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INTRODUCTION

Gallstones are the most common biliary pathology. In United Kingdom the prevalence of gallstones is estimated to be 17%.¹ In the western world, it affects 10% of people and 80% of those people who are without symptoms.² There is increased prevalence of gallstones in female population and the frequency increases with each decade of age in both sexes however they are rare in children^{3,4} Advanced age is directly related to the occurrence of cholelithiasis and the occurrence of problems based on simple illness in the elderly people is increased.⁵ The goal of treatment for the elderly is to provide

ROLE OF LAPAROSCOPIC CHOLECYSTECTOMY IN GERIATRIC PATIENTS (>60 YEARS OF AGE).

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ABSTRACT... Objectives: In elderly patients, recent research has also questioned the effectiveness of this surgery. The objective of our study is to evaluate the safety and applicability of laparoscopic cholecystectomy in geriatric patients (over 60 year of age) for the symptomatic cholelithiasis. **Study Design:** Prospective and observational study. **Setting:** Different surgical wards at LUHMS Jamshoro / Hyderabad who undergone for laparoscopic cholecystectomy. **Period:** One year from 01-03-2017 to 28-02-2018. **Material & Methods:** 100 patients of 60 years of age and above having gall stone disease. All elderly patients of cholelithiasis (over 60 years) presenting with symptoms of gallstone disease will be included in this study irrespective of their sex. **Results:** A total of 100 patients were included in this study. The minimum and maximum age range was 65 to 83 years. The mean age + SD, was 69.72 + 10.31 years. Most of the patients i.e. 60 (60%) were seen in the age group 60 to 65 years, 45(5.0%) patients were observed in the age group > 65 years. 52.0% (n=52) patients had co-morbidities followed by hypertension in 20 (20.0%), Diabetes Mellitus 15 (15.0%), COPD 7 (7.0%), Coronary artery disease 9 (9.0%) and cardiac arrhythmias 1 (1.0%) patient only. Most of the patients had duration of operation 90 to 120 minutes. The mean + SD operative time was 90.12 + 35.5 (60 to 250 minutes). Total operative complications were seen in 15(15.0%) patients who had injury of CBD in 3 patients and 4 patients had bleeding, failed to clip cystic duct 2 cases and 3 patients died. Nineteen (19.0%) elderly patients had postoperative complications and they were not undergone for laparoscopic surgery due to low intensity and occurrence. Overall mortality was seen 1(1.0%) because of acute myocardial infarction and it was occurred on the second day of the operation. **Conclusion:** Laparoscopic cholecystectomy is as safe and effective in old patients as compared to young patients with less complications, morbidity and mortality are very low and lesser than open cholecystectomy. The pain free post-operative period and early ambulation lead to saving of valuable working hours.

Key words: Acute cholecystitis, Elderly Age, Gall Stones, Laparoscopic Cholecystectomy

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them with the lowest physiological cost. As a gold standard treatment for gallstone disease, laparoscopic cholecystectomy has developed.^{6,7} However, safety and validity in elderly patients are not yet well characterized^{8,9} but the successful laparoscopic cholecystectomy is associated with a significantly better outcome and a shorter hospital stay. Open cholecystectomy is major stress for elderly patients and is responsible for increased morbidity therefore should best be avoided. Several retrospective studies^{2,3,6,8} have revealed that laparoscopic cholecystectomy for old patients is good treatment as compared to those who are young patients and old patients

are mostly converted to open surgery laparotomy, somewhat longer post-operative stay and more problems.⁹⁻¹⁰ Unfortunately, issues that affect the consequence of laparoscopic cholecystectomy in elderly are not clear. The complicated acute and chronic gallstones such as cholecystitis, acute gallstone pancreatitis, gallbladder empyema, and acute cholangitis are mostly occur in elderly patients.¹¹⁻¹² Additionally patients with old age have existent illnesses like cardio vascular problem like high blood pressure, ischemic heart disease, diabetes mellitus, chronic respiratory problems making surgery difficult and risky in term of operative problems e.g.¹³ Anaesthesia and operative and post-operative complications there by overall increased morbidity, These patients will be operated with special care of anaesthesia at low pressure peritoneum.

