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Complications of Laparoscopic Cholecystectomy and Knowing the Effect on Low Pressure

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Abstract: Introduction: Cholecystectomy is considered by many authors as the "gold standard" in the treatment of bile duct diseases. It has been performed by many surgeons around the world. This surgical procedure, like all procedures carried out in the operating room, presents postoperative complications, regardless of the technique used. **Objective:** This paper aims to study complications of laparoscopic cholecystectomy and knowing the effect on low pressure. **Patients and method**: This paper is interested to study complications of laparoscopic cholecystectomy and knowing the effect on low pressure. This study was conducted on patients from 25 to 55 years for both sexes, male and female, in different hospitals in Iraq on 25th January 2021 to 13th June 2022. The collected data was analysed, and statistics by SPSS and Excel programs. This study was examined into patient groups with 85 members of patients. The study was divided into two groups where. The first group represents patients who have blood pressure less than eight mmHg, and another group represents have patients who blood pressure between 12-15 mmHg. **Result and discussion:** Laparoscopic cholecystectomy is a method of treating cholelithiasis about intraoperative and postoperative symptoms. Compared to a traditional open cholecystectomy, the laparoscopic procedure offers several benefits, including less trauma, reduced discomfort, shorter hospital stays, good aesthetic results, a speedier recovery, and a faster return to work. To follow that, the range of problems associated with laparoscopic cholecystectomy has expanded along with its level of adoption. Furthermore, surgical wound infection is a postoperative complication that occurs with a higher frequency in laparoscopic cholecystectomy. In our prospective study, we reported two patients with surgical wound infection and two patients with incisional hernia, which is consistent with studies published by other researchers. Besides that, surgical wound infection is a frequent postoperative complication after laparoscopic cholecystectomy. In accordance with studies by other researchers, we identified two subjects in our prospective study with an incisional hernia and two patients with an incisional wound infection. **Conclusion:** In comparison with the previous study, the patients have ages more than 40 had cholecystectomy operative. According to the results, our study noticed the complications had more effectively on the group have pressure less than eight mmHg more than the 12-15 mmHg group. Also, our study found that males got cholecystectomy operative in comparison with females.

Keywords: Cholecystectomy, Intraoperative complications, and post-operative complications.

INTRODUCTION

Cholecystectomy is considered by many authors as the "gold standard" in the treatment of bile duct diseases [NIH, 2013]. It has been performed by many surgeons around the world. This surgical procedure, like all procedures carried out in the operating room, presents postoperative complications, regardless of the technique used. Among the most frequent complications are; bile duct injury, haemorrhage, infections, respiratory complications, electrolyte imbalance, and paralytic ileus, generally appearing in the first 48-72 hours after the surgical procedure. It is also important to mention complications such as; [Strasberg, S.M. *et al*., 1993; Dolan, J.P. *et al*., 2009] acute pancreatitis, postoperative jaundice, serum hepatitis, residual lithiasis, biliary fistulas, and subphrenic collections, among others, all of which are classified as late complications, because they appear in more than 72 hours after surgery, and that only with adequate postoperative follow-up, they can be diagnosed and treated; however, not all patients come for follow-up. Currently, the removal of the gallbladder is one of the most frequently performed surgeries in the world, and El Salvador is no exception; thanks to the development achieved by laparoscopic surgery, it is possible to perform this type of intervention through this method, with a low conversion rate (need to perform laparotomy to complete the surgical procedure). [Ballal, M. *et al*., 2009; Craig, A.B. *et al*., 2011]

Initial surgical treatment for cholecystitis consisted of stone removal. Cholecystectomy was initially described by Bobb and Sims and refined by Kocher and Tait. The first cholecystectomy was performed in 1882 by Carl Langenbuch [Casati, A. *et al*., 1994; Alijani, A. *et al*., 2004] in Berlin, and for the next 100 years, cholecystectomy was the

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gold standard for cholecystitis and during the first half of the 1990s, there were opinions that laparoscopic surgery was not indicated in the first half of the 1990s.

