ejpmr, 2021,8(6), 406-409

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

A COMPARATIVE STUDY ON ELECTIVE LAPAROSCOPIC CHOLECYSTECTOMY WITH AND WITHOUT ANTIMICROBIAL PROPHYLAXIS IN VIEW OF POST OPERATIVE SURGICAL SITE INFECTIONS

Dr. Hitesh Kumar[1], Dr. A. K Gupta[2], Dr. Shivani Sharma[3] and Dr. Dharam Dev[4]*

[1]M.D Radiology CH Sunni Shimla.
[2]Professor and Head Department of General Surgery IGMC Shimla.
[3]Medical Officer Health Block Bagsaid Mandi.
[4]M.S General Surgery Health Block Bagsaid Mandi.

***Corresponding Author: Dr. Dharam Dev**
M.S General Surgery Health Block Bagsaid Mandi.

Article Received on 06/04/2021 **Article Revised on 26/04/2021** **Article Accepted on 16/05/2021**

ABSTRACT

Background: Laparoscopic cholecystectomy has become the gold standard treatment for gallstone disease. Aim of the study is to compare the laparoscopic cholecystectomy with and without antibiotic prophylaxis in term of post operative surgical site infection. **Method :** This prospective study was carried out in the department of General Surgery Indira Gandhi Medical College Shimla (H.P) on patients admitted with diagnosis of cholelithiasis, over a period of 1 year from 1st August, 2018 to 31st July, 2019.total of 100 patients were included in the study,and were randomly divided into two groups. Group A was control group in which antibiotic was given and group B was case group in which no antibiotic was given. **Result:** In the present study wound infection occurred in 2 out of 50 patients (4%) in case group and 1 out of 50 patients (2%) in control group, all of them had superficial SSI. The difference was statistically not significant with P value of 1. Both the groups were comparable in terms of surgical site infection. **Conclusion:** As elective LC is a clean surgery,therefore In low-risk patients antibiotic prophylaxis does not seem to affect the incidence of postoperative infective complications.It is justified only in high-risk patients. In all other patients, eliminating the unnecessary use of prophylactic antibiotics would result in cost reductution,decreases microbial resistance and adverse drug reactions.

KEYWORDS: Prophylactic antibiotics, Laparoscopic Cholecystectomy.

INTRODUCTION

Cholelithiasis is an important cause of morbidity throughout the world. Its prevalence has geographical and ethnic variations.The lowest prevalence is seen in Africans. The prevalence of gall stone disease in developed countries is 10-15% of adult population. The incidence of disease increases with age. For more than hundred years cholecystectomy has enjoyed unchallenged supremacy as the treatment of choice for symptomatic gall stones. In this era of minimal invasive surgery; laparoscopic cholecystectomy has become gold standard for gall stone disease. Laparoscopic cholecystectomy has spread rapidly worldwide mainly because postoperative pain is less, recovery is more rapid, cosmetic results are better, hospital stay is shorter, low morbidity and mortality,including low rate of post operative infection and early return to work than with the open procedure.

Aim and Objectives

Aim of the study is to compare the elective laparoscopic cholecystectomy with and without antibiotic prophylaxis in term of post operative surgical site infections.

MATERIAL AND METHOD

This prospective study was carried out in the department of General Surgery Indira Gandhi Medical College Shimla (H.P) on patients admitted with diagnosis of cholelithiasis, over a period of 1 year from 1st August, 2018 to 31st July, 2019.

Inclusion criteria: All patients with ultrasonographically proven cholelithiasis.

Exclusion criteria: Patients with acute cholecystitis, diabetes mellitus, immunocompromised status, intra-operative bile spillage/stone spillage, empyema gall bladder, angrenous gall bladder, Pregnant woman with cholelithiasis, cholangititis, pancreatitis, choledocholithiasis, previous ERCP.

Methods

Patients presented to General surgery OPD at I.G.M.C. Shimla with history of upper abdominal pain and subsequently diagnosed radiologically with cholelithiasis were included in this study after duly informed about the nature of study and taking informed consent.

In every case, detailed history was taken, thorough clinical examination was done and required investigations were done including USG abdomen. Patients had undergone following investigations:-

- ✓ CHG,RFT,S.Electrolytes,RBS,LFT,Viralmarker,Ultrasound Abdomen,Chest X-ray,ECG.

Total of 100 patients were included in the study, Patients were distributed into group A and B randomly.

Group A (With antibiotic prophylaxis):- patients were given single dose of antibiotic (Inj. Cefuroxime 1.5gm) at the time of induction of anaesthesia. Same antibiotic was given intravenously for two days postoperatively and then orally for next 5 days.

