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Research article

A RANDOMIZED CONTROLLED STUDY OF RISK FACTORS AND ROLE OF PROPHYLACTIC ANTIBIOTICS IN PREVENTION OF SURGICAL SITE INFECTIONS

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ABSTRACT

Background and Objectives: Surgical site infection (SSI) is the most common nosocomial infection encountered in post operative surgical wards. The use of prophylactic antibiotic in clean elective surgical cases is still a subject of controversy to surgeons. The objective of the study is to identify the need for using prophylactic antibiotics in clean surgeries, prevalence of organisms in patients who are not given prophylactic antibiotics and to study whether the presence of risk factors increase the incidence of surgical site infection. **Methodology:** The comparative study consists of 100 cases admitted under two groups of 50 each: Group A was given prophylactic antibiotic and Group B didn't receive any. All surgeries other than clean surgical cases were excluded from the study. **Results:** Out of 50 patients in group B who were not given prophylactic antibiotic, 2 patients had more than one risk factor for development of SSI and both of them developed SSI. Of the 50 patients who received prophylactic antibiotic, none developed SSI. The rate of infection in group A was nil and in Group B was 4%. **Conclusion:** Prophylactic antibiotics are not recommended for clean elective surgical cases as there is no statistically significant change in the infection rate seen in patients not receiving prophylactic antibiotic(P=0.4952). Meticulous surgical technique and correcting risk factors prior to surgery is a must for reducing incidence of SSI.

Keywords: Cephalosporins; Noscomial infection; Prophylactic antibiotics; Surgical site infection.

INTRODUCTION

Surgical site infection (SSI) is one of the most frequent causes of post-operative morbidity. SSI is the most common nosocomial infection in our population, reaching 38% of all infections in surgical patients. Incisional infections are the most common accounting for 60% to 80% of all SSIs[1].They present with redness, delayed healing, fever, pain, tenderness, warmth or swelling. Additionally, they may also produce pus discharge. The emergence of prophylactic antibiotics has made a huge contribution towards extending range and complexity of surgical procedures. The antibiotic era which began more than 5 decades ago has revolutionized the treatment of surgical infection, particularly during post operative period. It has led to reduction in surgical site infections, which complicate the clinical management of surgical patients often lengthening the hospital stay and increasing the cost of providing medical care. The explanations for this continuing problem with infection is obviously multifactorial, but the wide

spread use of antibiotic has frequently resulted in an unrealistic over dependence on their effectiveness in treating disease with consequent violation of established surgical principles and the breakdown of isolation procedures. The concept of pre operative antibiotic was mooted by Stranchan in 1977, where he compared a single preoperative dose of Cefazolin with a regime of Cefazolin given for a period of 5 days post operatively. The infection rate seen in single dose was 3% and in multiple postoperative dose was 5%[2]. Prophylactic antibiotic therapy is clearly more effective where began preoperatively and continued through the intra operative period, with the aim of achieving therapeutic blood levels throughout the operative period[3]. In the current study, we want to emphasize on the risk factors that increase the SSI and role of prophylactic antibiotic administration to clean surgical cases in this institution.

Objectives

1. To evaluate the need for using antibiotics in clean surgeries
2. To determine whether prophylactic antibiotic is itself sufficient to minimize surgical site infection
3. To study the patient response to prophylactic antibiotic with respect to age, nutrition and general physical status
4. To scrutinize whether presence of risk factors increases the incidence of surgical site infection

MATERIAL AND METHODS

The study was done over the duration of one year and 100 cases were selected for our study purpose. Patients those presented in surgery OPD, a complete clinical history was taken, and clinical examination was done and underwent relevant investigations. This randomized controlled trial was done at Adichunchanagiri Institute of Medical Sciences, Mandya. For sample size calculation because of lack of evidence and in view of need for a large sample we chose 50 patients in each group. After explaining the purpose of the study and taking informed written consent, patients were enrolled in the study. We followed the pair wise randomization method, where we recruited 2 participants at a time and then randomized them to intervention and control group, by asking them to pick chit. This was done to ensure equal number in both the arms. Duration of the study was for 12 months. All of the cases considered for the study were clean surgical cases and underwent surgery in an utmost sterile environment.

