International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2020): 7.803

A Simple Strategy to Reduce Postoperative Wound Infections

Dr. Kritika Rohora[1], Dr. Sunil Sharma[2], Dr. Sushil Kumar[3]

Resident, Mahatma Gandhi Mission Hospital, Kalamboli

[2]Professor, Mahatma Gandhi Mission Hospital, Kalamboli

[3]Professor &HOD, Mahatma Gandhi Mission Hospital, Kalamboli

Abstract: ***This is a retrospective study in which the incidence of postoperative wound infections in obstetrics and gynecological abdominal surgeries was studied. In January 2019 a new preoperative prophylactic measure was introduced. In the new protocol the abdomen of the patient awaiting surgery was scrubbed with chlorhexidine and povidone iodine solutions and the solution allowed to dry after this the patient was shifted to the OT and rescrubbed. The postoperative wound infection rates of pre January2019 and cases after the new prophylactic measure was compared. It was observed that the infection rates substantially and progressively decreased. Hence validating the new preoperative prophylactic measure.***

Keywords: Wound Infection, Surgical site preparation, Postoperative infection, wound infections after gynecological surgeries

1. Introduction

Postoperative wound infections are one of the most frequent cause of postoperative morbidity.[1]According to WHO wound infections are most frequently reported health care associated infection in low and middle income countries with an incidence of 11.8 per 100 surgical procedures.[1] All the preoperative and postoperative prophylactic measures are important including 'Antibiotics prophylaxis', 'Surgical site preparation and 'check dressing' after 48 to 72hrs after surgery. 'Surgical Site Preparation' which aims to reduce the microbial load on patient's skin as much as possible before the skin barrier is incised. The most widely used agents are spirit, chlorhexidine, tincture iodine and povidone iodine solutions, which are effective against a wide range of bacteria, fungi and viruses. Most of the time infection occurs if skin preparation protocols are not strictly followed. The initial aim of the study was to strictly adhere to the skin preparation protocols and see if that could reduce the post-operative infection rate after abdominal surgeries.

2. Materials and Methods

This was a retrospective comparative study. It was conducted in Obstetrics and Gynecology Department in MGM Hospital, Kalamboli from January 2018 to December 2020.This study included all the postoperative patients of Obstetrics and Gynecological abdominal surgeries operated in MGM hospital Kalamboli, Mumbai.

1) List of Procedures Included-(Table 1)

A new preoperative prophylactic measure was introduced from January 2019 i.e. Abdomen of the patient awaiting surgery was scrubbed with chlorhexidine and povidone iodine solutions and the solution allowed to dry after this the patient was shifted to the OT and rescrubbed. The patients were divided into 2 groups-

- Group A included patients operated in 2018 before introduction of the new prophylactic measure.
- Group B included patient operated in 2019 and2020 after introduction of the new prophylactic measure.

Hospital Medical Records were studied to collect the data. Cases included as wound infections were postoperative patients who complained of pain, tenderness, induration, discharge from wound site or with wound gape(FIGURE 1). In all cases with wound discharge swabs for culture and antibiotic sensitivity test were sent.

The 2 groups were compared regarding the incidence of wound infection postoperatively.

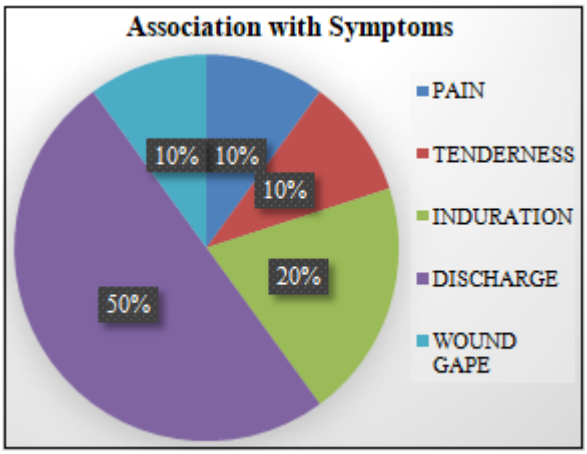

Figure 1: Symptoms associated with wound infection

Table 1: List of procedures included in the study and Showing reduction in resuturing procedures Over 3 years

Operations	2018	2019	2020
Lower segment caesarean section	1025	1317	1347
Exploratory Laparotomy	35	42	22
Open Myomectomy	04	03	01
Sling surgeries	06	02	15
Abdominal Tubal Ligation	36	45	04
Hysterotomy	-	02	02
Obstetric Hysterectomy	03	-	21
Total Abdominal Hysterectomy	33	49	21
Wound Resuturing	105	44	1413
Total Operations	1142	1460	

Association with Organisms

Staphylococcus aureus was the predominant organism isolated (37.3%) followed by Gram negative organisms. However Klebsiella and E.coli together (Gram negative organisms) accounted for >50% of the isolates. (FIGURE 2) Ampicillin, Amoxicillin, Penicillin, Cephazolin and Tetracycline showed resistance while Gentamicin and Ciprofloxacin were relatively effective antimicrobials.

