A study to assess the risk factors of surgical site infection among mother underwent cesarean section

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**ABSTRACT**
Surgical site infection (SSI) is the second most normal irresistible inconvenience after urinary tract disease following cesarean section (CS). Surgical site infection after a cesarean area is related with expanded maternal horribleness, delayed emergency clinic remain and expanded clinical expenses. The hazard for creating SSI has noteworthy diminished over the three decades, fundamentally inferable from progress in cleanliness condition anti-infection prophylaxis, sterile methodology and other practice. Despite this decrease, the occurrence of surgical site infection is expected in the continuous rise in the incidence of cesarean delivery. A quantitative approach with descriptive study design was chosen to assess the risk factor of surgical site infection among mothers who underwent cesarean section at Saveetha Medical College Hospital. Sixty mothers who fulfill inclusive criteria were selected by purposive sampling technique. Sociodemographic variables were collected by semi-structured questionnaire, and the risk factors were assessed by surgical site assessment scale. The result of the study shows that 22 (36.6%) of the mothers were obese, 34 (56.6%) were anaemia, 22 (36.6%) had hypertension, 7 (11.6%) had diabetes mellitus, 37 (61.6%) were prolonged hospitalized, 9 (15%) of study subject had previous surgery and 18 (30%) of study subject had emergency surgery. The surgical site assessment scale reveals that 31 (51.6%) comes under the no-risk category, 29 (48.3%) comes under the risk among preoperative mothers, and 22 (36.6%) comes under no risk, 38 (63.3%) comes under risk among post-operative mothers who underwent cesarean section. Thus the factors such as anaemia, hypertension, diabetes mellitus, prolonged hospital stay, previous surgery, and emergency surgery increase the risk for surgical site infection among mothers who underwent cesarean section.

**INTRODUCTION**
A surgical site infection (SSI) is the second most basic irresistible confusion after urinary tract disease following cesarean section (CS). Surgical site infection after cesarean section is related with expanded maternal grimmess, delayed emergency clinic remain, and expanded clinical costs (Zejnulahlu et al., 2019). A reliable increment has been seen in the pace of cesarean delivery in the majority of the created nations and many creating nations including India in the course of the most recent couple of decades and involves worry among the social
Table 1: Frequency and distribution of risk factors of surgical site infection among mother underwent caesarean section

| Sl.No | Risk Factors        | Frequency | Percentage (%) |
|------|--------------------|-----------|----------------|
| 1    | BMI                | 22        | 36.6           |
| 2    | Anemia             | 34        | 56.6           |
| 3    | Hypertension       | 22        | 36.6           |
| 4    | Diabetes mellitus  | 7         | 11.6           |
| 5    | Hypothyroidism     | -         | -              |
| 6    | Antibiotic use     | -         | -              |
| 7    | Prolonged hospital stay | 37  | 61.6           |
| 8    | Previous surgery   | 9         | 15             |
| 9    | Emergency surgery  | 18        | 30             |
| 10   | Soap and water bath| -         | -              |

Table 2: Frequency and percentage distribution of surgical site infection among preoperative and post operative mothers

|               | No Risk       | With Risk     |
|---------------|---------------|---------------|
| Pre-Operative | 31 (51.6%)    | 29 (48.3%)    |
| Post-Operative| 22 (36.6%)    | 38 (63.3%)    |

researchers. It is frequently contended that obstetricians additionally progressively incline toward for careful shower. Likewise, there is additionally some proof from specific nations on expanding inclination from ladies who need to convey their youngster through the cesarean segment. (Vijayan, 2016)

According to the center for disease control and prevention (CDC) surgical site infection is characterized as contamination which happens inside 30 days after surgery including skin subcutaneous tissue. As a surgery, cesarean delivery might be joined by various confusion surgical site infection (SSI) being one of them. The pace of careful site disease is from 3% to 15% around the world. The variety in frequency may reflect contrast populace trademark and hazard factors, Perioperative practice and the length from the technique until ascertainment. In spite of this abatement the event careful site disease is required to expand given the nonstop ascent in the rate of cesarean delivery (Easton, 2017).

Surgery is a risk factor for obtaining of contamination and nosocomial diseases were found in 4.17% of patients in a careful ward in India. Of these diseases, 40% happen at the employable site, 42% are related with the urinary tract and about 4% present with sepsis or bacteraemias (Rose, 2018). Determinants of contamination might be identified with the host, microorganism, condition, system received or Perioperative anti-infection prophylaxis. Unhealthiness and low financial status further fuel the danger of contamination in cesarean areas. Cesarean segment conveys five to 20-crease expanded danger of contamination contrasted with vaginal delivery. (Gur, 2015)

Surgical site infections are the most common social insurance related disease influencing somewhere in the range of 2.5% and 30.9% of all activity. The danger of post cesarean area wound disease relies upon both natural (Patient related) and outward factor (the board and care) (Panicker, 2018). Albeit numerous patient related components are not modifiable early recognizable proof of nearby hazard variables can assist with moderating this hazard and forestalls the improvement of wound infection. (Chada et al., 2017), (Bizimana et al., 2016), (Shrestha, 2014)