Methods

This study involved only clean cases of elective surgeries. The study group involved 100 clean (uncontaminated) surgeries done in our hospital. Only cases with Type 1 surgical wound (Clean cases) were included in the study. Pregnant women and very elderly (>60 yr) were excluded. The group was split into group A and group B of 50 cases each. Group A comprised of patients who received a pre-operative single dose of Cefotaxime a broad spectrum cephalosporin. Group B received no such prophylactic antibiotic. The groups were split into two, taking consideration the type of surgeries, the age of the patient, the presence or absence of risk factors for development of SSI, and associated medical conditions, all of which were represented in both the groups almost equally and a comparative clinical study was made. Ethical committee clearance was obtained.

On admission to the hospital, a detailed proforma was completed, which includes the diagnosis, pre-operative investigations and meticulous pre-operative patient preparation. All the patients were followed unto ten days post operatively. Wound swabs were sent for culture and sensitivity in infected cases and the results were compared and studied. Patients were admitted on our out-patient days. Patients were categorized as clean cases, depending on their complaints, clinical examination and diagnosis. Patients with remote infections like respiratory tract infections or urinary tract infections were treated on out-patient basis and taken up for surgery after 2 weeks. Patients were informed regarding the study and informed consent was taken. All patients were admitted a day prior to surgery after getting thoroughly investigated and also some special investigations in selected cases to clinch the diagnosis was performed. The preoperative hospital stay was minimized to prevent the patient from getting the access to hospital infections.

Patients with diabetes mellitus were treated appropriately. Preoperative skin preparation was done meticulously. Night before patients were allowed to take a thorough scrub after which parts were prepared with povidone iodine on table and surgical site was isolated from the surrounding by covering operative site by sterile gauze. A single dose of IV Cefotaxime

1 gm half an hour before surgery was administered. Patients were anesthetized suitably under aseptic precaution. Sterile gauze was removed and patient's skin was painted with povidone iodine solution and sprit and allowed to dry. Surgical site was draped. Movement in the operating room was restricted. Whenever necessary, closed suction drain was preferred. Patients were isolated in the postoperative ward for at least 3 days.

Drains, when present, were removed on second postoperative day. Wound was inspected on third day for signs of inflammation and infection. If infected, wound swab was taken and sent for culture and sensitivity and antibiotic was started immediately in all infected cases.

Sutures were removed on the eighth postoperative day. Patients were followed up to tenth postoperative day. The available results and outcomes in both groups were studied and analyzed and compared with the available previous study and final conclusion was drawn.

Statistical Analysis: Descriptive statistical analysis has been carried out in the present study. Statistical software SPSS 15.0 and MedCalc 9.0.1 have been used

RESULTS

Infection Rate: Group A had 50 clean surgical cases out of which none of them were infected. In group B out of 50 clean cases, 2 cases were infected. (Table 1)

Age of the patients: The age varied from 6 to 60 years, but the maximum number of patients belonged to 31 to 40 yrs age group. Two patients in group B were infected. One belonged to the 31-40 yrs age group and other in the 41-50 yrs age group. (Table 2 & 3)

Sex Distribution: In both groups, both sexes were distributed almost equally, male percentage 56% and female percentage 44% in both groups. Both the infected cases were females in the present study.

Risk Factors: Out of 100 cases taken up for the study 21 patients were identified to have risk factors for development of surgical site infection. In the present study 2 patients in group B with obesity were found to have a prolonged duration of surgery contributing to more than one risk factor for development of SSI. Both the patients who had a prolonged duration of surgery and obesity developed surgical site infections. The patients with diabetes mellitus (4 patients) were corrected of their diabetic status prior to surgery. None of them developed SSI. 10 patients with anemia (corrected prior to surgery) and 3 patients with old age did not develop SSI. (Table 4 and Graph 1)

Culture Report: Culture was sent of both the infected patients. Isolated organism was staphylococcus coagulase negative, which was hospital strain and was sensitive to cephalosporin and ciprofloxacin and was resistant to penicillins, ampicillin, streptomycin etc.