MATERIAL AND METHODS

This prospective and observational study was conducted on 100 patients of 60 years age and above for the period of one year having gall stone disease from different surgical wards at LUHMS Jamshoro/Hyderabad who undergone for laparoscopic cholecystectomy. The secondary records available in the hospital wards indicate that on average 10-15 patients are operated in every month at LUHMS. This study envisage to take 100 sample of elderly patients of cholelithiasis who will be submitted for lap cholecystectomy and feasibility of procedure will be assessed. A detailed history, thorough clinical examination, investigations, will be carried out. Operative time, operative difficulties and outcome of surgery will be analyzed on predesigned Profarma. These patients will be operated with special care of anaesthesia and low pressure pneumpoperitonium.

All elderly patients of cholelithiasis (over 60 years) presenting with symptoms of gallstone disease are included in this study irrespective of their sex. They will be counseled and voluntary informed and written consent taken for study.

The patients were explained about their co morbid conditions, and their consequences encountered during procedure.

Following cases were excluded from study

- Patients with acute pancreatitis
- Patient with CBD stones.
- Patients with carcinoma of gallbladder.
- Patients with severely compromised cardio respiratory status.

Data of patients was collected on specially designed performa of the patients regarding their age, sex, presentation, investigation and co morbid condition, operative and post-operative complication and hospital stay. The result were analyzed for evaluation of study.

DATA ANALYSIS

SPSS version 20 was used to analyze the data. Frequency and percentages were calculated for categorical variables and numerical variables were presented as Mean + SD with minimum and maximum values (Range).

RESULTS

Total 100 patients of laparoscopic cholecystectomy were selected. The average age was 70.63 years and standard deviation was 10.31 years, (Range 65 to 83 years). In this study, most of the patients i.e. 60 (60%) were seen in the age group 60 to 65 years, 45 (5.0%) patients were observed in the age group > 60 years. There were 35 (35.0%) males and 65 (65.0%) females in the study population.

Table-I shows that 52.0% (n=52) patients had co-morbidities followed by hypertension in 20 (20.0%), Diabetes Mellitus 15 (15.0%), COPD 7 (7.0%), Coronary artery disease 9 (9.0%) and cardiac arrhythmias 1 (1.0%) patient only. Maximum patients had operative time was 90 to 120 minutes. The mean + SD operative time was 90.12 + 35.5 (60 to 250 minutes). Table-II Total operative complications were seen in 15 (15.0%) patients who had CBD injury in 3 patients and bleeding in 4 patients, failed to clip the cystic duct 2 cases and 3 patients died. Nineteen (19.0%) elderly patients had postoperative complications and they were not undergone for laparoscopic surgery due to low intensity and occurrence. Table-II.

Of the total patients, 7 (7.0%) patients were

converted to open cholecystectomy because of bleeding in 4 patients and CBD in 3 cases. Patients were admitted from 2 to 5 days. Mean + SD of hospital stay was 26.29 ± 6.13 hours (24 to 120 hours). One patient (1.0%) expired who was suffered from myocardial infarction on the next postoperative day. Table-III

Baseline Characteristics	No. of Patients	Percentage
Mean age \pm SD (Range)	70.63 \pm 10.31 (65 – 80 years)	- -
Age in groups:		
60 – 65	60	60.0%
66 – 70	25	25.0%
71 – 75	10	10.0%
76 – 80	05	05.0%
Gender	35	35.0%
Male	65	65.0%
Female		
Co-morbidity		
Hypertension	20	20.0%
Diabetes Mellitus	15	15.0%
COPD	07	07.0%
CAD	09	09.0%
Cardiac Arrhythmias	01	01.0%
Total Operative Time		
60 – 90 minutes	40	40.0%
91 to 120 minutes	55	55.0%
> 120 minutes	05	5.0%

**Table-I. Baseline characteristics of the patients
(n = 100)**

Complications	No. of Patients	Per-centage
Peri-operative Complications		
Cardiovascular events (arrhythmias)	01	1.0%
Rupture of gallbladder	01	1.0%
Failure in pneumoperitoneum	01	1.0%
CBD Injury	03	3.0%
Bleeding	04	4.0%
Failed to clip the cystic duct	02	2.0%
Death	03	3.0%
Post-operative Complications		
Gall bladder perforation	05	5.0%
Chest infection/Pneumonia	04	4.0%
Port sepsis	02	2.0%
Spilled stones	02	2.0%
Intraperitoneal collection	01	1.0%
Wound infection	03	3.0%
Bile leak	01	1.0%
Bleeding	01	1.0%