Patients with acute cholecystitis. Within a few years, laparoscopic cholecystectomy has become more common than open surgery, and within a decade, laparoscopic cholecystectomy has replaced open cholecystectomy as the gold standard for the treatment of acute cholecystitis [Joshipura, V.P. *et al*., 2009]. Several studies, including randomized controlled trials comparing laparoscopic cholecystectomy and open cholecystectomy, have suggested that laparoscopic cholecystectomy is associated with a significantly shorter postoperative hospital stay and a lower incidence of complications [Krishnegowda, U. *et al*., 2016]. Different meta-analyses have also shown not only that laparoscopic cholecystectomy has therapeutic effects like those of open cholecystectomy but also that it is a surgical procedure with low mortality and morbidity [Davides, D. *et al*., 1999]. A cohort study was conducted in a total of approximately 30,000 patients 66 years of age or older with acute cholecystitis in relation to surgical procedures for acute cholecystitis; 75% of patients underwent cholecystectomy at the time of initial hospitalization, 71% underwent laparoscopic cholecystectomy, and 29% underwent open surgery. The results of the analysis show that laparoscopic cholecystectomy is used as the first option within the surgical procedures that can be performed urgently for acute cholecystitis. [Shaffer, E.A, 2005; Novacek, G, 2006]

The laparoscopic technique of choice for cholecystectomy is multiport laparoscopic cholecystectomy (SLMC), in which surgery is performed using small incisions in the abdomen. Although single port laparoscopic cholecystectomy (SILC) is a feasible technique, there is no significant advantage over SLMC and despite a recent study [GREPCO, 1988]. The secondary results favor SILC; the small magnitude of the advantage and the low quality of the evaluation methods question the clinical importance of these benefits [Sarli, L. *et al*., 2000]. In general, SILC increases surgical time increases blood loss, and there is no clear decrease in postoperative pain or shortening of hospital stay [Sandoval-Jiménez, C.H. *et al*., 2009]. This paper aims to study complications of laparoscopic cholecystectomy and knowing the effect on low pressure.

PATIENTS AND METHODS

This paper is interested to study complications of laparoscopic cholecystectomy and knowing the effect on low pressure. This study was conducted on patients from 25 to 55 years for both sexes, male and female, in different hospitals in Iraq on 25th January 2021 to 13th June 2022. The collected data was analysed, and statistics by SPSS and Excel programs. This study was examined into patient groups with 85 members of patients. The study was divided into two groups where. The first group represents patients who have blood pressure less than eight mmHg, and another group represents have patients who blood pressure between 12-15 mmHg.

To start up, this paper compared with previous studies to get this kind of data, where include the distribution of patients based on age and sex, which can you find in Table 1 and Table 2. This paper was extended into studying the distribution of patients based on sex, and this data can be seen in Table 3.

To follow that, this paper was examined the statistics correlation between sex and blood pressure who parameters included bleeding from tissues adjacent to the gallbladder, iatrogenic perforations of the gallbladder, bleeding from the abdominal wall, injuries to the common bile duct, bleeding from a cystic artery, and bleeding from tissues adjacent to the gallbladder where these Intraoperative complications of cholecystectomy patients in Table 4.

Furthermore, this study was also examined the postoperative complications of cholecystectomy patients, where it was included retained calculus in the choledochal duct, hematoma of the abdominal wall, surgical wound infection, subhepatic collection, bleeding from the abdominal cavity, and incisional hernia, and these details have been seen in Table 5.

According to Figures 1 and Figures 2, this paper focused about presenting of hospital time and operation time of cholecystectomy patients in comparison between the less than eight mmHg group and the 12-15 mmHg group. According to Figure 3, the data had assessed through showing the heart rate of cholecystectomy patients changes. To end the methodology, this paper had a logistic evaluation of affected parameters of cholecystectomy patients' analysis which contained bleeding from tissues adjacent to the gallbladder, bleeding from a cystic artery, retained

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calculus in the choledochal duct, and bleeding from the abdominal cavity, which can be seen in Table 6.