Duration of Surgery: All the cases in this study were clean elective surgeries conducted by senior consultants. The average duration of the surgery in our study from the time of skin incision to the time of closure was 1 hour 32 minutes. The minimum time was 42 minutes and maximum time was 2 hours 17 minutes. One patient in our study who got infected the duration was 1 hour 47 minutes and the other patients who got infected the duration was 2 hours 5 minutes. (Table 5 & 6)

Time of Operations: All surgeries were conducted between 9 am and 2 pm and the percentage of surgical site infection in group B was 4% and zero in group A. (Table 7)

Drains: In the present study 32 patients were provided with closed suction drainage and none of them got infected, contributing to the use of closed suction drainage to prevent surgical wound infection rather than the open drainage method. (Table 8)

Antibiotic and timing of prophylaxis: In the present study a third generation Cephalosporin was administered half an hour before the incision under aseptic precaution to all the patients in Group A and none in Group A got infected when compared to the Group B, where no such antibiotic was given and there was an incidence of infection rate of 4% (2 patients were infected). When the statistical analysis was done p-value was found to be 0.4952 which was statistically not significant. There were no reports of any allergy and adverse effected to the prophylactic drug chosen. (Table 9)

Table 1: Infection rate seen in the study

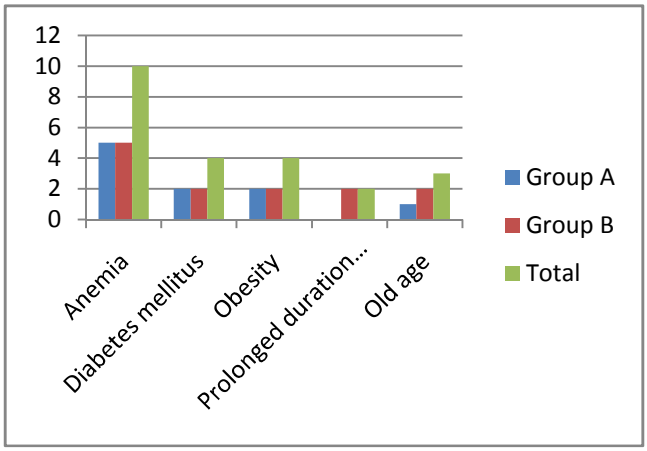
	Number of Cases	**No. of cases infected**	**Rate of infection**
Group A	50	0	-
Group B	50	2	4%
Total	**100**	**2**	**2%**

Table 2: Showing age distributions of patients in present study group

Group A		
Age in Years	**No. of cases**	**No. of Patients infected**
0 – 10	2	-
11 – 20	2	-
21 – 30	6	-
31 – 40	29	-
41 – 50	10	-
51 – 60	01	-
Group B		
Age in Years	**No. of cases**	**No. of Patients infected**
0 – 10	0	-
11 – 20	2	-
21 – 30	4	-
31 – 40	26	1
41 – 50	12	1
51 – 60	2	-

Table 3: Showing distribution of individual risk factor in affected group

Risk factors	Group A	Group B	Total	%
Anemia	5	5	10	43.4
Diabetes mellitus	2	2	4	17.3
Obesity	2	2	4	17.3
Prolonged duration of surgery	0	2	2	8.6
Old age	1	2	3	13.1
Total	**10**	**13**	**23**	**100**



Graph 1: Showing distribution of individual risk factors in affected group

Table 4: Duration of Surgery in the Present Study Group

Group A			
Age in Year	**No. of Cases**	**No. of cases infected**	**% of infection**
< 1 hour	25	-	-
1-2 hours	24	-	-
< 2 hours	0	-	-
Group B			
Age in Years	**No. of cases**	**No. of Cases infected**	**% of infection**
< 1 hour	22	-	-
1-2 hours	26	1	3.84
< 2 hours	2	1	50

