



STUDY OF SHORT COURSE PROPHYLACTIC ANTIBIOTIC TREATMENT (24HRS) IN CLEAN SURGERIES

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ABSTRACT

Background: Surgical site infections are the third most common type of nosocomial infections (over 70%). Perioperative antimicrobial prophylaxis constitutes the bulk of antimicrobial consumption in any hospital. Therefore, there is a need to adapt policies that decrease the incidence of such infections. A prospective study on “A short course (24hours) of prophylactic antibiotic treatment in clean surgeries” comprising of 400 patients was conducted from July 2015 to October 2016 under Surgical 2nd unit of Bowring and Lady Curzon hospital (Affiliated to Bangalore Medical College and Research Institute). **Results:** In our study surgical site infection rate in clean surgeries is 3.25 % **Conclusion:** Our findings indicate that a short course of perioperative antimicrobial prophylaxis(24hrs) are sufficient, efficacious, and cost-effective for prevention of surgical site infections in clean surgeries in Indian surgical set up.

KEYWORDS: antibiotic, antimicrobials, prophylaxis, clean surgeries, nosocomial infections.

INTRODUCTION

Surgical site infection are the 3rd most common type of nosocomial infections (70%), which are responsible for increased morbidity and mortality. Factors for SSI include host risk factors, surgical wound factors, virulence and pathogenicity of the microbe involved. Certain patient factors that predispose an individual for these infections include diabetes, nicotine use, steroid use, obesity, malnutrition, prolonged preoperative stay and perioperative transfusions. Other preoperative and intraoperative risk factors for surgical site infections include, infection at remote site not treated prior to surgery, long duration of surgery, improper skin preparation, improper surgical team hand preparation, environment of the operating room (ventilation, sterilization), surgical attire and drapes, asepsis and surgical techniques. But even so, the period of greatest risk is between opening and closing of the operation site. Surgical wounds are classified as follows:

- **Clean Wounds:** Operations in which no inflammation is encountered and the respiratory, alimentary and the genitourinary tracts are not disturbed. There is no break in aseptic operating theatre technique.
- **Clean-Contaminated Wounds:** Operations in which the respiratory, alimentary or genitourinary tracts are entered but without significant spillage.

- **Contaminated Wounds:** Operations where acute inflammation (without pus) is encountered, or where there is visible contamination of the wound. Examples include gross spillage from a hollow viscus during the operation or compound/ open injuries operated within four hours.
- **Dirty Wounds:** Operations in the presence of pus, or in a previously perforated hollow viscus, or compound / open injuries more than four hours old.

AIMS AND OBJECTIVES

To determine the effectiveness of short course (24 hours) antibiotic prophylaxis for clean surgeries and to compare it with the existing literature.

MATERIALS AND METHODS

This is a prospective study conducted from July 2015 to October 2016 under surgical second unit of Bowring and Lady Curzon hospital (affiliated to Bangalore Medical College and Research Institute) wherein a total of 400 patients undergoing elective surgeries for clean cases for various causes participated. Patients undergoing surgeries for clean contaminated, contaminated and dirty wounds were excluded from the study. A short course (24 hours) of antibiotic prophylaxis was used for the

patients during this period. The patients received injection Ceftriaxone 1g IV once at the time of induction of anesthesia before surgery and then about 6 hours after surgery. Surgical wounds were inspected on post-operative day 3 and discharged on post-operative day 4 and were followed up in the outpatient department afterwards. The diagnosis of surgical site infection was made on clinical and bacteriological basis. Patients with surgical site wound infection were kept inpatient and treated accordingly.

RESULTS

A total of 400 patients participated in the study, out of which 251 were males and 149 were females, age ranging from 20yrs to 80 yrs. Among the 400 patients, 13 patients had wound infection. 1 patient with surgical site infection was detected on post-operative day 3 and underwent circumcision. Among the remaining 12 patients, 3 patients had undergone inguinal hernioplasty, 4 patients had undergone mesh repair for para-umbilical hernia, 1 patient had undergone breast surgery, 2 patients had undergone cholecystectomy, and 2 patients had undergone surgical treatment for hydrocele. The wound of these patients were debrided/dressing was done, and they were given oral antibiotics for about 5 days. They were discharged on post-operative day 8 after infection control with continuation to follow up in out-patient department/minor OT.