Surgical site infection can significantly affect personal satisfaction for a patient. They speak to a critical weight as far as horribleness and mortality and can bring about increment length of medical clinic stay (Kikkeri, 2014), (Lubega et al., 2017). Hence, the researcher aimed to identifying risk factors of surgical site infection among mother underwent cesarean section.
MATERIALS AND METHODS

A quantitative approach with descriptive study design was chosen to assess the risk factor of surgical site infection among mothers who underwent cesarean section at Saveetha Medical College Hospital. 60 mothers who fulfill inclusive criteria were selected by purposive sampling technique. Sociodemographic variables were collected by semi structured questionnaire which includes age, education, occupation, antenatal checkup, gravid, per vaginal examination, types of cesarean surgery, duration of labor, previous cesarean section and the risk factors were assessed by surgical site assessment scale which includes pre operative and postoperative surgical site assessment scale. Informed consent was obtained prior to data collection. The project was approved by Institutional ethical committee. The data were analyzed by descriptive and inferential statistics.

RESULTS AND DISCUSSION

The characteristics of the study samples are out of sixty samples the results shows that 51 (85%) belong age group of 20 - <30 years, 20(33.3%) had secondary education, 46(76.6%) were house wife, 60(100%) had regular antenatal checkup, 36(60%) were primigravidae, 58-(96.6%) had per vaginal examination 2-6 times during hospital stay, 38(63.3%) had elective LSCS, 60(100 %) <60min duration of labour, 51(85%) had not underwent cesarean section previously.

The result of the study related to risk factors shows that 22(36.6%) of the mothers were obese, 34 (56.6%) were anemia, 22 (36.6%) had hypertension, 7 (11.6%) had diabetes mellitus, 37 (61.6%) were prolonged hospitalized, 9(15%) of study subject had previous surgery and 18 (30%) of study subject had emergency surgery.(Table 1 & Figure 1)

In the current investigation, an expanded BMI supposedly influenced the result of medical procedure as far as an expanded pace of contamination. Iron deficiency was available in 56.6% of study subject. Patients with iron deficiency anaemia supposedly were increasingly inclined to SSI. It is commonly concurred that pallor reduces protection from contamination and is as often as possible related with puerperal sepsis. Pre-employable paleness is a significant indicator of disease and has been demonstrated by a few different investigations. In the current examination additionally, pallor was seen as altogether connected with SSI. Hypertensive issues were available in 36.6% of the investigation population. There is expanded careful mediation for patients with pre-eclampsia. The malady state, enlistments, hypoalbuminemia, edema all add to the advancement of SSI. Hypertension, previous or pregnancy initiated, and related co-sullen states have been related with SSI in a few investigations. They were totally observed to be huge in the current investigation. Right now, patients with hypertensive issue had altogether expanded rate of SSI. Patients with previous sicknesses, for example, diabetes mellitus (pregnancy initiated or prior), apparently was increasingly inclined to disease in the current examination. Hyperglycemia has a few pernicious consequences for have insusceptible capacity, most prominently on neutrophil work. Poor control of glucose during medical procedure and in the Perioperative time frame expands the danger of disease and compounds result from sepsis. (Cheng, 2017), (Woldegioris, 2019)

Utilization of Perioperative anti-microbials solutions decreases SSI in this study. Drawn out medical clinic stay has a huge relationship with wound disease. Congestion in the wards is an antecedent of contamination and is additionally bolstered by the outcomes that disease was fundamentally low among patients in pay wards. Past medical procedure didn’t show a significant huge relationship with SSI. Crisis medical procedure didn’t show a significant huge relationship with SSI. Crisis medical procedure inclines to contamination. Emergency clinics with a severe approach on diminishing essential segments may go for a choice on segment after a preliminary of work. Thus, crisis medical procedures may increment in number. These crisis medical procedures have a high possibility of SSI. Cleanser and water shower before medical procedure didn’t show a critical impact. Be that as it may, improving individual cleanliness assists with forestalling SSI. Henceforth, prescribed to follow before all elective surgeries. (Oluwakemi et al., 2017)
The results of pre-operative risk status shows that 31 (51.6%) comes under no risk, 29 (48.3%) comes under risk. The results of post-operative risk status shows that 22 (36.6%) comes under no risk, 38 (63.3%) comes under risk. (Table 2)

The present study results showed that there was a significant association between the age, education, Gravida and the risk factors of surgical site infection among preoperative mothers at level of p<0.05 and in post-operative association results showed that there was a significant association between the age, duration of labour, previous cesarean section and the risk factors of surgical site infection among mother underwent cesarean section at level p<0.05.

CONCLUSIONS

Surgical site infection can significantly affect personal satisfaction for a patient. They speak to a critical weight as far as horribleness and mortality and can bring about increment length of medical clinic stay. The present study emphasizes that effort should be made to reduce risk factors before and after caesarean section. Overall strategies that reduce CS rate will lower this morbidity and its sequelae.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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