



PROPHYLACTIC ANTIBIOTICS IN LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

Laparoscopic Cholecystectomy is gold standard surgery now a days in most centers for cholelithiasis ,cholecystitis, gall bladder polyps .and since the incisions given are small and ,less of immune system is disturbed, the role of prophylactic antibiotics has been a subject of discussion, and controversy still surrounds the routine use of prophylactic antibiotics. Present study was designed to evaluate the role of antibiotic as prophylactic measure, in our setup at Teerthanker Mahaveer Medical College & Research center Moradabad .

Material and Methods: This prospective study was carried out in the department of surgery, on 256 admitted patients, for gallstone ,cholecystitis ,gall bladder polyps and were divided in three groups A,B and C, group C received antibiotic for three days twice daily in post-operative period. Post-operative complications like vomiting, port site infection, post-operative fever & biliary leakage were noted

Results: On analysis of results, the rate of post-operative complications was higher in Group A, while almost same in Gr B & C.

Conclusion: Antibiotics don't provide added benefits, but in general, single dose of perioperative antibiotic is safe and cost effective.

KEYWORDS : Laparoscopic Cholecystectomy, Antibiotics**Introduction:-**

Since 1980, Laparoscopic Cholecystectomy (L C), has become gold standard treatment of cholelithiasis ,Cholecystitis ,Cholesterosis ,& Gall bladder polyps .Elective Cholecystectomy carries a low risk of post -operative infection and other complication¹⁵, probably because of smaller wound and minimal tissue damage²³ and keeping this in back ground Scottish Intercollegiate Guide Line Network(SIGN) published its guidelines in 2000 that prophylactic antibiotics should not be prescribed for low risk LC²⁴, but on contrary many randomized controlled trials^{20,22} and large meta- analysis²⁵ reported significantly low risk of post- operative infection and complication with antibiotics and recommended the use of prophylactic antibiotics in LC and other biliary surgery.

Thus it becomes controversial to use prophylactic antibiotics in LC and biliary surgery. Many authors believe that prophylactic antibiotics are not needed at all^{9,15}, if adequate aseptic measures have been secured, but, still others not only use but also recommend the effectiveness of prophylactic antibiotics^{4,20s} although different regime and salts have been tried.

Because controversy still surrounds the routine use of prophylactic antibiotics in elective LC and it is not yet clear whether antibiotic prophylaxis in LC is of any advantage to the patient in terms of preventing infection , post - operative complications and cost of treatment, a prospective study was conducted on 156 patients coming to our tertiary care center OPD in department of surgery of Teerthanker Mahaveer medical College, Moradabad.

Material And Methods :

A prospective ,randomized ,controlled trial study was carried out in department of surgery in TMMC&RC Moradabad on 156 patients attending general surgery OPD with documented gall stones on ultrasonography and undergoing LC .between Dec 2016 to 2017. Inclusion criteria being all known cases of cholecystitis with or without cholelithiasis, cholesterosis , Gallbladder polyps.

Exclusion criteria was

- 1- Extremes of ages (<20yrs or >75yrs)
- 2- Known comorbid conditions like Diabetes Mellitus, Hypertension, Metabolic Disorders, Skin infections Malignancy.
- 3- Antibiotic taken in last 48 hrs. Prior to surgery.
- 4- Acute cholecystitis, pancreatitis, cholangitis.
- 5- Empyema gall bladder.
- 6- Cholelithiasis and post ERCP.
- 7- Any previous abdominal surgery.
- 8- Pregnant and lactating Mothers.
- 9- Allergy to antibiotics

Table No 1

Group A	No antibiotic in pre & perioperative period
Group B	Single dose of I V antibiotic during induction
Group C	I V antibiotics for three consecutive days in post-operative period twice daily
	Ceftriaxone 1 gm. was used as antibiotic

Observations:

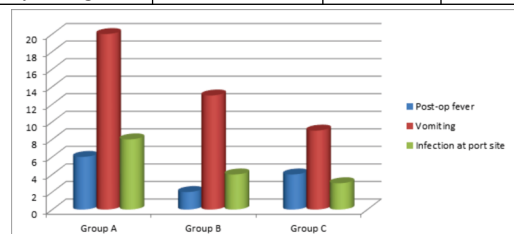
In postoperative phase, following parameters were observed:

Table No 2

Vomiting	At least two episodes with in first 48 hrs.
Post-operative fever	>101oF after 24hrs of surgery without any clinical signs of infection
Infection at port site	Any clinical sign of port-site infection on post-operative day 3
Biliary Leakage	Presence of bilious contents in the drain bag

Table no 3

Complications	Group A Total 50	Group B Total 51	Group C Total 55
Post-op fever	6	2	4
Vomiting	20	13	9
Infection at port site	8	4	3
Biliary leakage	1	0	0

**Total Cost of Treatment:****Table No 4**

Group C	Rs.11526
Group B	Rs.11071
Group A	Rs.7681

Discussion

Prophylactic Antibiotics can prevent infection in contaminated wounds, but are not indicated in those patients undergoing surgery in ideal conditions, especially in those cases in which no obvious bacterial contamination or insertion of a foreign body has occurred¹.