Group B (Without antibiotic prophylaxis):- In this group no antibiotic was given pre operatively, intra operatively and post operatively.

Laparoscopic Cholecystectomy was performed in routine operation theatres. Following parameters were recorded: Operation time, Callot' striangle anatomy, Adhesions, Intraoperative bile/stone spillage, Whether empyema gall bladder, gangrenous gall bladder, Conversion to O/C from L/C, Need for drain,any complications.

The collected data was analysed and incidence of post operative wound site infection was looked for in both groups of patients receiving antibiotic prophylaxis and not receiving antibiotic prophylaxis.

RESULTS AND ANALYSIS

The present study was a 1-year prospective study conducted in the department of general surgery, Indira Gandhi Medical College, Shimla, in a time period of 1 year from 1st August, 2018 to 30th July, 2019 which included a total of 100 patients aged between 16 to 75 years of age, divided into two groups, study group(group B) consisting of 50 patients in which no prophylactic antibiotic was given and control group(group A) consisting of another 50 patients in which prophylactic antibiotic was given. Patients of either sex having radiologically proven cholelithiasis and fulfilling the inclusion or exclusion criteria were enrolled in the plan of this study.In our study, youngest patient was 16 years of age and eldest was 75 years old. The mean age was 43 years.

TABLE: 1 Age wise distribution of patients in both groups.

Age Group (Years)	Control group Number (%)	Study group Number (%)	Total
<20	0(0.0%)	02(4%)	02(2.0%)
21-40	16(32%)	27(54%)	43(43%)
41-60	26(52%)	19(38%)	45(45%)
>60	08(16%)	02(4%)	10(10%)
Total	50	50	100

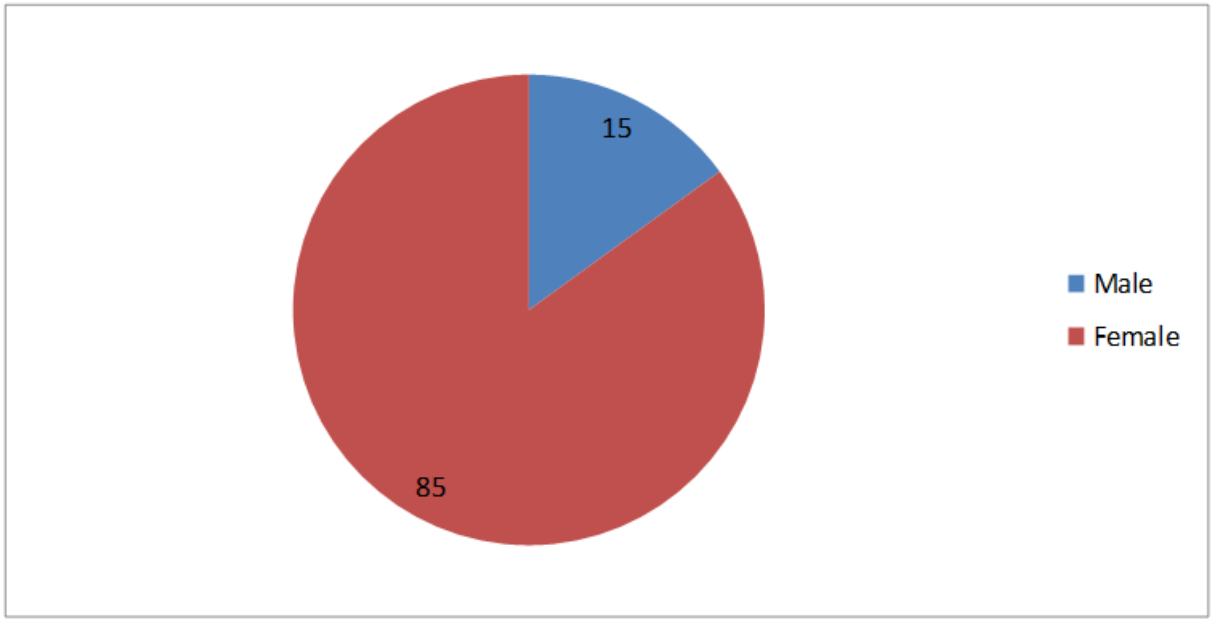

Figure 1 Gender wise distributions of total patients.

Wound Infection-

In our study the overall postoperative infective complications were 3% (3 out of 100 patients), 2% in control group (1 out of 50 patients) and 4% in case group (2 out of 50 patients). All of them were superficial surgical site infection. (Table 2 and Figure 2)

Table 2: Comparison of wound infection between two groups.

