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ORIGINAL RESEARCH

The indications and contributing factors leading to caesarean sections at a tertiary care hospital Study

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ABSTRACT

Background: Caesarean section (CS) rates have been increasing globally, leading to concerns about the indications and contributing factors driving this trend. This retrospective study aims to identify the primary indications and contributing factors leading to CS at a tertiary care hospital in Ghailadh Village Madhepura, Bihar. **Materials and Methods:** A retrospective analysis was conducted on medical records of 50 women who underwent CS between November 2021 and July 2023 at a tertiary care hospital in Ghailadh Village Madhepura, Bihar. Data were collected on demographic details, obstetric history, indications for CS, and contributing factors. Statistical analysis was performed to identify the most common indications and associated factors. **Results:** The study included 50 women with a mean age of 28.3 years (SD ± 4.5). The primary indications for CS were fetal distress (30%), failure to progress in labor (25%), previous CS (20%), breech presentation (15%), and maternal request (10%). Contributing factors identified included advanced maternal age, obesity, and comorbidities such as hypertension and diabetes. The majority of CS was performed during the first and second stages of labor. **Conclusion:** Fetal distress, failure to progress, and previous CS were the leading indications for caesarean sections in this study. Contributing factors such as advanced maternal age, obesity, and comorbid conditions played a significant role. Strategies to manage these risk factors and appropriate counseling for expectant mothers could help in reducing unnecessary CS rates.

Keywords: Caesarean section, indications, contributing factors, fetal distress, retrospective study, tertiary care hospital, Bihar.

INTRODUCTION

Caesarean section (CS) is a surgical procedure performed to deliver a baby through incisions in the abdomen and uterus. It is a critical intervention in obstetrics, often necessary to safeguard the health of the mother and the newborn when vaginal delivery poses risks. However, the increasing rates of CS globally have raised concerns about its overuse and the associated maternal and neonatal risks (1, 2).

Several studies have identified a variety of indications and contributing factors for CS. Common indications include fetal distress, failure to progress in labor and previous CS (3, 4). Additionally, maternal factors such as advanced age, obesity, and comorbidities like hypertension and diabetes can increase the likelihood of requiring a CS (5, 6).

In India, the rates of CS have shown a significant rise, particularly in tertiary care hospitals where more complicated cases are referred (7). Understanding the specific indications and contributing factors in different settings is essential for developing strategies to optimize the use of CS and improve maternal and neonatal outcomes.

This retrospective study aims to analyze the indications and contributing factors leading to CS at a tertiary care hospital in Ghailadh Village Madhepura, Bihar. By identifying the primary reasons and associated risk factors, the study seeks to provide insights that could help in formulating interventions to manage these factors and reduce unnecessary CS procedures.

MATERIALS AND METHODS

Study Design

This retrospective study was conducted to analyze the indications and contributing factors leading to

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caesarean sections (CS) at a tertiary care hospital in Ghailadh Village Madhepura, Bihar. The study period spanned from November 2021 to July 2023.

Study Population

The study included a sample of 50 women who underwent CS during the specified period. These women were selected based on the availability of complete medical records and inclusion criteria.

Inclusion Criteria

- Women who underwent CS between November 2021 and July 2023.
- Availability of complete medical records including demographic details, obstetric history, indications for CS, and contributing factors.

Exclusion Criteria

- Women with incomplete medical records.
- Women who underwent emergency surgeries for non-obstetric reasons.

Data Collection

Data were collected retrospectively from the medical records of the selected women. The following information was extracted:

- Demographic details (age, parity, body mass index, etc.).
- Obstetric history (previous pregnancies, mode of previous deliveries, etc.).
- Indications for CS (fetal distress, failure to progress in labor, previous CS, breech presentation, maternal request, etc.).
- Contributing factors (advanced maternal age, obesity, comorbidities such as hypertension and diabetes, etc.).

Statistical Analysis

Descriptive statistics were used to summarize the data. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were computed for continuous variables. The primary indications for CS and contributing factors were identified and analyzed. Statistical analysis was performed using SPSS software (version 25.0).