In our study, the surgical site infection rate in clean surgeries is 3.25%

DISCUSSION

Antibiotic prophylaxis is a standard of care. There is no literature that recommends prolonged use of antibiotic prophylaxis in clean surgeries. But, most of surgeons however, prolong its use for the fear of surgical site infections. Studies reveal that the shorter course will go a long way in reducing microbial resistance and adverse reactions to antimicrobials. Also, the cost evaluation revealed that shorter course was less expensive than conventional longer course regimen.

Antimicrobials used should cover the commonly expected organisms in surgery. Maintaining aseptic precautions, incorporating appropriate operation theatre protocols and short course antibiotic prophylaxis and sterile dressings will reduce the chances of infection.

In our study surgical site infection rate is 3.25% which is low compared to the earlier studies.

CONCLUSION

Our findings show that short course (24 hours) use of perioperative antimicrobial prophylaxis is sufficient and

cost-effective for prevention of surgical site infections in the Indian set up.

Table 1: Various Surgeries.

Name of The Surgery	No. of Surgeries
Inguinal hernioplasty	105
Para-umbilical hernia mesh repair	60
Breast surgeries	27
Appendicectomy	12
Thyroid/ midline neck swellings	23
Bowel swellings	8
Cholecystectomy	35
Vascular surgery	20
Circumcision	10
Scrotal surgeries	35
Miscellaneous	65
Total	400

Table 2: Age Distribution.

Age group in years	No. of Patients
21-30	99
31-40	130
41-50	101
51-60	55
61-70	7
71-80	2

Table 3: Infections in Various Surgeries.

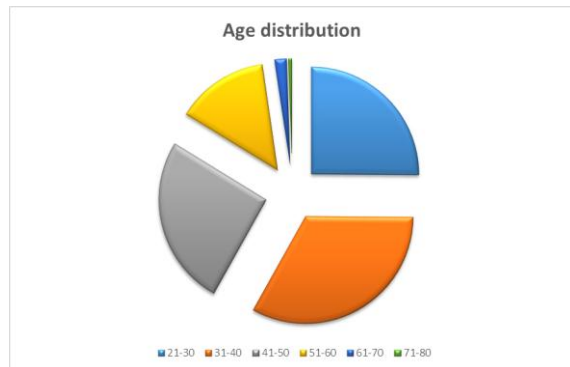
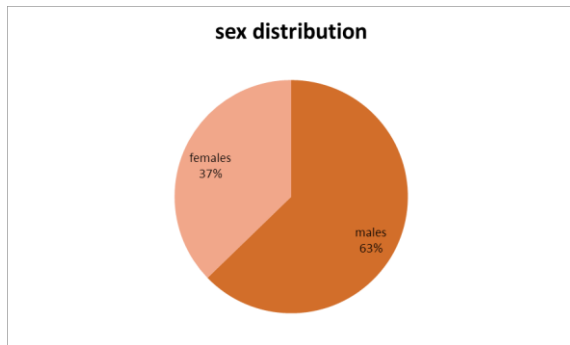
Infected cases	No. of Cases
Inguinal hernioplasty	3
Para-umbilical hernia mesh repair	4
Breast surgery	1
Cholecystectomy	2
Hydrocele	2
Circumcision	1
Total	13

Table 4: Surgical site Infection from Different studies in India.

Name of the college	Number of Patients	Number of infected	Infection Rate%
Grant Medical College, Mumbai, Maharashtra	132	4	3.03
B. J. Medical College, Ahmedabad, Gujarat	66	2	3.03

Table 5: Surgical Site Infection in our Study.

Number of patients	Number of infected	Infection Rate %
400	13	3.25



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