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IMPORTANCE OF PROPHYLACTIC ANTIBIOTICS FOR THE PREVENTION OF SKIN INFECTIONS IN LAPROSCOPIC CHOLECYSTECTOMY

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Abstract:

Objective: *To compare the frequency of skin infections and skin structure infections in patients undergoing laparoscopic cholecystectomy without prophylactic and prophylactic antibiotics.*

Study design: *Randomized controlled trial*

Study place and duration: *Surgical Unit II, Services Hospital, Lahore for one year duration from July 2016 to July2017.*

Methodology: *A total of 144 patients randomized to two equal groups; A and B were included. Group A received 1.5g of cefuroxime prophylactically diluted in 10 ml of solution, while receiving a 10 ml of normal saline in group B before anesthesia induction. The frequency of skin and skin structure infection (SSI) was compared in both groups.*

Results: *Group A (4.1%) 3 patients developed skin infection and skin structure, while group B 2 (2.7%) developed skin infection and skin structure infection. The difference between the two groups was not statistically significant (p = 1,000).*

Conclusion: *The application of prophylactic antibiotics does not reduce the frequency of skin infections and skin structure infection in patients undergoing laparoscopic cholecystectomy.*

Key words: *Laparoscopic cholecystectomy, Prophylactic antibiotics, skin structure infections, Skin infections.*

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INTRODUCTION:

Laparoscopic cholecystectomy (LC) has become the preferred procedure for gallstone disease. An important benefit from various advantages over open cholecystectomy (OC) is the low risk of infectious complications, ie, from 0.4 to 1.7% in the umbilical port region. There has been a debate about the need for prophylactic antibiotics because of the very low risk of infection. With regard to the risk of infectious complications, gallstone diseases are divided into high and low risk groups. People in the high-risk group have one or more of the following; diabetes mellitus, age> 60 years, acute cholangitis or acute cholecystitis in the last 30 days of jaundice or history of bile colic. Several studies have been conducted to determine whether prophylactic antibiotics are required according to the low-risk group of patients with gallstone disease. This study was designed to evaluate the importance of antibiotic prophylaxis in laparoscopic cholecystectomy.

MATERIALS AND METHODS:

This Randomized controlled trial study was held in Surgical Unit II, Services Hospital, Lahore for one year duration from July 2016 to July2017. The design of the study was approved by the hospital ethics committee. Informed and written consent was obtained from all patients planned to be included in the study. All patients scheduled for elective laparoscopic cholecystectomy were included in the study.

Exclusion criteria; Presence of diabetes mellitus, age> 60 years, history of cholecystitis or acute cholangitis, history of clinical and biochemical jaundice or biliary colic in the last 30 days. ASA status (American Society of Anesthesiologists), whole blood picture (CBC), body weight, ECG, liver function tests and chest X-ray were evaluated in routine preoperative examination.

After the study, patients were randomized to two groups as A and B by random number method. Both the patient and the surgeon approached the groups. Group A received 1.5 g of cefuroxime diluted in 10 ml of distilled water and group B received 10 ml of isotonic saline intravenously prior to anesthesia induction.

After anesthesia induction, the skin was prepared with 10% povidine-iodine solution. Laparoscopic cholecystectomy was performed using the 3-port technique and the fourth port was used. When the procedure was completed, the stony gallbladder was removed from the umbilical port region. Patients were stored without prescription for 6 hours. All patients were encouraged to be discharged from the hospital the next day. During the next two weeks, skin and skin structure infections (SSI), defined as redness or redness around the wound, were observed as microbiologically confirmed infectious secretions from a purulent discharge or wound. In terms of SSI, infectious complications were compared between two groups. Statistical analysis was performed with the help of SPSS® v 10.0 for Windows.

RESULTS:

Of the 163 patients planned for LC, 144 (111 female, 33 male) met the inclusion criteria. After randomization, each group received 72 patients. The preoperative demographic statistics did not show a statistically significant difference between the two groups (Table 1).

