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Original Research Article

Evaluation of Early Versus Delayed Cholecystectomy among Patients of Acute Cholecystitis at Tertiary Care Center

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Abstract:

Background: Acute cholecystitis is very common morbidity or condition, which characterized by acute inflammation of gallbladder and commonly associated with abdominal pain, tenderness, vomiting and fever. The management of acute cholecystitis has become advanced in the last few decades due to elaborative research studies.

Material & Methods: The patients with clinical diagnosis of acute cholecystitis were enrolled by simple random sampling in the present study. Institutional Ethics Committee Clearance was obtained before start of study and written and informed consent for the procedure was obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point of time.

Results: In the present study, among early cholecystectomy group out of 50 study participants 40 were operated by laparoscopic cholecystectomy and 06 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 04 patients. Among delayed cholecystectomy group out of 50 study participants 46 were operated by laparoscopic cholecystectomy and 04 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 02 patients. This difference between these two groups was statistically non-significant (P value > 0.05).

Conclusion: We concluded from the present study that early cholecystectomy is safe and feasible for acute cholecystitis and has short duration of hospital stay, which is a major economic benefit to the patients. Early cholecystectomy has also advantage in terms of quick treatment of the disease on and avoids the consequences of failed conservative management and recurrent symptoms.

Keywords: Laparoscopic cholecystectomy, early cholecystectomy, delayed cholecystectomy.

Introduction

The estimated prevalence of cholelithiasis is approximately around 15% in our country, and conversion rate from asymptomatic patients to symptomatic patients is approximately around 1-2% who required cholecystectomy as

intervention every year [1]. The incidence of gallstones is rare in the early two decades of the life but it's gradually rises after second decade of the life and reaches its peak frequency after 50 years of life [2]. The prevalence is four times more among females than males. Cholelithiasis is among the commonest biliary pathology which required surgical intervention. A conference conducted by national institute of health in the year 1992 had been focused on safe and effective treatment measures for the symptomatic patients of cholelithiasis [3].

Acute cholecystitis is very common morbidity or condition, which characterized by acute inflammation of gallbladder and commonly associated with abdominal pain, tenderness, vomiting and fever. The management of acute cholecystitis has become advanced in the last few decades due to elaborative research studies. In our country since the radiological investigation are readily available among higher treatment centers or even referral centers, hence laparoscopic cholecystectomy, is performed commonly and providing a big coverage area across the country [4]. In laparoscopic cholecystectomy there is better recovery of bowel functions, comparatively less postoperative pain, shorter duration of hospital stay, earlier return to normal life, informed cosmesis and decreased the overall economic burden [5]. Nowadays laparoscopic cholecystectomy is widely and commonly performed and as well as the gold standard operative procedure for symptomatic cholelithiasis [6].

The broad strategies for operating symptomatic cases are mainly- early cholecystectomy and delayed or elective cholecystectomy. Early cholecystectomy, is generally defined as cholecystectomy performed on the initial admission within first 7 days from the onset of symptoms. Other current literature also suggests that early laparoscopic cholecystectomy should be performed within first 72 hours from the onset of symptoms [7]. In delayed or elective cholecystectomy procedure, acute inflammation is first allowed to settle down for around 6-8 weeks before doing the surgical procedure [8]. Hence the present study was conducted to assess and evaluate the outcomes of early (within 7 days of onset of symptoms) and delayed (6-8 weeks after onset of symptoms) cholecystectomy at our tertiary care center.

Materials & Methods

The present was prospective and cross-sectional study and conducted at department of general surgery of our tertiary care center. Study duration was of one year, from February 2021 to January 2022. Sample size was calculated from the epi info software version 7.2 at acceptable margin of error of 10% and confidence interval of 95% with the 90% power of the study. The calculated sample size was 100 which also include loss to follow up cases.

The patients with clinical diagnosis of acute cholecystitis were enrolled by simple random sampling in the present study. Institutional Ethics Committee Clearance was obtained before start of study and written and informed consent for the procedure was obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point of time. All the patients were subjected to a pretested proforma and socio-demographic data were recorded along with detailed general physical and clinical examination. Patients who had choledocholithiasis, Patients who had surgical jaundice or any contraindication for general anesthesia were excluded from the present study.

The study participants were evaluated by investigations before the cholecystectomy and CBC, LFT, KFT, blood sugar, serum electrolytes, coagulation profile, ECG, chest x-ray and USG abdomen were carried out. History of biliary colic, lump in right hypochondrium, gallbladder wall

thickness (≥3mm versus ≤3mm), size (<2 cm versus >2 cm) and numbers of stones with their location were recorded. Intra-operative recording of the difficulty was done in each case. Patients were randomly divided into two groups. 50 patients were selected for early cholecystectomy (within 7 days of onset of symptoms) and 50 patients for delayed cholecystectomy (after a gap of 6-8 weeks from onset of symptoms). Preference of the patient regarding the option of early and delayed surgery and open or laparoscopic surgery were also taken into consideration. All acute cases received initial treatment which consists of bed rest, IV fluids/ electrolytes, IV antibiotics/ antispasmodics/ analgesics.). All the data was recorded on Microsoft excel spread sheet and data analysis was done at 10% alpha and 90% confidence interval using SPSS v22 software. Test of significance were applied on collected and organized data and p value less than 0.05 was considered as statistically significant association between study variables.

Results

In the present study, a total of 100 patients with clinical diagnosis of acute cholecystitis were enrolled by simple random sampling in the present study after taking informed consent. The numbers of male and female patients in our study group were 40 % and 60% respectively. The age distribution in the present was from the youngest to the oldest subject was 21 and 58 years respectively. The most common age group in the present study was 30-40 years and the mean age of study participants was 35 ± 4.6 years. The preoperative factors were recorded and evaluated in present study. There was no significant association was reported among the age, sex and history of previous surgery with the intra-operative difficulty during laparoscopic cholecystectomy in the present study. (Table 1)

Table 1: Distribution of study participants according to preoperative parameters.