A majority of surgeons give prophylactic antibiotics before LC .Lapper and Gasting²⁰ in population based metacentric study, to evaluate antimicrobial prophylaxis in laparoscopic and conventional cholecystectomy ,recommended adequate perioperative antimicrobial prophylaxis because these patients fared symptomatically well, than those with no medication .Similarly other studies concluded that the use of prophylactic antibiotics in LC leads to significant decrease in infectious complications^{4,21}, conversely many prospective studies have suggested that the antibiotic prophylaxis is not required in LC ,because infection rate in LC is already low and antibiotic use as prophylaxis ,does not decrease SSI and other postoperative complications^{9,14}

Post- operative infective complications of conventional cholecystectomy are well known and therefore pre and post- operative use of antibiotics is routine in almost all centers .The wounds created in open and LC behave differently; because size of wound is much smaller and immune system is better preserved in LC. Since tissue trauma is much less², there is lesser activation of immune response following LC .In addition to the mentioned facts about immune response and smaller wound, mucosal defense barrier of respiratory, gastrointestinal, or genitoeithelium is also not disturbed.

Observing the above facts ,the need of prophylactic antibiotics in LC has been questionable and debatable and still it is not yet clear that prophylactic antibiotics in LC are of any advantage in terms of preventing infection ,cost effectiveness and hospital stay .Keeping the above facts ,the present study was carried out in department of surgery ,Medical College Moradabad ,UP ,on 156 patients in three groups (results in table on 1).Mean age was 45yrs, more of females .In our study Gr A where no preoperative antibiotics were given in our setup, the rate of post- operative complication like vomiting, pyrexia ,and port site infection was on much higher side ,as compared to Gr B and C (Table no 3) ,Gr B had slight non-significant edge over Gr C but the cost of treatment was low .In our study the SSI was on higher side (4.76%)in Gr B as compared to Gr C but in Gr A it was 8.4%.

Study conducted by Gaur and Pujahari¹⁸ ,concluded that the umbilicus is a very common site for sepsis following LC ,may be because of deep umbilical depression ,is most of time difficult to clean .Our findings matched with Pokharel and associates⁵ ,concluding that the use of prophylactic antibiotic is factor for lower incidence of post- operative infection after LC , also that the good technique and judicious use of antibiotics are major factors for decreasing the incidence of septic complications ,but Mahmoud and associates⁶ to assess role of antibiotics in elective LC, stated that antibiotic prophylaxis does not prevent wound infection ,also concluded that use of antibiotics to be restricted to high risk patients with associated comorbidities .

Paras Pandovein in his study on 240 patients, is of opinion that a single dose of prophylactic antibiotic, administered at induction of anesthesia, is sufficient enough to prevent post-operative complications , as has been noticed in our study .

Shindhohinath et al⁵ found that bactibilia was most important predictor of wound infection in low risk patients undergoing LC, it might not be possible to determine which patients have bactibilia by even routine investigations and thus recommended prophylactic use of antibiotics Uchiyama et al⁴ concluded that prophylactic antibiotics significantly reduce positive bile culture ,resulting in significant reduction in post- operative complications ,but Dervisoglou et al²⁶ was of opinion that positive bile culture and intraoperative gallbladder rupture were strongly associated with SSI and recommended routine use of antibiotics, on other hand many studies have indicated that SSI and other complications are not related to positive bile culture or rupture of gallbladder or spillage of bile or gallstones^{7,9,11,13,14} .

Summary

156 consecutive patients suffering from proven cholelithiasis ,on ultrasonography , underwent Laparoscopic cholecystectomy in surgery department of TMMC&RC, were studied .Follow up of all cases was done ,patients were divided in three groups A B C .No preoperative antibiotic was given to Gr A ,single dose or 1 gm. antibiotic to Gr B and Gr C was given antibiotic dose for three days .Results were analyzed for post- operative infection (SSI) vomiting ,post- operative fever, cost of treatment & ,hospital stay. Following observations were noted ----

1. Male/Female ratio was 1:3and mean age was 45 yrs. .
2. Upper abdominal pain was major complaint in majority of patients.
3. All patients under went LC.
4. Maximum complications were in Gr A, while Gr B and Gr C had almost same problems except cost of treatment which was much higher.

Conclusion

It was observed that antibiotics don't provide added benefits and on ideal conditions of asepsis, antibiotics are not required at all. In settings of general hospitals ,a single dose of injectable antibiotic during induction is safe and cost effective .

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