Wound infection	Control group Number (%)	Case group Number (%)	Total Number (%)
Present	01(2.0%)	02(4.0%)	03(3.0%)
Absent	49(98%)	48(96%)	97(97%)
Total	50	50	100

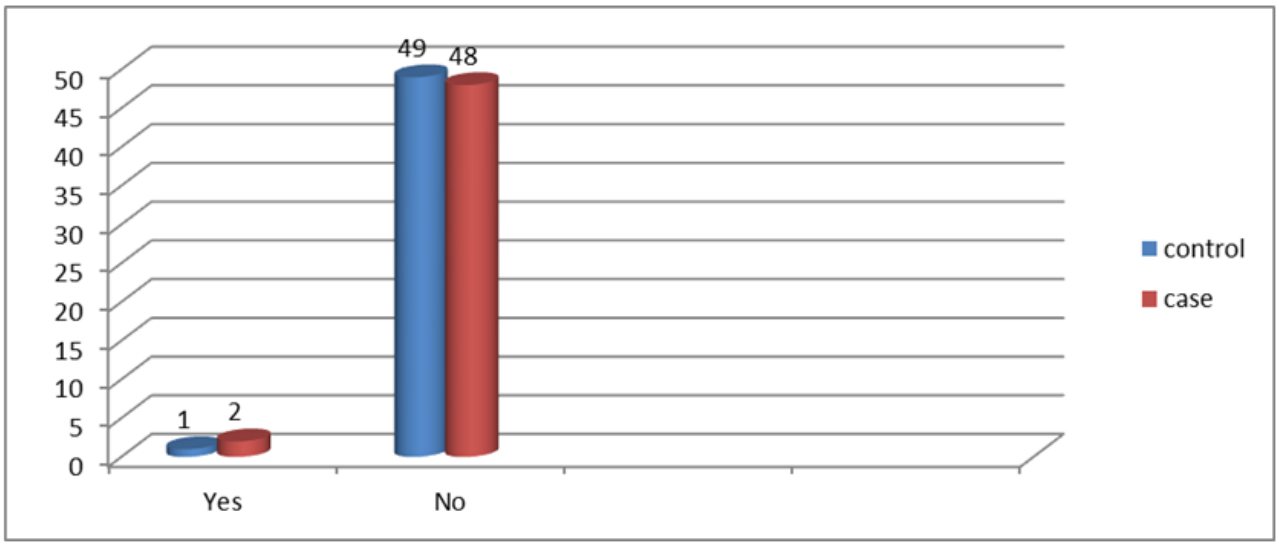

Figure 2 Comparison of wound infection between two groups.

DISCUSSION

Cholelithiasis is a common disease having a incidence of 2-29%. As laparoscopic cholecystectomy is now the gold standard of management of patients with gallstones, evaluation of antibiotic prophylaxis and its indication for laparoscopic cholecystectomy is warranted.

Several prospective studies have concluded that the use of prophylactic antibiotic in low-risk patients undergoing LC is unnecessary, because the rate of postoperative infective complications is already low in such patients, and therefore the use of prophylactic antibiotics will not reduce the rate of postoperative infective complications significantly

Similarly Koc M et al. in 2003 studied the role of prophylactic antibiotics in elective laparoscopic cholecystectomy. The overall rate of postoperative infective complications was 2 of 92 (2.1%); In control group it was 2.04% and in case group it was 2.3%. There was no statistical difference between the two groups in terms of infective complications.

In another study performed by Kutha SA et al. in 2006, in control group 1 patient out of 40 (2.5%) had post operative wound infection and in case group 2 patients out of 53 (3.8%) had post operative infection, all of them were superficial SSIs.

Nilay mandal et al. in 2015 performed a prospective randomized trial to study LC without prophylactic antibiotics. 102 patients with symptomatic gallstones were operated by laparoscopic technique without receiving preoperative antibiotics and studied over a period of 1.5 years. There was no wound infection in 99 patients, and superficial surgical site infection occurred in three patients (i.e., 2.94 %) out of a total of 102 patients which is acceptable and fulfills the aims and objectives of the study.

In the present study wound infection occurred in 2 out of 50 patients (4%) in case group and 1 out of 50 patients (2%) in control group, all of them had superficial SSI. Sugical site infection was less in patients of control group as compared to the patients of case group; however the difference was statistically not significant with P value of 1. Both the groups were comparable in terms of surgical site infection.

Comparison of studies with respect to post operative SSIs.

