Original Research Paper

Volume - 7 | Issue - 7 | July - 2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

Gynaecology

A STUDY ON INCIDENCE OF SURGICAL SITE INFECTION AFTER CAESAREAN SECTION IN JLNMCH, BHAGALPUR

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ABSTRACT **Aim:** The aim of this study was to find out the incidence and associated risk factors of surgical site infection among caesarean section in our hospital. Methods: This study was done for a period of one year from January 2016 to December 2016 in patients who were admitted for delivery by C Section in obstetrics and gynaecology department of JLNMCH, Bhagalpur. Thorough examination, investigations and management were performed. A total of 100 cases were taken in the study. Results : The total number of post CS wound infections was seen in 28 patients out of 100. There was a four-fold higher incidence of premature rupture of the membranes and a three-fold higher incidence of diabetes in the post CS cases. Conclusion-Surgical site infection following caesarean section is common. SSIs are increasing and there is an increased cost burden on the healthcare systems

KEYWORDS : Caesarean Section, Surgical site infection, hospitalization, morbidity

Introduction

The OBG department is a place with a high incidence of nosocomial infection. Surgical site infection (SSI) remains a substantial cause of morbidity, prolongs hospitalization, and increases death. SSI rates have been reported to range from less than 1% to more than 10%, and 75% of SSI-associated deaths are directly attributable to SSI. One of the most commonly evaluated areas of maternal morbidity is wound infection/complications. The occurrence of SSI is not only a serious threat to the patient's health and life, but also imposes a substantial economic burden on the patient's family and society. Early diagnosis and treatment of infection is essential in the care of surgical patients. Thus, it is urgent that we identify the factors responsible for SSI and, if possible, corresponding measures should be taken to prevent the occurrence of nosocomial infection, alleviate patients' pain, speed their recovery, and reduce their medical expenses. Surgical site infections (SSI) are the most common nosocomial infections in the OBG department and the second most common in hospitals after C section. SSI are associated with morbidity, long hospitalization and antibiotic treatment, sometimes readmission, reoperation and mortality and associated with high economic costs. The Centers for Disease Control and Prevention (CDC) has developed criteria for defining SSIs, which have become the national standard and are widely used by surveillance and surgical personnel. These criteria define SSIs as infections related to the operative procedure that occur at or near the surgical incision (incisional or organ/space) within 30 days of an operative procedure or within one year if an implant is left in place. There are controversies in the measures and methods to control and reduce SSI rates. Standard control measures to reduce SSI rates include antimicrobial prophylaxis (timing, selection, duration), hair removal (timing, method, performer), diabetes and insulin therapy, temperature while the operation. Incorrect timing has been proven to increase SSI rates. Antimicrobial therapy should be administered within 60 minutes prior to the surgery to ensure adequate drug tissue levels at the time of initial incision. Antibiotic prophylaxis as an intervention is effective in reducing the risk of wound infection for all types of surgery. It is indicated for all clean–contaminated procedures. The use of prophylaxis in clean procedures that do not involve insertion of implants is controversial because the associated risk is quite low. Critical aspects of prophylaxis antibiotics administration are: giving an appropriate antibiotic, giving adequate dose, achieving proper timing before incision, and maintaining drug level throughout the operation. There is no benefit from antibiotic prophylaxis after wound closure and most studies conducted to compare single– dose versus multiple–dose regimens revealed no benefit of the multiple doses. Prolonged use of prophylactic antimicrobials has been associated with the emergence of resistant bacterial strains and predisposing the patient to infection. 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 period3.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.

Superficial surgical site infection - infection involves only skin or subcutaneous tissue which is treated by dressing and antibiotics. Deep incisional SSI - infection involves deep soft tissue (e.g. fascial and muscle layers) Or presence of wound dehiscence which requires secondary suturing. Organ/space SSI - infection involves any part of the anatomy (e.g. organs or spaces), other than the incision, which was opened or manipulated during an operation which required exploration and closing.

Material and Methods

This study was done for a period of one year from January 2016 to December 2016 in patients who were admitted for delivery by C Section in obstetrics and gynaecology department of JLNMCH, Bhagalpur. Thorough examination, investigations and management were performed. A total of 100 cases were taken in the study. All Patients met the inclusion criteria. Data was collected from patient using proforma and examination of wound till discharge was done. Data was compared in terms of presence of surgical site infection and study variables. Wound was evaluated for the development of SSI on third day, and fifth post-operative day, and on the day of discharge. The data was analysed statistically.

Results

The total number of post CS wound infections was seen in 28 patients out of 100. There was a four-fold higher incidence of premature rupture of the membranes and a three-fold higher incidence of diabetes in the post CS cases. The most common organisms responsible for SSI were Staphylococcus aureus (70%) and the Gram-negative Escherichia coli group (20%), others (10%). The most sensitive antibiotics were aminoglycoside and third generation cephalosporin. A high incidence of associated risk factors like obesity, hypertension, anaemia and wound haematoma was noted.

DISCUSSION:

Despite improvements in operating room practices, instrument sterilization methods, surgical technique, and the best efforts of infection prevention strategies, SSI remains a major cause of hospital-acquired infections and rates are increasing globally even in hospitals with the most modern facilities and standard protocols for preoperative preparation.Thus, SSI is considered to be one of the most common and serious anesthetic and surgical complications. An effective prophylactic regimen should be directed against the most likely organisms. Infections can be prevented when effective concentrations of the drug are present in the blood and the tissue during and shortly

after the procedure. According to the National Nosocomial Infection Surveillance SSI index (comprising ASA, potential for surgical wound contamination, and duration of surgery), the incidence of SSI was increased for scores 0, 1, 2, and 3 (corresponding to 1.3%, 5.8%, 5.1%, and 30.0%, respectively); although the rate in patients with a score of 1 was higher than in those with a score of 2, this difference was not statistically significant, which is most likely due to the small size of the sample available for subanalysis. Based on our study and those reported by others, the incidence of SSI can be expected in those patients with high-risk factors. Therefore, antibiotic prophylaxis should begin just before the operation. Rao et al, 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. The risk of developing SSI after C-section is multi-factorial and has been found to be influenced by the following factors in this study: emergency surgery, membrane rupture before surgery, vertical skin incision and interrupted skin suturing which were found statistically significant.

Conclusion

Surgical site infection following caesarean section is common. SSIs are increasing and there is an increased cost burden on the healthcare systems. Therefore, increased awareness on these risk factors, development and strict implementation of protocol should be done by all the health care professionals in order to minimize and prevent the infection rate after caesarean section.

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