TO COMPARE THE EFFICACY OF SINGLE DOSE VERSUS CONVENTIONAL (MULTIPLE DOSES) ANTIBIOTIC USE IN LAPAROSCOPIC CHOLECYSTECTOMY IN TERMS OF SSI

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Abstract

Background: To compare the efficacy of single dose versus conventional (multiple doses) antibiotic use in laparoscopic cholecystectomy in terms of SSI

Methods: This study was carried out in the department of General Surgery Indira Gandhi Medical College Shimla (H.P.) on patients admitted with radiologically proven cholelithiasis.

Results: In SD group of patients out of 50 patients, 03 patients (6%) developed wound sepsis and in C group 02 patients (4%) developed wound sepsis. P value was 0.65 which is statistically insignificant.

Conclusion: The wound sepsis wise difference in both groups was found insignificant.

Keywords: Single dose, Conventional, Gallstone, Wound sepsis

Introduction

Surgical site infections (SSIs) are part and parcel of postoperative complication and contribute considerably to morbidity and mortality. Prevention of postoperative infection is an essential factor in improving the results of surgical procedures. Following the introduction of antibiotics and early clinical trials done in 1950; it has been reported that no benefit has been derived in terms of control of infection rate with antibiotic prophylaxis.¹⁻³

The antibiotic selected should be according to the activity of agent against the most common organism encountered during surgical procedure and the antibiotic should have a large volume of distribution with longer half-life and should be safe in terms of renal and hepatic toxicity. A single, effective and nontoxic drug is used to prevent infection by a specific microorganism or to eradicate an early infection. Single or multiple dosage regimes of antibiotics will be depending upon the patient resources, the surgical condition of the patient and the vulnerability of the patient for infection.⁴

Material and Method

Study Setting:

This study was carried out in the department of General Surgery Indira Gandhi Medical College Shimla (H.P.) on patients admitted with radiologically proven cholelithiasis.

Study Design:

This was prospective study in which comparison of outcome in the form of wound sepsis between two groups

was done. 1st was SD group (Received Single dose of pre-operative antibiotic) and 2nd was C group (Received Single dose Pre-operative antibiotic followed by post-operative antibiotic for 5days). Laparoscopic cholecystectomy was done and Comparison of outcome in the form of wound sepsis was done between two groups.

Sample Size:

A total of 100 patients randomly selected with ultrasound proven symptomatic cholelithiasis and admitted for elective laparoscopic cholecystectomy were included in the study.

Study Population

Inclusion criteria

All patients with radiologically proven cholelithiasis.

Exclusion criteria

- ☐ Patients with acute cholecystitis.
- ☐ Patients with diabetes mellitus.
- ☐ Patient with immunosuppression.
- ☐ Patients with intra-operative bile spillage.
- ☐ Patients with intra-operative stone spillage.
- ☐ Patients with empyema gall bladder.
- ☐ Patients not willing to give consent.
- ☐ Patient unfit for general anaesthesia.
- ☐ Pregnant woman with cholelithiasis.
- ☐ Patients with underlying bleeding diathesis.

□ Patients who had intra-operative complications or were converted to open cholecystectomy.

Method

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

Subsequently patients were divided into two groups

Group-1 [SD (Single Dose)]:- Patients who were given single dose of antibiotic (Inj. Cefuroxime 1.5gm) 30 to 60 min before giving skin incision.

Group-2 [C (Conventional)]:- Patients who were given single dose of antibiotic (Inj. Cefuroxime 1.5gm) 30 to 60 min before giving skin incision followed by same antibiotic for five post-operative days.

Laparoscopic Cholecystectomy was performed.

Statistical Analysis

All data were expressed as mean $\pm$ standard deviation. Data was analysed for comparison of outcome in the form wound sepsis occurring in two groups and P value was calculated. P value less than 0.05 was considered to be statistically significant.

Results

Total number of patients in our study was 100, 50 in each SD and C group. Out of 100 patients, 13 patients were male and 87 were female. In SD group of patients out of 50 patients, 03 patients (6%) developed wound sepsis and in C group 02 patients (4%) developed wound sepsis. P value was 0.65 which is statistically insignificant.

Table 1:

Group	Total Patients	No. of Pts. With wound sepsis	Percentage of Pts. With wound sepsis	P value
SD	50	3	6%	0.65
C	50	2	4%	

Discussion

There have been no studies in Indira Gandhi Medical College Shimla comparing the efficacy of single dose of antibiotic and conventional use (multiple doses) of antibiotics in patients undergoing laparoscopic cholecystectomy.

Out of 50 patients in SD group, 03 patients (6%) had wound sepsis and in C group, out of 50 patients, 02 (4%) had wound sepsis with P value of 0.65 which is statistically insignificant. It means that single shot antibiotic is as effective as conventional use (multiple doses) of antibiotics except in high risk patients with acute cholecystitis, empyema, stone/bile spillage and immunocompromised patients in which multiple doses of antibiotics are required. In our study conclusion is that uncomplicated patients undergoing laparoscopic cholecystectomy do not require multiple dose of antibiotics, single shot of antibiotic 30-60 min before surgery is sufficient. In a study performed by **Sutariya P et al.** in 2016, in patients undergoing laparoscopic cholecystectomy infection rate was 4.4% with single dose of antibiotic and that with multiple dose was found to be 3.3% which was found statistically insignificant.⁵ Results of our study are comparable to this study. In a study on Single Dose versus 24 - hours Antibiotic Prophylaxis against surgical site Infections performed by **Abro AH et al.** out of 32 patients undergoing Laparoscopic Cholecystectomy whom single shot of antibiotic was given, 02 developed SSI (6.25%).⁶ Results of our study is comparable to this study also.

Conclusion

The wound sepsis wise difference in both groups was found insignificant.

References

1. Mangram AJ, Horan TC, Pearson ML, Silver LC, Jarvis WR. Guideline for Prevention of Surgical Site Infection, 1999. Centers for Disease Control and Prevention (CDC) Hospital Infection Control Practices Advisory Committee. Am J Infect Control. 1999; 27:97-132.
2. . Howe CW. Postoperative wound infections due to Staphylococcus aureus. N Eng. J Med 1954; 251: 411-7.
3. Pulaski E. Discriminate antibiotic prophylaxis in elective surgery. Surg Gynec Obst. 1959; 108: 385-8.
4. Mc Kittrick LS, Wheelock FC Jr. The routine use of antibiotics in elective abdominal surgery. Surg Gynec Obst 1954; 99: 376-7.
5. Sutariya PK, Thekdi. Single dose versus multiple dose prophylactic antibiotics in laparoscopic cholecystectomy: a comparative study. Int Surg J 2016;3:633-636.
6. Abro A. H., Pathan A. H., Siddiqui F. G., Syed F., Laghari A. A. Single Dose versus 24 - Hours Antibiotic Prophylaxis against Surgical Site Infections. JLUMHS JANUARY-APRIL 2014; Vol 13: No. 01.