Table-II. Distribution of patients according to complications (n = 100)

Hospital Stay (in Days)	No. of Patients	Percentage
24 hours (one day)	15	15.0%
1 – 2 days	25	25.0%
3 – 5 days	60	60.0%

**Table-III. Pre-Operative hospital stay (In days)
(n = 100) Mortality = 1%**

DISCUSSION

LPC is considered as gold standard for the management of old aged patients with cholelithiasis.¹⁴ It is an procedure that in recent years has been prevalent in Brazil and around the globe.

Initially in the State of Espirito Santo in 1993, the percentage of treatments during the period studied enabled the assessment of surgical results. Patients ' age is a troubling major factor for surgeons. This parameter alone cannot prevent laparoscopy.¹⁵ Age based comorbidities are the main elements.

The increasing age of the population has lead to an increasing risk of gallstones and their incidence in the elderly population ranging from 14% to 27% according to various population-based studies.¹⁶

The proportion of elderly patients with acute cholecystitis rises as the prevalence of gallstones increases with age. Acute cholecystitis in elderly people is well known as a high risk condition for mortality risk.¹⁷ This poor result was due to the presence of severe co- morbid factors associated with the process of aging. The observation that in elderly patients (aged >55 years) laparoscopic cholecystectomy for acute cholecystitis was associated with increased conversion rates, wound infection and prolonged hospital stay has been reported for elective cholecystectomy in the past¹⁸ and also has been noticed in study for acute cholecystitis by Wilson RG et al.¹⁹ In the present study laparoscopic cholecystectomy was performed in 60% elderly patients which correlates well to other studies.^{18,19,28,29}

Laparoscopic surgery has gained global popularity and acknowledgement because it has

many benefits like minimal injury and physiological dysfunction less hospital stay and early return to normal routine life.²²⁻²⁷ These benefits of laparoscopic surgery are highly required in older people where co-morbidity sometimes makes surgery difficult and dangerous. The associated morbidity in our study population is nearly the same as in other previous studies.^{28,29}

In this study, postoperative complications occurred in 19 (19.0%) patients, the most common of which was chest infection, which greatly increased postoperative morbidity in this study. Other studies reported similar findings.³⁰⁻³² In our study, the conversion rate is 7.0 percent (n= 7), which is considerably lower than the conversion rate investigated in other previous research.³³⁻³⁶ The mean postoperative hospital of 26.29 hours in this study correlates with the other similar reports.³¹ Other studies revealed average 2.9 days³⁷, three days³⁸ and 3.99 days.³⁹ There are reports of "day-care" hospitalization (4 to 6 hours).⁴⁰

Most of the patients were observed with longer hospital stay who had complications of gallstone disease. Magnuson et al.⁴¹ recommended to maintain a low threshold for conversion in elderly subjects.

In this study overall mortality was 1.0% because one patient expired because of Myocardial infarction on the second day of procedure. Other same observations on mortality is also seen in other publications.^{33,42,43} Mortality in numerous research illustrates the relationship between old age and severe co-morbid circumstances, making them more vulnerable to the risks of surgery and anesthesia.

CONCLUSION

We concluded that Laparoscopic cholecystectomy was done in 60% elderly population with safe and effective procedure. This procedure has lesser complications than open cholecystectomy; morbidity and mortality rate is low as well. The pain free post-operative period and early ambulation lead to saving of valuable working hours.

It is recommended that comorbidities should be evaluated before the procedure to prevent the intra and post-operative complications

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
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2	Rehana Firdos	Designing of methodology.	
3	Qambar Ali Laghari	Data collection procedure.	
4	Mujeeb ur Rahman Sahito	Data analysis and Statistical help.	
5	Naimatullah Kalhoro	Data entry SPSS and other technical help.	
6	Sikander Munir Memon	References, citation manager & designing of results and charts and Graphs in manuscript.	