RESULTS

Table 1: Distribution of cholecystectomy patients according to age

Age-patients					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	25.00	7	11.3	11.3	11.3
	28.00	6	9.7	9.7	21.0
	32.00	7	11.3	11.3	32.3
	34.00	3	4.8	4.8	37.1
	40.00	10	16.1	16.1	53.2
	43.00	6	9.7	9.7	62.9
	52.00	7	11.3	11.3	74.2
	55.00	16	25.8	25.8	100.0
	Total	62	100.0	100.0	

Table 2: Distribution of cholecystectomy patients according to sex

sex					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Female**	25	40.3	40.3	40.3
	Male	37	59.7	59.7	100.0
	Total	62	100.0	100.0	

Table 3: Statistics correlation between sex and blood pressure

sex * pressure Crosstabulation				
Count				
		pressure		**Total**
		From 12-15, mmHg	**less than 8, mmHg**	
sex	**Female**	9	16	25
	Male	30	7	37
Total		39	23	62

Table-4: Intraoperative complications of cholecystectomy patients

pressure * Intraoperative complication Crosstabulation								
Count								
		Intraoperative complication						Total
		Bleeding from cystic artery	Bleeding from the abdominal wall	Bleeding from tissues adjacent to the gallbladder	Iatrogenic perforations of the gallbladder	Injuries to the common bile duct	not existed	
pressure	From 12-15, mmHg	1	2	3	1	1	31	39
	less than 8, mmHg	2	2	3	1	2	13	23
Total		3	4	6	2	3	44	62

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Table 5: post-operative complications of cholecystectomy patients

pressure * Postoperative Crosstabulation									
Count									
		Postoperative							Total
		Bleeding from the abdominal cavity	Hematoma of the abdominal wall	Incisional hernia	not existed	Retained calculus in choledochal duct	Subhepatic collection	Surgical wound infection	
pressure	From 12-15, mmHg	3	1	1	27	5	1	1	39
	less than 8, mmHg	1	2	2	10	4	2	2	23
Total		4	3	3	37	9	3	3	62