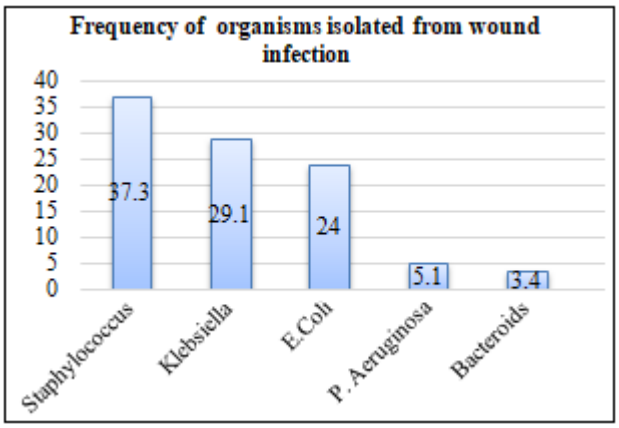

Figure 2: Frequency of pathogenic bacteria isolates from postoperative wound infection

3. Result

A total of 3715 patients underwent a surgical procedure during the study period.

Incidence rate was calculated by the formula-

Total no. of cases in given time period multiplied by 100 divided by Total no. of population at risk in given time period. (Total no. of cases in given time period*100/Total no. of population at risk in given time period)

The incidence of wound infection in our study in 2018 was 20% which reduced to 9.0% in 2019 and 3.0% in 2020. (Figure 3). All prophylactic measures were taken the most important was preoperative scrubbing of the surgical site with chlorhexidine and povidone iodine solutions. Postoperatively check dressing was done after 72hrs before discharging the patient. Most of the wound infection occurred from postoperative day 10 to postoperative day 25 and were diagnosed on the basis of patient's complaints and clinical examination.

90% of the patients were conservatively managed but 10% of patients associated with wound gape required resuturing along with injectable antibiotics.

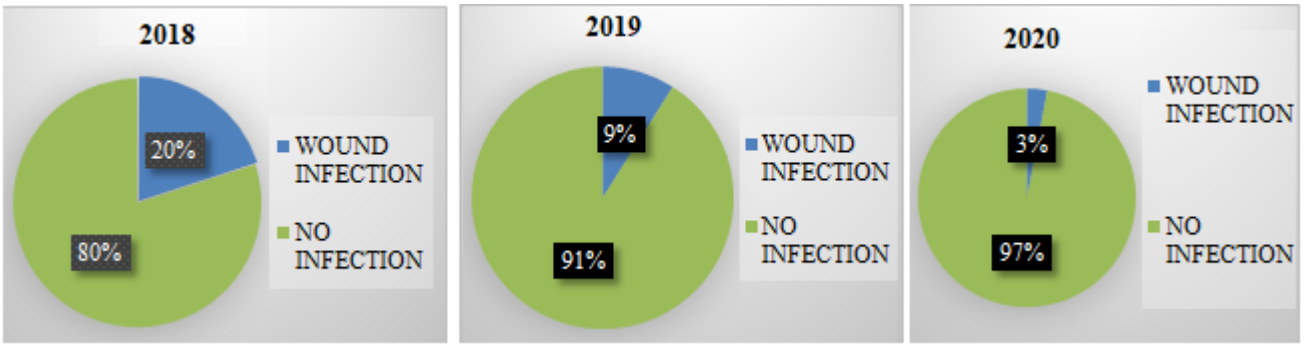

Figure 3: Showing reduction in incidence rate of wound infection over 3 years

4. Discussion

Wound infection is the second most common infectious complication after urinary tract infection following obstetric and gynecological abdominal surgeries.[2] This study evaluated the rate of wound infection after introducing a new preoperative measure, the common organisms involved and the symptoms associated with infection. Cases were treated by daily wound dressing along with oral antibiotics and those associated with wound gape required hospital admission, daily cleaning and debridement of wound followed by resuturing along with injectable antibiotics. Antibiotics were administered based on culture sensitivity report. Staphylococcus aureus was most predominant amongst all organisms, followed by Klebsiella and E. coli together accounting for more than 50% of the organisms.[3][4] In this study after the introduction of the new prophylactic measure from January 2019 i.e. the patient awaiting surgery was scrubbed with chlorhexidine and povidone iodine solutions and the solution allowed to dry after this the patient was shifted to the OT and rescrubbed.

The incidence of wound infection reduced from 20% in 2018 to 9% in 2019 and 3% in 2020. (Figure 3)

5. Conclusion

A new preoperative prophylactic measure for wound infection was introduced. This led to a substantial decrease in the incidence of wound infections.

References

[1] World health organization 2106: global guidelines on the prevention of surgical site infection http//www.who.int/gpsc/ssi-prevention -guidelines/en/

[2] Pathak, A., Mahadik, K., Swami, M.B. et al. Incidence and risk factors for surgical site infections in obstetric and gynecological surgeries from a teaching hospital in rural India. Antimicrob Resist Infect Control 6, 66 (2017). https://doi.org/10.1186/s13756-017-0223-y

[3] Zejnullahu, V.A., Isjanovska, R., Sejfija, Z. et al. Surgical site infections after cesarean sections at the University Clinical Center of Kosovo: rates,

microbiological profile and risk factors. BMC Infect Dis 19, 752 (2019). https://doi.org/10.1186/s12879-019-4383-7

[4] Dhar H, Al-Busaidi I, Rathi B, Nimre EA, Sachdeva V, Hamdi I. A study of post-caesarean section wound infections in a regional referral hospital, oman. Sultan Qaboos Univ Med J. 2014 May;14(2):e211-7. Epub 2014 Apr 7. PMID: 24790744; PMCID: PMC3997538.