reasons of conversion from laparoscopic cholecystectomy to open cholecystectomy.

Material and method :

This study was a prospective study and was carried out between September 2020 and may 2021 after collecting data from another article talking about the difference between acute cholecystectomy vs interval cholecystectomy , the study carried out in department of surgery SGRD Institute of medical sciences and Research to differentiate between acute and interval cholecystectomy.

All patients presenting with features suggestive of acute cholecystitis in surgical OPD and emergency of SGRD Institute of Medical Sciences and Research, SRI Amritsar and also 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 60. Thirty cases of acute cholecystitis underwent early definitive cholecystectomy in the same admission. The remaining 30 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 OPD presentation sequence in which early laparoscopic cholecystectomy and delayed/interval laparoscopic cholecystectomy was done respectively. Immediate cholecystectomy was performed in 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.

RESULTS

The mean age in Group I is 43.36±14.73 and Group II is 48.23±14.48 and the data is statistically not significant ($p>0.05$) as depicted in Table 1. From the below observations female predominance is present in both the groups and the data is not statistically significant ($p>0.05$) as depicted in (Table 2).

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

Age group	Group-I		Group-II	
	N	%	N	%
20-30	6	20	7	23.33
31-40	6	20	4	13.33
41-50	7	23.33	3	10
51-60	6	20	11	36.67
>60	5	16.67	5	16.67
Total	30	100	30	100
Mean age	43.36±14.73		84.23±14.48	
P value	0.623			

Table 2: Sex incidence in patients undergoing early

and elective cholecystectomy**.**

Gender	Group I		Group I	
	N	%	N	%
Female	24	80	23	76.67
Male	6	20	7	23.33
Total	30	100	30	100

X2=0.098; df: 1; p-value=0.754.

Laparoscopic cholecystectomy was done in all the 30 cases of Group I but in 02 cases 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 and empyema formation in the other. In Group-II, laparoscopic cholecystectomy was done in all the 30 cases but in 05 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, Intrahepatic gall bladder in one case and cholecysto duodenal fistula in one case for which open cholecystectomy along with Graham's patch repair was done. (as depicted in Table 3). The data mentioned in Table 3 is statistically not significant (p>0.05)

Table 3: Details of different operative procedures.

Type of operation

Type of operation	Group l N	%	Group II N	%
Lap cholecystectomy	28	93.3	25	83.3
Lap to open conversion	2	6.66	5	16.6
Total	30	100	30	100

X2=1.460; df: 1; p-value=0.228.

In early surgery group, we had 02 patients with wound infection. 5 patients had mild to moderate biliary drainage via the peritoneal drain. In delayed surgery group, we had 04 patients with wound infection. 08 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) is statistically not significant (p>0.05).

Table 4: Post-operative complications in both groups.

Complications

Complication	Group I	Group II	P value
Wound infection	2	4	0.741
Billary leaks	5	8	0.884
RE-OP due to haemorrahage/bile leakage	0	0	Nil

Injury of 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	21	70	7	
6-11	3	10	10	
11-5	4	13.33	7	
16-20	2	6,66	6	
Total	3	100	30	
Mean	6.50±4.45		10,80±5.55	
P value	0.0016			

DISCUSSION:

Sokhi et al conducted a study where they found the complication rate in early and delayed group as 30% and 27% respectively5. Jarvinen et al found the complication rate in early and delayed group as 13.8% and 17.3% respectively [6]. Bhaumik et al found the complication rate in early and delayed group as 39% and 33.3% respectively [7]. In a study of Norrby et al found the complication rate in early and delayed group as 14.9% and 15.2% respectively [8]. In this study we found the complication rate in early and delayed group as 23.3% and 40% respectively. The overall post-operative complication rate is 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 this study. Norrby et al demonstrated that the average time spent in hospital during non- operative stay was 7.2 days [8] .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, found that the number of days between operation and discharge to be approximately the same (elective 12.8, early 13.6) [9]. This agrees with the work of other who claim that there is no increase in the number of days from operation to discharge in the early group compared with the delayed group and the former therefore is more cost- effective. In comparison to above studies, this study showed that the total hospital stay in early group was 6.50±4.44 days and in elective group was 10.80±5.55 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 this study, there were 8 biliary leaks in Group II and 5 in Group I which was statistically non significant (p>0.05). The patient treated by 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. The cost of therapy in early group is 23835.00±4767.51 and in delayed group is 29764.00±5474.60 which was statistically significant (p<0.05). Therefore, the former group in this study was more cost effective as the total cost of therapy was reduced due to less total hospital stay. The previous data supports our present study. According to Arther et al, there was no mortality in either group [10]. This compares favourably with the mortality of 19 percent reported by Houghton et al.[11] Wright et al showed mortality rate in only 4 % of the cases.[12] 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 is recommended despite high mortality. In this present study of early and elective cholecystectomy, there was no mortality.

CONCLUSION

The definitive treatment of acute cholecystitis is cholecystectomy. According to some, patients should be treated non-operatively, allowing resolution of the acute inflammation followed by elective cholecystectomy approximately within 4-6 weeks later. Others claimed that operation should be done as soon as diagnosis is made. So far as the cost of total treatment and hospital stay is concerned, the patients treated by early surgery had less total hospital stay and less total cost of treatment as compared to the delayed group. They also had the benefit of not paying double bed charges or medicinal costs like antibiotics. Moreover, there was less wastage of working days in comparison to delayed surgery, as many patients could not be admitted in due time for planned surgery and they had to come to out patients department many times before admission. So early surgery is found to be more economical than delayed surgery in acute cholecystitis if the diagnosis could be confirmed in proper time.

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