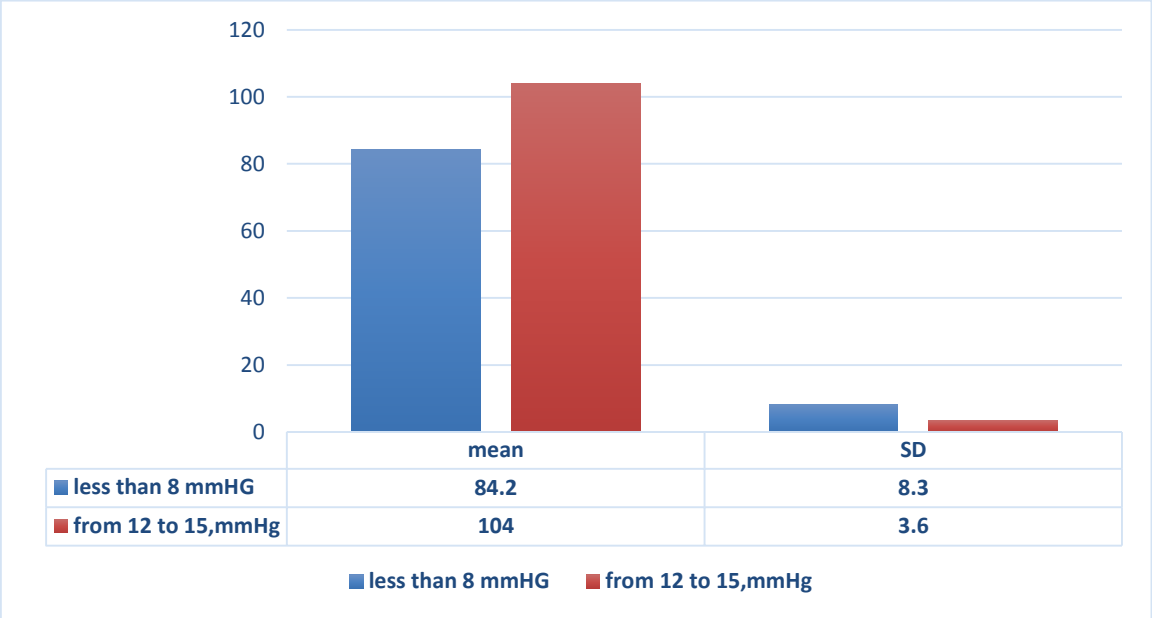

Figure-1: Presenting of operation time of cholecystectomy patients

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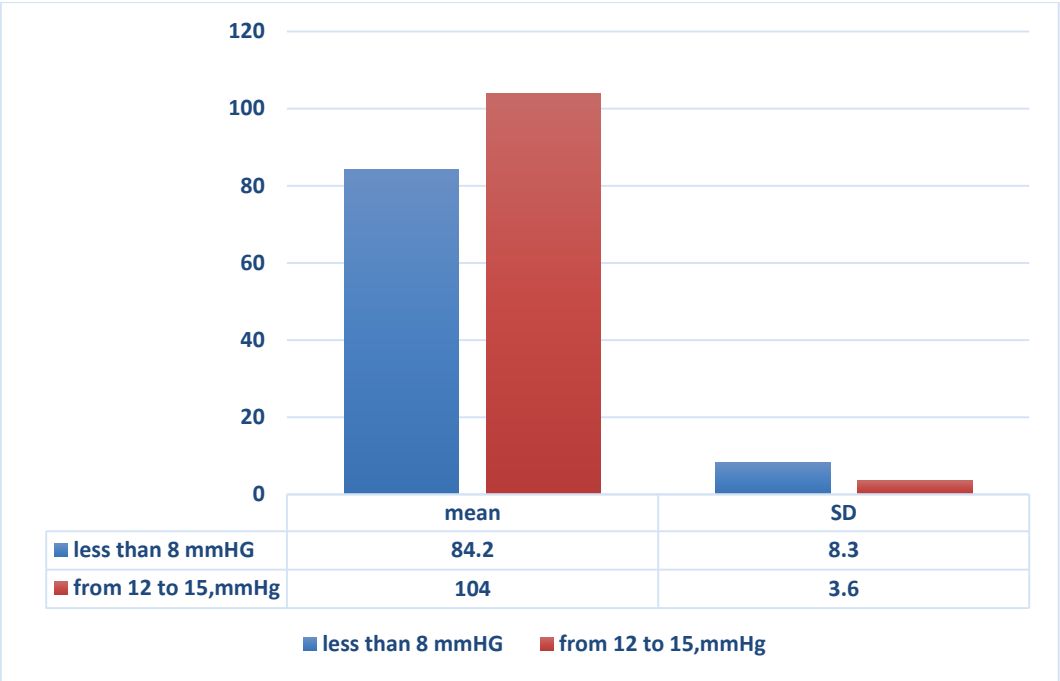