Table 5: Showing timing operation and incidence of surgical site infection

	Time of Surgery	**No. of cases operated**	**No.of cases infected**	**%**
Group A	9am-2pm	50	0	0
Group B	9am-2pm	50	2	4

Table 6: Closed suction drain and wound infection rate

	Closed suction drainage kept	**Incidence of wound infection**	**%**	**Closed suction drainage not kept**	**Incidence of wound infection**	**%**
Group A	16	-Nil-	0	34	-Nil-	0
Group B	16	-Nil-	0	34	2	5.8

Table 7: Showing infection rate with and without prophylactic antibiotics

	No. of Cases	**No. of cases infected**	**%**
Group A	50	0	0
Group B	50	2	4%

Table 8: Infection rate in different studies

	Studies	**Infection rate without risk factors**	**Infection rate with risk factors**
1	Chowdary et al.	3.00%	8.95%
2	S.S. Gill	0.76%	10.32%
3	Agarwal	1.47%	38.46%

Table 9: Most common organism isolated

Studies	**No. of cases infected**	**No. of cases infected with S. aureus**	**%**
Lilani et al[4].	17	14	82.3
Mangram et al	124	87	70.1
Olson MM	9066	7881	86.9

Table 10: Types of surgeries and infection rate

Studies	Clean	Clean contaminated	Contaminated
Lilani et al [4].	3.68 %	22.4%	32.45%
Cruse et al [6].	7%	18%	>35%
Anne etal.	0.59 %	2.6%	26%
Present study	2%	-	-

Table 11: Comparison of wound infection rate in relation to the duration of operation

Study	Time in Hours		
	0-1 Hours	1-2 Hours	>2 Hours
Cruise et al[6].	1.4%	1.8%	4.4%
Public health laboratory service report UK 1960	9.9%	16.1%	20.7%
Lilani et al [4].	-	1.47%	38.46%
Present study	-	3.84%	50%

Table 12: Time of Operation and incidence of wound infection

Time	Incidence of Infection in Clean Surgeries
8 am to 4 pm	7.00%
4 pm to Midnight	2.3%
Midnight to 8 am	6.8%
Present study (9am to 2pm)	4%

Table 13: Incidence of infection with the use of drains

Studies	Drain placed	Drain not placed
Lilani et al.[4].	22.4%	3.03%
Rao et al.[5].	30.40%	2.5%
Cruise et al.[6].	20.1%	4.5%
Olson MM .	25%	3%
Mangram AJ .	17%	3.5%

Table 14: The present study is compared with that of the similar studies conducted in the past

Study group	No antibiotic administered No. of patients	% of Infect-ions	No. of Prophylactic antibiotic administered Patients	% of Infections	P-Value
Stone et al.	795	17.4	771	9.9	<0.05
Kal et al.	100	12.9	65	18.5	NS
Carlson et al[14].	58	24.1	60	3.3	<0.01
Ann D et al.	427	0.94	414	0.2	NS
Rao et al[5].	100	2.3	100	1	NS
Knight R et al [15].	511	1.21	512	0.94	NS
Present study	50	4	50	-	0.4952 (NS)

DISCUSSION

Surgical site infection though has been documented ever since origin of surgery has not been able to be mastered. Its incidence can be reduced by strict asepsis, meticulous surgical techniques, prophylactic antibiotic have drastically reduced the incidence of SSI. The onus also lies on the patients in maintaining wound hygiene and not to soil or meddle with the dressing in the operated area.

Lilani et al[4], analyzed 190 patients of clean and clean-contaminated surgeries and found the incidence of SSI in patients to be 8.95%. The incidence of SSI in clean cases was found to be 3.03% which was found to be reduced with decrease in preoperative stay and avoiding the use of drains.

Age Incidence: Though surgical site infection affects all age groups, its incidence increases with age and is seen frequently in older age groups. In our present study the maximum numbers of cases were represented in the age group 31-40 yrs. The age incidence in the present study varied from 6 to 60 years, but the maximum number of patients belonged to 31-40 yrs age group.

