RESEARCH ARTICLE

ASSESSMENT OF RISK FACTORS AND COMPLICATIONS OF LAPAROSCOPIC CHOLECYSTECTOMY

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ARTICLE DETAILS

Article History:

Received 12 March 2021
Accepted 19 April 2021
Available online 21 April 2021

ABSTRACT

Cholecystectomy is one of the most common abdominal surgical procedures in developed countries. 74 patients of cholecystectomy of both genders were enrolled. was recorded. A thorough clinical examination was done. Lipid profile, Etiology and complications were recorded. Common etiology found to be cholestasis in 38, hyperlipidemia in 24, hereditary spherocytosis and idiopathic cases. The difference was significant ($P < 0.05$). Complications were intraoperative bleeding, biliary peritonitis, intra-abdominal collections bile duct injury, ligation of CBD, bile leakage, SSI, and retained CBD stones cases. The difference was significant ($P < 0.05$). Authors found that common etiology found to be cholestasis, hyperlipidemia, hereditary spherocytosis and idiopathic.

KEYWORDS

Laparoscopic cholecystectomy, Gall bladder, Risk factors

1. INTRODUCTION

Gallstones are hardened deposits of the digestive fluid bile, that can form within the gallbladder. They vary in size and shape from as small as a grain of sand to as large as a golf ball. Gallstones occur when there is an imbalance in the chemical constituents of bile that result in precipitation of one or more of the components. Gallstone disease is often thought to be a major affliction in modern society. However, gallstones must have been known to humans for many years. Many etiological factors have been associated with gallstones in children. Chronic hemolytic diseases are considered the most common cause. Other risk factors include liver cirrhosis, chronic cholestasis, total parenteral nutrition, and ileal diseases such as ileal resection, ileal Crohn's disease, cystic fibrosis, prolonged use of high-dose ceftriaxone, cancer therapy, family history, obesity, and congenital anomalies in the GB.

Cholecystectomy is one of the most common abdominal surgical procedures in developed countries. Since its introduction in the late 1980s, laparoscopic cholecystectomy (LC) has replaced open cholecystectomy (OC) as the treatment of choice for symptomatic gallstones. Beneficial effects of LC have been demonstrated in studies showing the advantages from real-life settings using secondary databases. Laparoscopic cholecystectomy (LC) has gained widespread popularity for treatment of symptomatic cholelithiasis (Woods et al., 1994). The present study was conducted to evaluate the risk factors and complications of LC.

2. MATERIALS AND METHODS

The present study was conducted among 74 patients of cholecystectomy of both genders in the department of General surgery. All patients were informed regarding the study and written consent was obtained. Data such as name, age, gender etc. was recorded. A thorough clinical examination was done. Complete blood count (CBC) and liver function tests, hemolytic profile which consists of reticulocytes, osmotic fragility, quantitative glucose phosphate dehydrogenase (G6PD) measurement, hemoglobin

electrophoresis, direct coombs test and lipid profile was conducted (Aryal and Gautam, 2017). Etiology and complications were recorded. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

3. RESULTS

Table 1: Distribution of patients

Age group (Years)	Males	Females
20-40	10	5
40-60	14	12
>60	20	13

Table 1, graph 1 shows that age group 20-40 years had 10 males and 5 females, 40-60 years had 14 males and 12 females and >60 years had 20 males and 13 females.

Graph 1: Distribution of patients

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10.26480/jhcdc.01.2021.08.10

Table 2: Etiology recorded in cases

Etiology	Number	P value
Cholestasis	38	0.04
Hyperlipidemia	24	
Hereditary spherocytosis	5	
Idiopathic	7	

Table 2, graph 2 shows that common etiology found to be cholestasis in 38, hyperlipidemia in 24, hereditary spherocytosis in 5 and idiopathic in 7 cases. The difference was significant ($P < 0.05$).

Graph 2: Etiology recorded in cases**Table 3: Assessment of complications**

Complications	Number	P value
Intraoperative bleeding	2	0.02
Biliary peritonitis	4	
Intra-abdominal collections	1	
Bile duct injury	4	
Ligation of CBD	2	
Bile leakage	1	
SSI	1	
Retained CBD stones	3	

Table 3 shows that complications were intraoperative bleeding in 2, biliary peritonitis in 4, intra-abdominal collections in 1, bile duct injury in 4, ligation of CBD in 2, bile leakage in 1, SSI in 1, and retained CBD stones in 3 cases. The difference was significant ($P < 0.05$).

