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ORIGINAL ARTICLE

Frequency of Wound Infections in Patients Undergoing Caesarean Section

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ABSTRACT

Objective: To compare the frequency of wound infections in patients undergoing elective and emergency caesarean section.

Material and Methods: A total 140 patients with singleton or multiple pregnancy of cephalic presentation undergoing emergency or elective cesarean section were included Jan-2022 to April-2022. All this data (age, gestational age, parity (Primiparous/multiparous), previous history of cesarean section (yes/no), BMI, mode of cesarean (elective/emergency), duration of procedure, type of cesarean (conventional/lower segment) and wound infection (yes/no)) were recorded.

Results: Mean age was 31.58±5.17 years. Mean gestational age of patients was 39.56±1.39 weeks. Mean duration of procedure of patients was 36.19±5.31 minutes. There were 64 (45.7%) patients having previous history of CS. Mode of cesarean section was elective in 107 (76.4%) and it was emergency in 33 (23.6%) patients. wound infections were found in 34 (20.24%) patients. Wound infections were found in 11 (33.3%) patients undergoing emergency CS and in 23 (17.0%) patients undergoing elective CS (p-value 0.037).

Conclusion: In emergency CS, the rate of surgical site infections (SSIs) is greater than in elective CS. Therefore, in emergency situations, it is necessary to investigate the elements that lead to increased SSIs and to take care of them.

Keywords: Wound infections, caesarean section.

INTRODUCTION

Since the 1970s, the number of caesarean sections has steadily climbed, reaching a point where they are no longer justifiable from a medical perspective. This issue has been a global public health concern for the past three decades, consequently leading to adverse effects, both economically and in terms of health.[1] Caesarean section by choice, health insurance systems, fear of litigation, increased use of electronic foetal cardiac monitoring, and an increased proportion of breech deliveries that are performed via caesarean section are the primary factors contributing to the increased rate of caesarean sections in developed countries.[2] In underdeveloped nations, the causes for an increasing rate of caesarean section are typically different from those in developed countries.[3,4]

Once there is a wound infection following a CS, the morbidity rate is significantly raised, and it is possible that this will lead to mortality. Sepsis has emerged as a significant contributor to the death rate among pregnant women.[5] After CS, wound infections are one of the most common causes of sepsis. Therefore, determining the characteristics that put a patient at risk for developing a wound infection enables one to create the optimal conditions for reducing wound infections, and consequently sepsis and maternal death. Rates of wound infections following caesarean delivery range from 3 percent to 5 percent, with variations possible depending on the population being examined, the methods utilised to monitor and identify cases, and the utilisation of proper antibiotic prophylaxis.[6,7]

The aim of this study was to determine the frequency of wound infections and to compare the frequency of wound infections in patients undergoing elective and emergency caesarean section in patients undergoing cesarean section.

MATERIAL AND METHODS

A total of 140 pregnant women who were planned for CS were recruited from Jan-2022 to April-2022. Women with singleton or multiple pregnancy of cephalic presentation (assessed on ultrasonography) undergoing emergency or elective cesarean section, aged 18-40 years and gestational age 37-41 weeks and both Primiparous and multiparous were included. While women with known diabetes mellitus, requiring obstetric hysterectomy/any other surgical complication or with chronic renal failure were excluded. Informed written consent was taken from each patient.

Cesarean section was performed by one consultant gynecologist in all cases. All patients were given injection ceftriaxone 1 gm pre-operatively and twice a day for 2 days after operation. All patients were discharged from ward after 48 hours and dosage frequency route. Patients were followed by the researcher herself and wound infections frequency was noted after within 30 days after surgery. Presence of purulent discharge and resulting in opening of the skin wound within 30 days after operation was labelled as wound infection.

All this data (age, gestational age, parity (Primiparous/multiparous), previous history of cesarean section (yes/no), BMI, mode of cesarean (elective/emergency), duration of procedure, type of suture (vicryl/catgut), type of cesarean (conventional/lower segment) and wound infection (yes/no)) were recorded.

Statistical analysis was performed using SPSS version 25.0. Age, gestational age, duration of procedure and BMI Frequency and percentage were calculated for qualitative variable like parity (Primiparous/multiparous), previous history of cesarean section (yes/no), mode of cesarean (elective/emergency), type of suture (vicryl/catgut), type of cesarean (conventional/lower segment), place of living (rural/urban) and wound infection (yes/no). The wound infection between elective and emergency cesarean section was compared for difference. Chi Square was applied and P value ≤0.05 was considered as significant.

RESULTS

Mean age was 31.58±5.17 years. Mean gestational age of patients was 39.56±1.39 weeks. Mean duration of procedure of patients was 36.19±5.31 minutes. There were 64 (45.7%) patients having previous history of CS. Mode of cesarean section was elective in 107 (76.4%) and it was emergency in 33 (23.6%) patients. 57 (40.7%) patients were from rural area and 83 (59.3%) patients were from urban area. Upper segment cesarean section was done in 42 (30.0%) patients and lower segment cesarean section was done in 98 (70%) patients (Table 1).

On frequency of wound infection, wound infections were diagnosed in 34 (20.24%) and it was not found in 134 (79.76%) patients (Figure 1).

Wound infections were found in 11 (33.3%) patients undergoing emergency CS and in 23 (17.0%) patients undergoing elective CS (p-value 0.037) [Table 2].

Table 1. Baseline Characteristics.