Though the older age group is considered a risk factor for development of SSI, in the present study the age group 30-50 yrs had two cases of wound infection and 50-60 yrs were not affected. The absence of surgical site infection in the 50-60 yrs age group was probably due to the fact that less number of cases where present in the 50-60 yrs group in the present study.

Rao et al[5], should in their study that SSI, incidence in doubled in the older age group 50-70 yrs and the incidence of severe complication following is increased in both extremes of ages i.e., < 10 yrs and > 60 yrs.

Sex: In both groups, both sexes were distributed equally, male percentage being 56% and female percentage 44%. Both the infected cases were females in the present study. There is no evidence supporting the fact that females are at increased risk of incidence of SSI.

Role of Risk Factors: In the present study the patient factors when controlled prior to surgery did not cause any infection. But 2 patients in Group B who where obese and underwent prolonged duration of surgery had infection. Both the cases were infected. Four patients in the present study were

obese based on their body mass index were represented equally in both the group, two in each group. None of the patient in Group A developed infection, but both the patients in Group B developed surgical site infections. The two obese patients represented in the Group B also had prolonged operating time, probably because it was difficult to perform surgery in obese patients, the duration being one and half hours for one patient and two hours for another patient. Both the patients with obesity and prolonged duration of surgery developed surgical site infection and belonged to Group B. It can be said from the present study that presence of more than one risk factor has a significant impact on the development of surgical site infection and when not provided with adequate antibiotic coverage are at (prophylactic antibiotic dose)definite risk of development of surgical site infection. Cruise and Ford have demonstrated that presence of obesity as a single independent risk factor for development of SSI and prolonged time of surgery also increases the incidence of surgical site infection[6].

Anemia was present in 10 patients and all were treated preoperatively for correction of anemia. The patients were equally distributed in both the groups with 5 each in Group A and Group B. None of them developed surgical site infection. Hence anemia when corrected preoperatively does not pose a risk for development of surgical site infection. (Table 10)

Culture report: Culture of both the infected patients was done. Isolated organism was staphylococcus coagulase negative, which was hospital strain and was sensitive to cephalosporin and ciprofloxacin and was resistant to penicillins, ampicillin, streptomycin etc. This clearly indicates that the cause for both the patients to get infected is nosocomial infection i.e., hospital acquired infection. Studies show S. aureus as most common organism isolated from SSI. (Table 11)

Socio economic status: All the patients at our rural hospital were from low socio economic status. Hence all the extra expenditure for the patients was brought down.

Diabetes mellitus : Funary AP et al. in their study showed that when blood glucose level were kept strictly below 200 mg/dl during the preoperative period by continuous intravenous infusion of insulin reduced the incidence of SSI from 24% to 6.06% which was statistically significant[7].

Richard J Ehrilchman et al, has confirmed by their studies that diabetes mellitus is associated with poor wound healing and high infection rates. Diabetes and the resultant hyperglycemia lead to decreased function of leucocytes, especially decreased cemotaxis and phagocytosis.

In the present study, 4 patients were diabetic (Group A - 2, Group B - 2) their blood sugar level was well controlled before and after surgery. None of the patients got infected so it can be said that with the proper control of diabetic status, infection rate can be reduced.

Preoperative hospital stay: Studies by Cruise et al, shows that infections of the wound lengthen the patients' hospital stay and vice versa. The longer the patient stays in the hospital before surgery more susceptible to surgical site infection. They also showed with 1 day preoperative stay infection rate was 1.2% with 1 week pre operative stay infection rate was 2.1% and more than 2 weeks stay 3.4%. In the present study, preoperative stay was shortened for all patients and still infection rate was 4% in Group B.

Types of Surgery Undertaken: The type of surgery undertaken had a significant role in the development of SSI (Table 12). All the 100 cases were elective clean surgeries. Of the 100 case studies, 56% of the study group patients were inguinal hernia patients either bilateral or unilateral 24% were multinodular goitres. 12% were epigastric herniae patients and 8% were lipomas all of them were equally represented in both the groups.