Figure-2: Presenting of hospital time of cholecystectomy patients

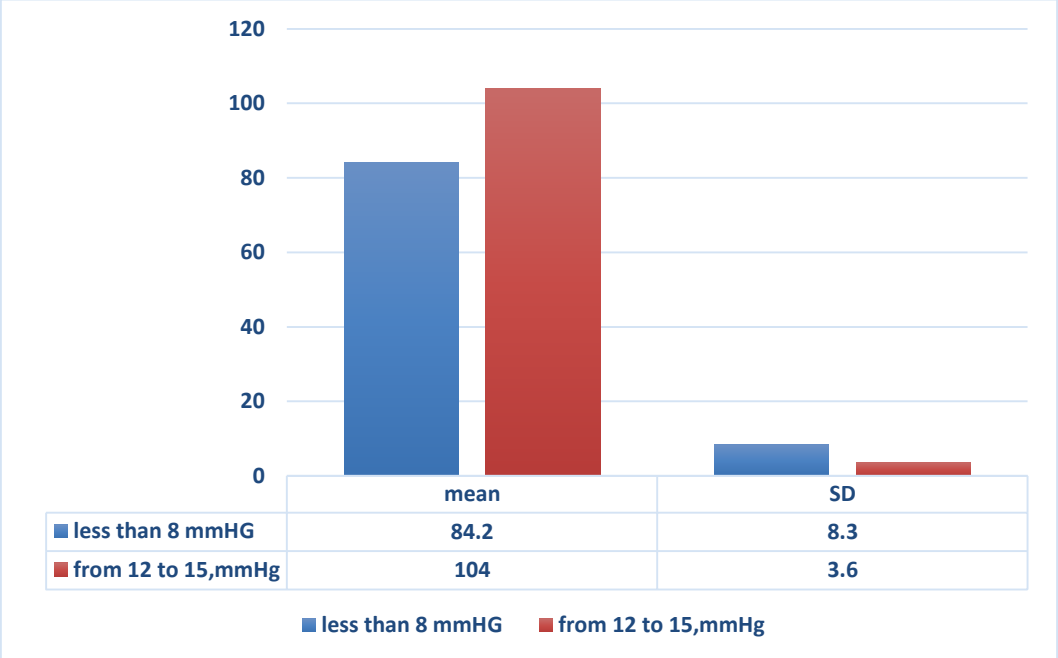

Figure-3: Showing heart rate of cholecystectomy patients changes changes

Table-6: Logistic Evaluation of affected parameters of cholecystectomy patients' analysis

Items	Less than eight mmHg	From 12-15	p-value
Bleeding from tissues adjacent to THE gallbladder	0.66 (0.635-1.5)	0.6 (0.62-1.1)	0.0425
Bleeding from cystic artery	1.588 (0.88-1.54)	1.283 (0.87-1.8)	0.0465
Retained calculus in choledochal duct	1.553 (1.34-1.77)	1.34 (0.94-1.44)	0.0462
Bleeding from THE abdominal cavity	1.782 (1.71-2.8)	2.33 (1.84-3.42)	0.0452

DISCUSSION

Laparoscopic cholecystectomy is a method of treating cholelithiasis about intraoperative and postoperative symptoms. Compared to a traditional open cholecystectomy, the laparoscopic procedure offers several benefits, including less trauma, reduced discomfort, shorter hospital stays, good aesthetic results, a speedier recovery, and a faster return to work. However, several studies have shown that compared to traditional open

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cholecystectomy; laparoscopic cholecystectomy is associated with a greater number of complications, which include common bile duct lesions and damage to blood vessels and abdominal organs through the placement of the Veress needle and trocar. [Kandil, T.S. *et al*., 2010]

To follow that, the range of problems associated with laparoscopic cholecystectomy has expanded along with its level of adoption. The most common intraoperative problems in laparoscopic surgery are bleeding injuries to the tissues around the gallbladder and common bile duct injuries, while postoperative complications, including bile duct retention and abdominal wall hematoma, are the main causes of morbidity. According to our research, there were three individuals who had bleeding from the tissues surrounding the gallbladder, one from the cystic artery, two who had common bile ducts, and two who had bleeding from the abdominal wall. Although there were eight other infections in individuals with a pressure between 12 and 15 although there were no serious problems in those with a blood pressure as low as 8.

According to Nozzo [Asif, U. *et al*., 2013], intra-abdominal cysts, fistulas, and swelling of the abdominal wall are the most common side effects after stones are spilled and trapped in the abdominal cavity. Dasari BVM and others. In their analysis, 19.8% of laparoscopic cholecystectomy procedures involved gallstones. In addition, they noted that in 3 cases, a transition to open surgery was necessary because of gallstones that spilled during surgery.

Furthermore, surgical wound infection is a postoperative complication that occurs with a higher frequency in laparoscopic cholecystectomy. In our prospective study, we reported two patients with surgical wound infection and two patients with incisional hernia, which is consistent with studies published by other researchers. [Eryılmaz, H.B. *et al*., 2012]. She stated that surgical complications are always less common in laparoscopic cholecystectomy than in open cholecystectomy.

Besides that, surgical wound infection is a frequent postoperative complication after laparoscopic cholecystectomy [Gupta, R. *et al*., 2013]. In accordance with studies by other researchers, we identified two subjects in our prospective study with an incisional hernia and two patients with an incisional wound infection. Bonnie and Co. She said that compared with open cholecystectomy, surgical complications remain less frequent with laparoscopic cholecystectomy. [Kanwer, D.B. *et al*., 2009; Hua, J. *et al*., 2014]

Conclusion

In comparison with the previous study, the patients have ages more than 40 had cholecystectomy operative. According to the results, our study noticed the complications had more effectively on the group have pressure less than eight mmHg more than the 12-15 mmHg group. Also, our study found that males got cholecystectomy operative in comparison with females.

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