IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 2 Ser.2 (February. 2020), PP 58-61
www.iosrjournals.org

"Surgical Site Infections in Caesarean Section: A study in a tertiary care hospital, Jashore, Bangladesh"

Dr. Nargis Akhtar[1], Dr. Amina Jannat Peea[2], Dr. Md. Aminur Rahman[3], Dr.Emu Ghosh[4]

[1]*Assistant Professor, Dept. of Gynaecology&Obstetrics,Jashore Medical College, Jashore, Bangladesh.*
[2]*Associate Professor, Obstetrics&Gynaecology, Gazi Medical College Hospital,Khulna, Bangladesh.*
[3]*Assistant Professor (Psychiatry), Jashore Medical College, Jashore, Bangladesh.*
[4]*Assistant Professor (Physiology), SakinaWomens's Medical College, Jashore, Bangladesh.*
Corresponding contributor: Dr. Nargis Akhtar

Abstract
Background: *Increasing rates of cesarean deliveries have received widespread attention in recent years and have increased widespread discussion in the public domain in Bangladesh. Besides these, surgical site infection is one of the most common complications following caesarean section, with an incidence of 14- 46%.*
Aim of the study:*The present study helps to know the risk factors and the organisms causing surgical site injection at our hospital and then sensitivity to different antibiotics.*
Methods and Materials*: It was a non-interventional, descriptive, cross sectional study conducted on a special group of population suffering from surgical site infection in the Department of Gynaecology& Obstetrics, JashoreMedicallCollege,Jashore Bangladesh. Two hundred (200) patients were included in the study as the study population during the period from Jan-2019 to Dec-2019.This study had been approved by the ethical committee of the mention hospital previously. The proper written consents were obtained from each of the participants before starting the main intervention. The cases studied were the patients whose caesarean section was complicated by surgical site infections.*
Results:*According to the frequencies of medical risk factors the highest 48% patients were with anaemia whereas 27% were with diabetes, 20% were with hypertensive disorders and 5% were with hypothyroidism. On the other hand according to the frequencies of obstetric risk factors we found the highest 27% patients were with PROM > 8 hours, 20% were with failed induction and only 15% were with previous LSCS. In analyzing the causative organism for the surgery site infection we found the highest 52% patients were associated with E coli whereas 9% with Steph. haemolyticus infections, 6% with E. aerogens infections and 33% with different mixed infections with some other causative organism infections.*
Conclusion*:Surgical site infection is more prevalent among emergency caesarean sections and women who were un booked. With regular antenatal visits, modifiable factors like anaemia are corrected. E. coli was the predominate organism.*
Keywords*: Caesarean section, Culture and Sensitivity, Escherischia coli, surgical site injection*

Date of Submission: 17-01-2020 Date of Acceptance: 05-02-2020

I. Introduction

Surgical site infections are among the most common hospital acquired infections. They make up to 14-16% of inpatient infections[1].It has physical and emotional burden on the mother and significant financial burden on the health caresystem[2]The increasing incidence of caesarean deliveries worldwide has contributed to greater wound morbidity[3].Knowledge of the organisms causing surgical site infections and their antibiotic sensitivity and resistance patterns provide an insight into the current antibiotic prescription practices and the factors affecting these practices[4].

II. Objectives

General objective:

- To find out the risk factors and the organisms causing Surgical site infection in our hospital.

Specific objective:

- To find out the sensitivity of different antibiotics which help in formulating infection control practices.

III. Methodology and Materials

It was a non-interventional, descriptive, cross sectional study conducted on a special group of population suffering from surgical site infection in the Department of Gynaecology& Obstetrics, JashoreMedicall College,Jashore Bangladesh. Two hundred (200) patients were included in the study as the study population during the period from Jan-2018 to Dec-2018.This study had been approved by the ethical committee of the mention hospital previously. The proper written consents were obtained from each of the participants before starting the main intervention. The cases studied were the patients whose caesarean section was complicated by surgical site infections.Diagnostic criteria were maternal fever accompanied by spontaneous parting of wound or purulent discharge from the wound with or without positive bacterial culture.Pus samples were collected from the wound site and sent for culture andsensitivity.Demographic information, potential risk factors as well asoperative findings wererecorded. For collecting patient's data a pre designed questioner was used. For arranging data MS Excel and analyzing SPSS version16 were used. To disseminate the findings of this study several tables and figures were used.