The Patients Skin: Studies by Cruise et al[8], and Hamilton et al[9], showed that if the patients did not shower the infection rate was 1.3%, and if the patient showed before operation and used soap, the infection rate was 2.1% and if hexachlorpropane was used in the shower the infection rate was 1.3%. Shaving at the operation site increased the infection rate of clean wounds. In patients who were shaved with a razor infection rate was 2.5% in patients who were not shaved but had their hairs clipped the infection rate was 1.7%. In patients who neither shaved nor clipped the infection rate was 0.9%.

In the present study all the patients were allowed to take a scrub bath the previous night and the area was shaved by a razor under aseptic precaution and then immediately painted with providing iodine solution and them sterile gauge used to prevent bacterial

multiplication. The overall infection rate when both the groups were combined together the infection rate was 2% and in Group A where the prophylactic antibiotic was given the incidence of infection was nil.

Skin drapes: Studies Cruise et al, and Parkis and Lemer and also by Rao have showed that with the usual cotton drapes the infection rate was 1.5% in the present study all the patients were draped with cotton drapes and the infection rate without antibiotics was 4% and with antibiotics it was nil.

Scrubtime and Gloves: Dineen found that there is no difference between 5 and 10 minutes of surgical scrubs. He studied counts of bacteria on the hands of surgeons at the end of two hour operation and showed no variation with use of providone iodine or hexachlorpropane. The economics in scrub time is obvious. The water conservation factor is rarely considered. Galle et al[10,11]. State that 10 minutes scrub used 50 gallons of water. In the present study the scrub time was 10 minutes with chlorhexidine soap. This factor has not been associated with the increase in the infection rate in clean surgical wounds.

Duration of Surgery: Cases were taken to complete the surgery as early as possible and efficiently. Studies indicate that the more the time taken for surgery, the more the chance of infection. Both cases of SSIs in our study had taken more than the average time. Various studies indicate that there is a direct relationship between the length of the operating time and the rate of infection of clean wounds roughly double with every hour of operation time and is as shows in the various studies done previously in the Table 13.

There is a direct relationship between the length of the operating time and infection rate, the rate of infection of clean wounds roughly double with every hour of operating time. The explanation of high infection rate in > 2 hrs group in the present study is probably because of the small number of cases in that group.

Possible explanation for the increase in the infection rate with the duration of the operation is

1. Dosage of bacterial contamination increase with time.
2. Wound cells are damaged by drying and by exposure to air retractors.
3. Increase amount of suture and electro coagulation may reduce the local resistance of the wound.
4. Longer procedures are more liable to be associated with blood loss and shock, thereby reducing the general resistance of the patients.

In the present study two cases in group B got infected and their surgery took nearly hours contributing the incidence of infection to the duration of surgery. With antibiotic prophylaxis the incidence of infection even in such operations is lessened. (Table 13)

Time of Operation: When the operative procedure is done between midnight and 8 am the infection rate in clean cases were almost double. The reason is most likely due to loss of perfect operative techniques because of weakness. Public health laboratory service of United Kingdom has given a correlation of incidence of infection with that of time of surgery.

Since all our surgeries were elective clean surgeries, they were conducted during the morning hours and were top of the theatre list. (Table 14)

Theatre and Surgical wards aerobiology of the operating room[12,13].

In the present study the operating room was equipped with a circulator and air conditioner the movement between the outdoor and the room was restricted for all the surgeries, only two patients got infected and their wound swab culture reports showed presence of staphylococcus coagulase negative in both the patients contributing to the cause of infection may be at the operating room or post operative ward.

The source of airborne bacteria in the operating room is the skin of the people present in the room, like surgeons, assistants, anaesthetist and paramedical staff. The occurrence of staphylococcus aureus and staphylococcus coagulase negative in the air is dependent on the presence of a disperser. A person may be disperser if he has a skin disorder or a septic lesion. So as far as possible such persons should not be left into the ward or operating room.

The proportion of anaerobes in air counts from the operating room is about 30% of the total number of bacteria. The anaerobic species most commonly found in the air are propionobacteria and anaerobic cocci.