Table 1: *Preoperative Demographics of the patients*

Variables	Group A(n=72)	Group B(n=72)
Agein years (mean±SD)	49.2±7.6	52.3±6.3
Gender (M/F)	22/50	18/54
ASA Scoren(%)		
I	40 (55.55)	39 (54.16)
II	28 (38.88)	22 (30.55)
III	4 (5.55)	11 (15.27)
BMI (mean±S.D.)	24.3±4.3	24.9±5.1

Similarly, operative variables such as operative time, gall bladder rupture, biliary effusion, stone spillage and postoperative hospital stay were compared with non-significant difference between the two groups (Table 2).

Table 2: *Operative variables of both groups.*

Variables	Group A (n=72)	Group B (n=72)
Duration of surgery in minutes (mean±SD)	52.3±23.5	48.5±18.6
Gallbladder rupture, n(%)	4(5.55)	7 (9.72)
Bile Spillage, n(%)	16(22.2)	14 (19.44)
Stone Spillage, n(%)	17 (23.61)	13 (18.05)
Drain placement, n(%)	5 (6.94)	4(5.5)
Use of 4th port, n(%)	5 (6.94)	7 (9.72)

In Group A, 3 patients (4.1%) developed in SSI, 2 umbilical port area and 1 epigastric port area. In Group B 2 (2.7%), patients developed SSI both in the umbilical port area. No statistically significant difference was found between the two groups (p = 1,000).

DISCUSSION:

With the advent of laparoscopic surgery, the results of the surgery improved. Less hospitalization, less perioperative pain, early recovery and return to work. As antibiotic prophylaxis has played an important role in the prevention of septic complications in open surgery, its function should be reassessed in laparoscopic surgery due to its low morbidity compared to open surgery.

Numerous studies have been performed in biliary laparoscopic surgery. 133 manuscripts were selected as a result of nine randomized controls to evaluate that A meta-analysis Choudhary et al., Concluded that patients undergoing laparoscopic surgery for the prevention of total infection of this prophylactic antibiotic would be beneficial for infections. In a possible randomized control by Tocchi et al., Italy, 84 patients, the antibiotic group and the control group were included, were divided into two groups. Prophylaxis with antibiotics has been found to have no benefit. In this study, patients with diabetic patients who had a history of renal colic and cholangitis after endoscopic intervention were excluded from the study. The same criteria were accepted in our study. Another RCT of Koç et al. gave the same results. Yan et al., In which 156 products have been selected from 12 RCTs, have concluded that this antibiotic prophylaxis does not, however, mean that it provides protection against infectious complications that result in a shorter length of stay in hospital. The risks of infection in bile surgery have been determined as a history of acute cholangitis, jaundice, renal colic history. All these conditions lead to increased intra-abdominal pressure, which leads to the onset of sepsis process. Therefore, surgery in such cases is associated with a defined risk of infection. Therefore, some intervention is mandatory to cover these patients, especially those who are prophylactic with antibiotics. Diabetes, as well as being an independent risk factor for infectious complications, causes bile tract infections susceptible because it can alter the movement of the bile muscles. Therefore, diabetic patients were excluded from the protocol. In short, the risk of infectious complications of laparoscopic cholecystectomy, therefore, the problem of the use of prophylactic antibiotics is unimportant to open cholecystectomy and, besides, many centers and meta-analyzes have been extensively evaluated; Multi-use of the agreement is concluded that prophylactic antibiotics do not reduce the likelihood of infection complication, while direct use may be associated with an increase in cost and indirectly associated with various side effects that make the patient susceptible to

CONCLUSION:

Prophylactic antibiotics do not reduce the risk of infectious complications in patients undergoing laparoscopic cholecystectomy in a group of low-risk patients. In high-risk group, patients with age 60, diabetes, presence of jaundice, history of cholangitis and history of biliary colic within 30 days; should be evaluated in sufficient randomized controlled trials.

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