Age (Years)	31.58±5.17
Parity	
Primiparous	78 (55.7%)
Multiparous	62 (44.3%)
Previous History of CS	64 (45.7%)
Living Area	
Rural	57 (40.7%)
Urban	83 (59.3%)
Type of CS	
Upper Segment	42 (30%)
Lower Segment	98 (70%)
Mode of CS	
Elective	107 (76.4%)
Emergency	33 (23.6%)

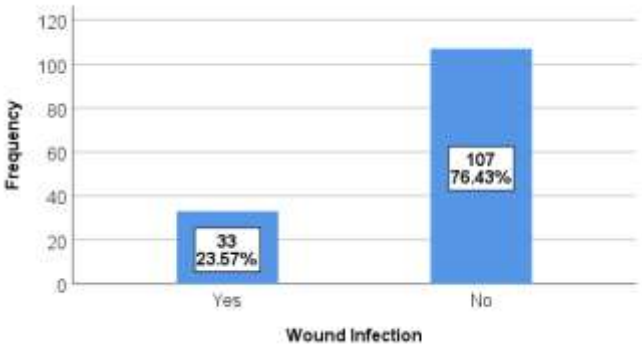

Figure 1. Frequency of Wound Infections.

Table 2. Comparison of Wound Infections in Patients Undergoing Emergency versus Elective CS.

Wound Infection	Mode of Cesarean Section		P-value
	Elective	Emergency	
Yes	20 (18.7%)	13 (39.4%)	0.13
No	87 (81.3%)	20 (60.6%)	

DISCUSSION

CS is a life-saving surgical operation in both low- and high-income nations, with a global prevalence ranging from 6 to 27.2 percent.[8] In Pakistan, the rate of CS varied anywhere from a low of 1.5 percent to a high of 21.8 percent.[9] CS is a procedure that not only saves lives but also prevents undesirable obstetric consequences. However, if a woman uses CS when she does not have a medical need for it, she may put herself at danger for both short-term and long-term health issues.[10]

An infection that develops at the incision or operation site (including drains) within the first thirty days after a post-surgical procedure is referred to as a surgical site infection (SSI). 108 SSI is an illness that is related with healthcare, particularly in low-income countries such as Pakistan, where it has been recorded at rates ranging from 3 to 15 percent.[11,12] In spite of the fact that there have been advancements made in surgical technique, operating room ventilation, sterilisation techniques, and the availability of antimicrobial prophylaxis, SSI following CS delivery continues to be a significant cause of maternal illness, prolonged hospitalisation, amplified therapeutic costs, and maternal mortality.[13,14] In order to assist in the prevention of wound infections, Shittu et al. suggested that patients get education on proper personal hygiene and work together with wound care practitioners and microbiologists.[15] to prevent the spread of infection, it is essential to wash one's hands on a consistent basis and ensure that any wounds are kept covered with clean bandages until they have completely healed in order to reduce the risk of contracting an infection caused by the staphylococcus bacteria.

In this study we determined the frequency of SSIs in patients undergoing C-section. Furthermore, we compared the frequency of SSIs in patients who underwent emergency and elective C-section. The frequency of SSIs was significantly high in emergency C=section group; 33.3% in comparison to elective C-section patients (17.0%).

In a study, frequency of wound infection in patients undergoing cesarean section was found to be 4.1%.[16] Zahid N et al has shown higher percentage of wound infections in emergency cesarean as compared to elective cesarean section (38.4% vs 15.3%).[17]

A comparable trial was carried out in Pakistan by Raees M et al, reported that the complication rate in an emergency setting was 38.67 percent, while the rate in an elective setting was 22.28 percent.[18]

Daniel S and his colleagues came to the same conclusions as well. When compared to the elective group, they discovered that postoperative problems were much higher in the emergency group (47.2%). (17.1 percent).[19]

In the research that Suwal and colleagues conducted, they discovered that the rate of wound infection was 6.58 percent in emergency CS, but it was only 3.44 percent in elective CS.[20]

The incidence of surgical site infections (SSIs) following caesarean section delivery was found to depend on a variety of factors, including maternal age, maternal weight, wound class, types of CS procedures, hypertensive disorders, diabetes, the number of vaginal examinations, surgical techniques, large volume of blood loss during surgery, and premature rupture of the membranes. These factors were reported in a variety of scientific literatures.[21,22]

According to the findings of this study, women are more likely to acquire SSI after having emergency surgery as opposed to elective treatment. In hospitals that adhere to rigorous guidelines regarding the reduction of primary caesarean sections, the decision to perform a CS may only be made after a trial of labour has been attempted. As a direct consequence of this, the majority of cardiac surgery procedures were carried out under the auspices of an emergency, even when the indication for CS had been established in advance. This pattern might be explained by incorrect counselling of pregnant women, which results in the need for CS and leads to a delay in hospital attendance as a result. There is a greater potential for SSI during these urgent operations.[23]

A study with the same objective that was carried out in Pakistan found that the risk of infection at the surgical site was two times higher for emergency cases than for elective procedures.[24] This discovery may be due to the fact that, in the case of emergency situations, membrane rupture and numerous vaginal inspections are more common. In addition to this, there is a greater potential for bacterial contamination, interruptions in the sterile procedure, and/or a delay in the administration of antibiotic prophylaxis.

CONCLUSION

In emergency CS, the rate of surgical site infections (SSIs) is greater than in elective CS. Therefore, in emergency situations, it is necessary to investigate the elements that lead to increased SSIs and to take care of them.

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