Airborne bacteria reach the wound by sedimentation into the wound. These also settle to all other surfaces that are exposed to the air such as instrument and the surgeon's glove and are therefore transferred to the wound by an indirect route as well.

The bacteriological requirement of ventilation is to provide the operating room with clean air so that airborne bacteria from outdoor air or from other points of the hospital and the adjacent room do not reach the theatre. The ventilation should also remove the airborne contamination produced inside the theatre.

Surgical techniques: All the surgeries were conducted by senior staff and assisted by the training post graduates, thorough scrubbing was done under aseptic precautions. Group A patients received pre operative single dose prophylaxis half an hour before surgery in the form of 1 gm cefotaxime. In all the cases, disposable blades and sterile cotton drapes were used. Coagulation of the bleeders was not done instead they were ligated to prevent excess damage to the tissue. Meticulous surgical techniques were practiced, as far as possible non braided monofilament sutures were used. Skin was sutured by linen or silk, under minimal tension, drains were brought out through a separate opening. Wound was cleaned with spirit and sterile dressings were applied. Patients were shifted to the post operative ward, where they were taken care of by the resident doctors and senior nursing staff.

Drains: In the present study 32 patients were provided with closed suction drainage and none of them got infected, contributing to the use of closed suction drainage to prevent surgical wound infection rather than the open drainage method.

Cruise et al[14,15] have shown experimentally that bacteria can gain entry into the depth from the skin via open drains when compared to closed suction drain. Closed suction drainage provides an answer to the problem, although closed suction drainage using tube of smaller diameter appears to be effective one would caution against the use of larger tubes, especially in patients with poor wound healing, because the defect caused by the larger tube may provide a passage way for retrograde entrance of bacteria into the wound.

Following an operation blood and plasma in small quantities are found in the layers of the wound, they are beneficial in the prevention of multiplication of bacteria as this collection contains opsonin, which prevent bacterial invasion. With time the concentration of opsonin decreases and this collection now acts as a nidus for infection, therefore it is logical to use drains in a situation where one expects a collection of large quantities of exudates in the layers of the wound. However, drains are double edged weapon as they can form a tract for entry of the exogenous organism into the depth of the wound.

Antibiotic and timing of antibiotic prophylaxis: In the present study the use of third generation cephalosporin is justified as it is used as a single dose and is having a prolonged half life up to 8 to 12 hours which will take case of the wound in its initial crucial phase. It was administered half an hour before the incision under aseptic precaution to all the patients in group A and no patients in group A got infected when compared to the group B, where no such antibiotic was given and there was an incidence of infection rate of 4% (2 patients were infected). When the statistical analysis was done p value was found to be 0.0694 (statistically insignificant). In the present study the incidence of infection in the study Group B was 4% compared to be nil in study Group A this difference in the occurrence of postoperative infection between the two study groups however was found to be nonsignificant statistically that is p - 0.4952.

CONCLUSION

This study is one of the most important facets of general surgery. SSI is a condition that may present with minimal morbidity but in severe cases may lead to loss of hospital resources, emergence of resistant bacteria, or may even lead to death of patients due to sepsis. Local and microbial factors should be borne in surgeon's mind and appropriate steps taken to avoid them. Meticulous surgical techniques should be practiced and undue delay in the procedure should be avoided to prevent postoperative wound infection. To prevent surgical infection logical investigations of the underlying source of infection, anticipation and adherence to sound principles governing antibiotic prophylaxis and treatment should be employed.

Single dose preoperative prophylactic antibiotic is a powerful tool to fight post operative surgical site infection when used in selected appropriate cases. The use of prophylactic antibiotic in all clean cases is not justified as the available data show no statistical significance in the group with prophylactic antibiotic and the group without prophylactic antibiotics. Lastly, misuse of antibiotics should be avoided as it will lead to increased cost burden on patients, and increase the emergence of resistant microorganisms

and also increase side effects seen with antibiotic usage. This aptly applies to the rural population, which this study primarily involves.

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Conflict of Interest: Nil

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