IV. Results

In this study among total 200 participants the highest 55% were from 20-25 years' age group. Then 33% were from 26-30 years' age group, 7% were from >30 Years' age group and the rest 5% were from <20 years age group. In analyzing the gravidity of the participants we found the highest 59% caser were with primigravida whereas 29% were with gravida-2, 10% were with gravida-3 and the rest 2% were with more than 3 gravida. In this study, we found the highest 85% participants taken the cesarean section because of emergency circumstances whereas only 30% participants taken electively. In this prospective study in analyzing the risk factors we found four major medical risk factors as well as three major obstetric risk factors. According to the frequencies of medical risk factors the highest 48% patients were with anaemia whereas 27% were with diabetes, 20% were with hypertensive disorders and 5% were with hypothyroidism. On the other hand according to the frequencies of obstetric risk factors we found the highest 27% patients were with PROM > 8 hours, 20% were with failed induction and only 15% were with previous LSCS.In analyzing the causative organism for the surgery site infection we found the highest 52% patients were associated with E coli whereas 9% with Steph. haemolyticus infections, 6% with E. aerogens infections and 33% with different mixed infections with some other causative organism infections.

Table I: Age distribution of the participants (N=200)

Age (Yrs.)	n	%
<20	10	5
20-25	110	55
26-30	66	33
>30	14	7
Total	200	100

Table II: Gravidity distribution among participants (N=200

Gravidity number	**n**	**%**
Primigravida	118	59
Gravida-2	58	29
Gravida-3	20	10
Gravida>3	4	2
Total	200	100

Table III: Circumstances of CS of participants (N=200)

Circumstances	**n**	**%**
Emergency LSCS	170	85
Elective LSCS	30	15
Total	200	100

Table IV: Risk factors distribution among participants (N=200)

Risk factors	**n**	**%**
Medical risk factors		
Anaemia	96	48
Diabetes	54	27
Hypertensive disorders	40	20
Hypothyroidism	10	5
Obstetric risk factors		
PROM > 8 hours	54	27

Failed Induction	40	20
Prev.LSCS	30	15

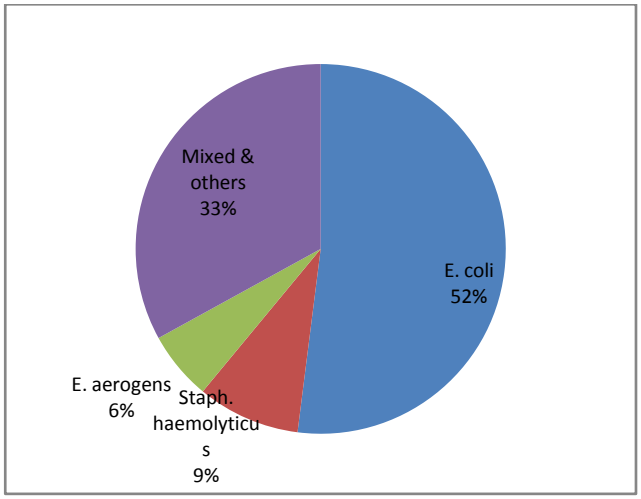

Figure I: Distribution of causative organismamong participants (N=200)

V. Discussion

Surgical site infection is the second most common infectious complication after urinary tract infection following caesareandelivery[5].It is a surgical complication with a high morbidity rate, but it is associated with predictable and preventable risk factors[6].Majority of the patients in our study group are from rural areas 71% and 29% from urban areas hence antenatalcareservicesshouldbestrengthenedinruralarea[7].Majority of the cases were un booked which indicates the requirement of antenatal care that provides opportunities for health education, prior detection and correction of maternalproblems[8].In present study 48% of the patients hadAnaemia[9].Patients with Anaemia were seen to be more prone to surgical siteinfection[10].Anaemia diminishes resistance to infection and is frequently associated with puerperalsepsis[11].Poor control of glucose during surgery and in the perioperative period increases the risk ofinfection[12].15% of the cases in our study had a repeat Caesarean section[13].PROM is seen in 27% of cases. PROM associated with the largest bacterial inoculum and liquor gets infected and infectionsupervenes[14].An obstetric related risk factor of both intrinsicand extrinsic origin is length of time that the membranes are ruptured prior to caesareansection[15].Following membrane rupture, the amniotic fluid is no longer sterile and may act as a transport medium by which bacteria come into contact with the uterine and skinincisions[16].The increased incidence of surgical site infection in cases with intact membranes may be due to multiple vaginal examinations in cases with failedinduction[17].The most common pathogenic organisms causing surgical site infection in present study were found to be Escherichia coli strains which were found to be resistant tocefuroxime[18].Majority of the surgical site infection, 63% required secondary suturing while in 37% of the cases, the wound healed with daily aseptic dressings and secondary intention[19].