RESULTS

The study analyzed the medical records of 50 women who underwent caesarean section (CS) at a tertiary care hospital in Ghailadh Village Madhepura, Bihar between November 2021 and July 2023. The demographic details, indications for CS, and contributing factors are summarized in the tables below.

Table 1: Demographic Details

Demographic Variable	Mean ± SD / N (%)
Age (years)	28.3 ± 4.5
Parity	2.1 ± 1.2
Body Mass Index (BMI) (kg/m²)	26.8 ± 3.5

Table 2: Indications for Caesarean Section

Indication	Frequency (N)	Percentage (%)
Fetal distress	15	30
Failure to progress in labor	13	26
Previous CS	10	20
Breech presentation	7	14
Maternal request	5	10

Table 3: Contributing Factors

Contributing Factor	Frequency (N)	Percentage (%)
Advanced maternal age (>35 years)	12	24
Obesity (BMI > 30)	10	20
Hypertension	8	16
Diabetes	6	12
Multiple gestations	4	8

- The mean age of the women was 28.3 years, with a standard deviation of 4.5 years.
- The majority of the women were multiparous, with an average parity of 2.1.
- The most common indications for CS were fetal distress (30%), failure to progress in labor (26%), and previous CS (20%).
- Significant contributing factors included advanced maternal age (24%), obesity (20%), hypertension (16%), and diabetes (12%).

These results highlight the primary reasons and associated factors for caesarean sections in the studied population, providing valuable insights for future interventions aimed at optimizing CS rates.

DISCUSSION

The findings of this retrospective study highlight the primary indications and contributing factors leading to caesarean sections (CS) at a tertiary care hospital in Ghailadh Village Madhepura, Bihar. The most

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common indications identified were fetal distress, failure to progress in labor and previous CS, which are consistent with findings from other studies (1, 2).

Fetal distress was the leading indication, accounting for 30% of the cases. This aligns with previous research that identifies fetal distress as a significant factor necessitating emergency CS to prevent adverse neonatal outcomes (3). Continuous fetal monitoring and timely decision-making are crucial to manage such cases effectively and reduce the incidence of CS due to fetal distress (4).

Failure to progress in labor was the second most common indication, seen in 26% of the cases. This is a well-documented reason for CS, particularly in cases where labor is prolonged or there are complications in the labor process (5). Proper management of labor through the use of labor augmentation techniques and close monitoring can help address this issue (6).

Previous CS was another significant indication, accounting for 20% of the cases. The rate of repeat CS is a global concern, as the number of women with a history of CS increases (7). Vaginal birth after caesarean (VBAC) is an option that could potentially reduce repeat CS rates, but it requires careful selection and monitoring of candidates (8).

Advanced maternal age, obesity, hypertension, and diabetes were identified as key contributing factors. Advanced maternal age (>35 years) was found in 24% of the cases, which is consistent with other studies that have shown an association between advanced maternal age and increased CS rates (9). Maternal obesity (20%) is another significant risk factor, as it is associated with complications such as gestational diabetes, preeclampsia, and labor dystocia (10, 11).

Hypertension (16%) and diabetes (12%) also played substantial roles. These comorbidities are known to complicate pregnancies and increase the likelihood of requiring a CS to ensure maternal and fetal safety (12). Proper management of these conditions during pregnancy is essential to minimize their impact on delivery outcomes (13).

The results of this study underscore the importance of addressing modifiable risk factors such as obesity and comorbid conditions through pre-pregnancy counseling and antenatal care. Implementing strategies to manage labor effectively and promote VBAC where appropriate could also help reduce unnecessary CS rates (14).

CONCLUSION

In conclusion, fetal distress, failure to progress in labor, and previous CS were the primary indications for CS in this study. Contributing factors such as advanced maternal age, obesity, and comorbid conditions significantly influenced the likelihood of CS. These findings highlight the need for targeted interventions to manage these risk factors and optimize CS rates in tertiary care settings.

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