

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

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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 antibiotic complication

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: Majority of patients in this study were females (87%). Males were only 13%. Majority of patients were in age group 31-50 years (53%). None of the patients had any antibiotic related complications.

Conclusion: No patients had any complications due to antibiotics in both groups.

Keywords: Single dose, Conventional, Gallstone, antibiotic

Introduction

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. 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.¹

Smaller incision and use of trocars in laparoscopic cholecystectomy lessen the contamination resulting in less chances of surgical site infection. In fear of postoperative infection, many opt for the prolonged postoperative use of antibiotic and there is growing consensus against it. Antibiotics not only increases the cost and hospital stay duration but it aids in emergence

of multidrug resistance. The role of prophylactic antibiotic in various clean or clean contaminated surgeries reduces the risk of postoperative infective complication thereby reducing morbidity and mortality. Antibiotic prophylaxis are clearly not indicated for most patients undergoing straight forward clean surgical operations in which no obvious bacterial contamination or insertion of a foreign body has occurred.²

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 +/- 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.

Out of 100 patients, 13 patients were male (13%) and 87 were female (87%).

Table 1: Sex Distribution

Group of Patients	Total	Male	% of male Pts.	Female	% of female Pts.
SD	50	07	14%	43	86%
C	50	06	12%	44	88%

Out of 100 patients, youngest patient was 15 years and eldest patient was 80 years of age. In each age group following number of patients were there.

Table 2: Age Distribution

Age Group	No. of Patients	Percentage
10-20	02	2%
21-30	10	10%
31-40	27	27%
41-50	26	26%
51-60	21	21%
61-70	09	09%
71-80	05	05%
Total	100	

Table 3: Age Distribution

SD Group				P value
Total pts.	Mean age	Minimum age	Maximum age	
50	44.42±13.80	15	80	0.23
C Group				
Total pts.	Mean age	Minimum age	Maximum age	
50	47.70±13.68	24	80	

P value was 0.23 which is statistically insignificant

None of the patients had any side effects and complications due to antibiotics.

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.

In our study of 100 patients (50 in each group, SD and C group) youngest patient was 15 years of age and eldest was 80 years old. Majority of patients belong to the age group of 31 – 50 years (53%) and the mean age was 44.42±13.80 in SD group and 47.70±13.68 in C group of patients. Overall mean age was 46.06 years. In a study titled “Sex differences in prevalence and risk factors of asymptomatic cholelithiasis in Korean health screening examinee: A retrospective analysis of a multicenter study” performed by Kim SB et al. in 2017, mean age in male and female was found to be 47.7±10.5 years and 46.7±11.4 years, respectively.³ Results of our study are comparable to this study.

In our study out of 100 patients 87 were female (87%) and 13 were male (13%) as expected since gall stone disease is more prevalent in female. It is also evident from our study. In a study performed by Naser KH et al. titled “Port Site Infections After Laparoscopic Cholecystectomy” done in 2017, out of total patients 889, male were 89, constituting 10% of all patients. Results of our study are comparable to this study.⁴

Conclusion

No patients had any complications due to antibiotics in both groups.

References

1. Shah YD, Thekdi P, Raut S, Patel K. Single shot versus multiple shot antibiotic therapy in patients undergoing laparoscopic surgery: our experience. International Journal of Research in Medical Sciences. 2013;1(3):252-256.
2. Thapa SB, Kher YR, Tambay YG. Single dose intraoperative antibiotics versus postoperative antibiotics for patient undergoing laparoscopic cholecystectomy for symptomatic cholelithiasis: a

randomized clinical trial. Journal of Lumbini Medical College. 2017;5(1):13-17.

3. Kim, S., Kim, K., Kim, T., Heo, J., Jung, M., Cho, C., Lee, Y., Cho, K., Lee, D., Han, J., Kim, H. and Kim, H. (2017). Sex differences in prevalence and risk factors of asymptomatic cholelithiasis in Korean health screening examinee. *Medicine*, 96(13), p.e6477.
4. Al-Naser KH.(2017) Port site infections after laparoscopic cholecystectomy. *International Journal of Medical Research & Health Sciences*, 2017, 6(6): 132-137.