Preoperative parameters	Number of patients
Mean age	35 ± 4.6 years
Females	60%
BMI (>30 kg/m2)	36%
H/O previous abdominal surgery	08%
H/O previous attack of acute cholecystitis	12%
Single attack	84%
Multiple attack	16%
H/O biliary colic (> 10 attacks)	6%
Impacted stone at neck of gall bladder	10%
Multiple calculi on USG	86%

In the present study, among early cholecystectomy group out of 50 study participants 40 were operated by laparoscopic cholecystectomy and 06 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 04 patients. Among delayed cholecystectomy group out of 50 study participants 46 were operated by laparoscopic cholecystectomy and 04 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 02 patients. This difference between these two groups was statistically non-significant (P value > 0.05).

Table 2: Distribution of study participants according to treatment modalities undertaken.

Treatment modality	Early cholecystectomy	Delayed cholecystectomy
Open cholecystectomy	**06**	**04**
Laparoscopic cholecystectomy	**40**	**46**
Laparoscopic converted to open cholecystectomy	**04**	**02**

In the present study, among early cholecystectomy group out of 50 study participants, wound infection was reported in 2 patients, biliary injury was reported in one patient, upper respiratory tract infection was reported in one patient and fever was reported in one patient. Among delayed cholecystectomy group out of 50 study participants, wound infection was reported in one patients, biliary injury was reported in one patient, upper respiratory tract infection was reported among two patients and fever was reported among two patients. This difference between these two groups was statistically non-significant (P value > 0.05).

Table 3: Distribution of study participants according to Complications noted in the study groups.

Complications	Early cholecystectomy	Late cholecystectomy	P value
Wound infection	2	1	>0.05
Biliary injury	1	1	>0.05
Upper respiratory tract infection	1	2	>0.05
Fever	1	2	>0.05

Discussion

Various differentiating criteria had been reported in previous researches which can predicts the factors responsible for difficult laparoscopic cholecystectomy like male sex, old age patients, high BMI, recurrent episodes of acute cholecystitis, contracted gall bladder and >3mm thick walled gall bladder [9]. Therefore, it is mandatory to evaluate the factors that predict the difficult laparoscopic cholecystectomy. Hence the present study was conducted to assess and evaluate the outcomes of early (within 7 days of onset of symptoms) and delayed (6-8 weeks after onset of symptoms) cholecystectomy at our tertiary care center. In the present study, a total of 100 patients with clinical diagnosis of acute cholecystitis were enrolled by simple random sampling in the present study after taking informed consent. The response rate was 100% and there was no drop out in the present study.

In the present study, a total of 100 patients with clinical diagnosis of acute cholecystitis were enrolled by simple random sampling in the present study after taking informed consent. The numbers of male and female patients in our study group were 40% and 60% respectively. The age distribution in the present was from the youngest to the oldest subject was 21 and 58 years respectively. The most common age group in the present study was 30-40 years and the mean age of study participants was 35 ± 4.6 years. The preoperative factors were recorded and evaluated in present study. There was no significant association was reported among the age, sex and history of previous surgery with the intra-operative difficulty during laparoscopic cholecystectomy in

the present study. Similar results reported in a study conducted by Gupta et al found that no statistically significant associatin between age and sex of the patient with the intra-operative difficulty during laparoscopic cholecystectomy [10]. Similar results were also reported in a study conducted by Kanaan et al found that no statistically significant associatin between history of previous surgery with the intra-operative difficulty during laparoscopic cholecystectomy [11].

In the present study, among early cholecystectomy group out of 50 study participants 40 were operated by laparoscopic cholecystectomy and 06 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 04 patients. Among delayed cholecystectomy group out of 50 study participants 46 were operated by laparoscopic cholecystectomy and 04 were operated by open cholecystectomy and the Laparoscopic converted to open cholecystectomy among 02 patients. This difference between these two groups was statistically non-significant (P value > 0.05). Similar results were also reported in a study conducted by Ahmed et al found that statistically non-significant (P value > 0.05) association between early cholecystectomy group and delayed cholecystectomy group. In the early cholecystectomy group 8.33% required conversion to open surgery. In the delayed cholecystectomy group 3.63% required conversion. This conversion rate is comparable with other published data [12].

In the present study, among early cholecystectomy group out of 50 study participants, wound infection was reported in 2 patients, biliary injury was reported in one patient, upper respiratory tract infection was reported in one patient and fever was reported in one patient. Among delayed cholecystectomy group out of 50 study participants, wound infection was reported in one patients, biliary injury was reported in one patient, upper respiratory tract infection was reported among two patients and fever was reported among two patients. This difference between these two groups was statistically non-significant (P value > 0.05). Similar results were also reported in a study conducted by R P Yadav et al found that statistically non-significant (P value > 0.05) association between early cholecystectomy group and delayed cholecystectomy group. In the early cholecystectomy group 8.33% required conversion to open surgery10 (40%) and in the delayed cholecystectomy group 5 (20 %) cases had intraoperative complications (P=0.122) [13,14].

Conclusion

We concluded from the present study that early cholecystectomy is safe and feasible for acute cholecystitis and has short duration of hospital stay, which is a major economic benefit to the patients. Early cholecystectomy has also advantage in terms of quick treatment of the disease on and avoids the consequences of failed conservative management and recurrent symptoms. However, early cholecystectomy should be considered as a planned operative procedure followed by adequate resuscitation and complete assessment of co-morbid conditions.

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