Study	Case (%)	Control (%)
This study	4%	2%
Koc M et al.	2.32%	2.04%
Kutha SA et al.	3.8%	2.5%
Yildiz et al.	2.9%	3.8%
Hamad Hadi et al.	4.6%	2.7%
Hyung Jin Kim et al.	0%	0%

Different studies done by Koc M et al, Kutha SA et al, Yildiz et al, Hamad Hadi et al, which shows that rate of wound infection was comparable between both the groups, difference was statistically not significant. Therefore antibiotic prophylaxis does not have significant role in the prevention of surgical site infection in laparoscopic cholecystectomy in low risk patients, and increases the cost of the procedure, so discouraging its routine use.

CONCLUSION

Thus, in patients undergoing elective LC, antibiotic prophylaxis seems justified only in high-risk patients such as patients with acute cholecystitis, diabetes mellitus, immunocompromised status, intra-operative bile spillage/stone spillage, empyema gall bladder, gangrenous gall bladder, cholangitis, choledocholithiasis, severe gall stone induced pancreatitis, previous ERCP. In all other patients, antibiotic prophylaxis does not seem to affect the incidence of postoperative infective complications.

REFERENCES

1. Kuthe SA, Kaman L, Verma GR, Singh R. Evaluation of the role of prophylactic antibiotic in elective laparoscopic cholecystectomy:a prospective randomized trial. Trop Gatroenterol, 2006; 27: 54–57.
2. Yildiz B, Abbasoglu O, Tirnaksiz B, Hamaloglu E, Ozdemir A, Sayek I. Determinants of postoperative infection after laparoscopic cholecystectomy. Hepatogastroenterology, 2009; 56(91–92): 589–592.
3. Chang WT, Lee KT, Chuang SC, Wang SN, Kuo KK, Chen JS et al. The impact of prophylactic antibiotics on postoperative infection complication in elective laparoscopic cholecystectomy a prospective randomized study. Am J Surg, 2006; 191: 721-725.
4. Ruangsin S, Laohawiriyakamol S, Sunpaweravong S, Mahattanobon S.The efficacy of cefazolin in reducing surgical site infection in laparoscopic cholecystectomy: a prospective randomized double-blind controlled trial. Surg Endosc, 2015; 29(4): 874-81.
5. Kumar, A., Patodia, M., Pandove, P.K., Sharda, V.K., Pahwa, S. Role of antibiotic prophylaxis in laparoscopic cholecystectomy: A randomized prospective study Journal International Medical Sciences Academy, 2013; 26(4): 209-211.
6. Matsui Y, Satoi S, Kaibori M, Toyokawa H, Yanagimoto H, et al. Antibiotic Prophylaxis in Laparoscopic Cholecystectomy: A Randomized Controlled Trial. PLoS ONE, 2014; 9(9): 106702.
7. Dubois F, Berthelot G, Levard H. Laparoscopic cholecystectomy: historic perspective and personal experience. Surg Laparosc Endosc, 1991; 1(1): 52-7.
8. Graham HE, Vasireddy A, Nehra D. A national audit of antibiotic prophylaxis in elective laparoscopic cholecystectomy. Ann R Coll Surg Engl, 2014; 96(5): 377-80.
9. Haley RW, Culver DH, Morgan WM, White JW, Emori TG, Hooton TM. Identifying patients at high risk of surgical wound infection. Am J Epidemiol, 1985; 121(2): 206-15.
10. Higgins A, London J, Charland S, Ratzer E, Clark J, Haun W, Maher DP. Prophylatic antibiotics for elective laparoscopic cholecystectomy: are they necessary? Arch Surg, 1999; 134(6): 611-3. discussion 614.
11. Jaafar G, Persson G, Svennblad B, Sandblom G. Outcomes of antibiotic prophylaxis in acute cholecystectomy in a population-based gallstone surgery registry. Br J Surg, 2014; 101(2): 69-73.
12. Kacelnik O, Alberg T, Mjaland O, Eriksen H, Skjeldestad FE. Guidelines for antibiotic prophylaxis of cholecystectomies in Norwegian hospitals. Surg Infect (Larchmt), 2013; 14(2): 188-91.
13. McGukin M, Shea J A, Schwartz J S. Infection and antimicrobial use in laparoscopic cholecystectomy. Infect Control Hosp Epidemiol, 1999; 20(9): 624-6.
14. Mouret P. From the first laparoscopic cholecystectomy to the frontiers of laparoscopic surgery; the futures prospectives. Dig Surg, 1991; 8: 124-5.
15. Naqvi MA, Mehraj A, Ejaz R, Mian A. Role of prophylactic antibiotics in low risk elective laparoscopic cholecystectomy: is there a need? J Ayub Med Coll Abbottabad, 2013; 25(1-2): 172-4.