4. DISCUSSION

Gallstone's disease has been a major cause of global morbidity with varying degree of prevalence based on the geographical, racial, and ethnic parameters (Aryal and Gautam, 2017). Gallstones are at least three to four times more common in females. The incidence of gallstones increases with advancing age and are rare before 20 years of age. In the United States (US), 15% of the adult population has gall bladder stones (Mehta et al., 2012).

Some risks are more with laparoscopic cholecystectomy as compared to open cholecystectomy. These complications can be divided into biliary and non-biliary. The incidence of complications associated with this procedure varies between 0.5 to 60%. Even though there have been reports of increased complication rates but the morbidity and mortality associated with laparoscopic procedure is less than that of open procedure (Strasberg, 1995; Duca et al., 2003; Larobina and Nottle, 2005; Fuller et al., 2005).

Laparoscopic cholecystectomy is one of the routinely performed procedures of choice for cholelithiasis. Laparoscopy is done whenever cholecystectomy needs to be performed. It has its own set of advantages and disadvantages. The various advantages offered by this technique are minimal hospital stay, minimum pain, rapid recovery and early return to work. Various risk factors predispose to the complications of this procedure (Kholdebarin et al., 2008). The present study was conducted to evaluate the risk factors and complications of LC.

In present study, age group 20-40 years had 10 males and 5 females, 40-60 years had 14 males and 12 females and >60 years had 20 males and 13 females. A group researcher found that the patients' ages ranged from 3.5

months up to 17 years (Enayet et al., 2020). The median age of gallstone detection was 2 years. Gallstones were symptomatic in 62.9% with abdominal pain in 51.4%. Complications in the form of choledocholithiasis were detected in 7 patients (20%). Laparoscopic cholecystectomy was done for 7 patients while conservative management was applied for 24 patients. Complete resolution occurred in 8.3% and partial resolution in 33.3%. Chronic hemolytic anemia was the most commonly identified risk factor for gallstones (Falor et al., 2012). Patients needed surgical intervention had significant higher serum cholesterol and LDL levels ($P = 0.006$ and $P = 0.002$ respectively). Risk factors for gallstones could be identified in most of pediatric cases. Symptomatic presentation is common among the pediatric population.

We found that common etiology found to be cholestasis in 38, hyperlipidemia in 24, hereditary spherocytosis in 5 and idiopathic in 7 cases. A group researcher analyzed a total of records of 230 patients (Falor et al., 2012). All the patients were aged between 30-65 years (Nuzzo et al., 2005). There was a male predominance in our study. The mean age group was 40.21 ± 1.13 years. Majority of cases were of chronic calculous cholecystitis (64.3%). There were 20% cases ($n=46$) of acute cholecystitis. There were 12 cases of leakage of bile, out of them 6 were managed conservatively, 4 underwent minimal invasive surgery and 2 underwent open surgery.

In present study, there were 8/68 complications in LC group and 9/14 in open cholecystectomy group. Most common complication in LC group was intraoperative bleeding seen in 2 and in open cholecystectomy group was ligation of CBD in 2 cases. A group researcher found that the rate of complications associated with laparoscopic cholecystectomy was 6.8% (Sarda and Garg, 2018). Older age, obesity, and multiple pre-operative risk factors were associated with complications. The most common intra-operative complication was hemorrhage (1.3%) and most common postoperative complication was surgical site infection (2.7%). Our conversion rate was 3.6%. Both intraoperative and postoperative complications were more common in procedures which were converted to open. We observed that complications were intraoperative bleeding in 2, biliary peritonitis in 4, intra-abdominal collections in 1, bile duct injury in 4, ligation of CBD in 2, bile leakage in 1, SSI in 1, and retained CBD stones in 3 cases. Asymptomatic patients show a more difficult management dilemma.

The shortcoming of the study is small sample size.

5. CONCLUSION

Authors found that common etiology found to be cholestasis, hyperlipidemia, hereditary spherocytosis and idiopathic.

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