Limitations of the study

This was a single centered study with small sample size. So, the findings of this may not reflect the exact scenario of the whole community.

VI. Conclusion

Surgical site infection is more prevalent among emergency procedures and women who were un booked.It is important for antenatal women to have regular antenatal visits so that modifiable risk factors like anaemia are corrected beforeterm.E. coli was predominant organism of woundinfection.Proper assessment of risk factors that predispose to surgical site infection is critical for the development of strategies for reducing the incidence of surgicalsite infection and for identifying high risk patients requiring intensive postoperativesurveillance.

References

[1]. Skarzyriska J, Cienciala A, Madry R, Barucha P, Kwa§niak M, Wojewoda T *et al*. Hospital infection in general surgery wards. PrzeglEpidemiol. 2000; 54(3- 4):299-304.
[2]. Van schalkwyk J, van Eyk N. Society ofobstetricians and Gynaecologists of CanadaInfectious disease committee. Antbiotic prophylaxis in obstetric procedures. J obstetGynaecol Can. 2010;32(9):878-92.
[3]. Stanton CK, Holtz SA. Levels and trends in cesarean birth in the developing world. Stud FAM Plann. 2006; 37(1):41-8.
[4]. Gaynes RP. Surveillance of nosocomial infections: a fundamental ingredient for quality. Infect Control HospEpidemiol.

1997;18(7):475-8.
[5]. Horan TC, Gaynes RP, Martone WJ, Jarvis WR, EmoriTG. CDC definitions of nosocomial surgical site infections, 1992: a modification of CDC definitions of surgical wound infections. Infect Control HospEpidemiol. 1992;13(10):606-8.
[6]. Schneid-kofman N, Sheiner E, Levy A, Holcberg G. Risk factors for post caesarean surgical site infection ObstetGynaecol. 2000;95(3):367-71.
[7]. Hillan EM. Postoperative morbidity following Cesarean delivery. J AdvNurs. 1995;22(6):1035-42.
[8]. Amenu D, Belachew T, Araya F. Surgical site infection rate and risk factors among obstetric cases of Jimma University specialized hospital, southwest Ethiopia. Ethiop J Health Sci. 2011;21:91-100.
[9]. Mitt P, Lang K, Peri A, Maimets M. Surgical-site infections following cesarean section in an Estonian university hospital: post discharge surveillance and analysis of risk factors. Infect Control HospEpidemiol. 2005;26(5):449-54.
[10]. Claesson BE, Holmlund DE. Predictors of intraoperative bacterial contamination and postoperative infection in elective colorectal surgery. J Hosp Infect. 1988;11(2):127-35.
[11]. De D, Saxena S, Mehta G, Yadav R, Dutta R. Risk factors analysis and microbial etiology of surgical site infections following lower segment caesarean section. Int J Antibiot. 2013;10:1155-60.
[12]. Oslen MA, Buttler AM, Willers DM, Devkota P, Gross GA, Fraser VJ. Risk factors for surgical site infections after low transverse caesarean section. Infect Control HospEpidemiol. 2008; 29(6):477-84.
[13]. Dr. Dutta C. Medical and surgical illness complicating pregnancy. Textbook of obstetrics. H. konar, ed. entral 6th edition, 2004,262-305.
[14]. Allegranzi B, Nejad SB, Combescure C, Graafmans W, Attar H, Donaldson L, Pittet D. Burden of endemic health-care-associatedinfectionin developing countries: systematic review and meta-analysis. Lancet. 2011; 377(9761):228-41.
[15]. Shapiro M, Mufloz A, Tager IB, Schoenbaum SC, Polk BF. Risk factors for infection at the operative site after abdominal or vaginal hysterectomy. N Engl J Med. 1982;307(27):1661-6.
[16]. Hagglund L, Christenson KK, Christenson P, Kammec. Risk factors in caesarean section infection ObstetGynaecol. 1988; 72:559-64.
[17]. Ott WJ. Primary caesarean section; factors related to postpartum infection. ObstetGynaecol. 1981;57:171-6.
[18]. Trans TS, Jamulitrat S, chongsuvivatwong V, Geater A. Risk factors for post cesarean surgical site infection. ObstetGynaecol. 2000;95(3):367-71.
[19]. Lilani SP, Jangale N, Chowdhary A, Daver GB. Surgical site infection in clean and clean-contaminated cases. Indian J Med Microbiol. 2005;23(4):249.

Dr. Nargis Akhtar, etal. "Surgical Site Infections in Caesarean Section: A study in a tertiary care hospital, Jashore, Bangladesh". *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(2), 2020, pp. 58-61.