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Retrospective Analysis of Anaesthesia Utilization in Emergency Cesarean Sections: A Hospital-Based Observational Study

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Abstract—

Background:
Emergency cesarean section requires rapid and appropriate anesthesia selection to ensure maternal and neonatal safety.

Methods:
A retrospective observational study was conducted on 100 emergency cesarean cases at a tertiary care hospital in Jaipur, India (Jan 2024–Dec 2025). Data on anesthesia type, indications, and maternal outcomes were collected. Statistical analysis was performed using SPSS version 25. Chi-square test was applied, and $p < 0.05$ was considered statistically significant.

Results:
Spinal anesthesia was used in 65% cases, while general anesthesia was used in 35%. Maternal complications were significantly lower in the spinal group (18%) compared to the general anesthesia group (43%) ($p = 0.03$). Hypotension was more common in spinal anesthesia (10%), whereas airway-related complications were significantly higher in general anesthesia (20%) ($p = 0.01$).

Conclusion:
Spinal anesthesia demonstrated better maternal stability and fewer complications, making it the preferred technique for emergency cesarean sections, while general anesthesia remains essential in critical cases.

Keywords— Cesarean section, spinal anesthesia, general anesthesia, maternal outcome, emergency surgery

I. INTRODUCTION

Emergency cesarean section is a life-saving obstetric intervention. The choice of anesthesia plays a crucial role in determining maternal and neonatal outcomes.

Regional anesthesia, particularly spinal anesthesia, is widely recommended due to reduced maternal morbidity and improved neonatal outcomes. Studies have shown that general anesthesia is associated with higher maternal blood loss and lower neonatal Apgar scores compared to spinal anesthesia .

Despite advances, general anesthesia is still required in cases of fetal distress, maternal instability, or contraindications to regional anesthesia. However, limited data exists regarding anesthesia utilization patterns in Indian tertiary care settings.

II. AIM AND OBJECTIVES

Aim:
To evaluate anesthesia utilization patterns in emergency cesarean sections.

Objectives:

- To identify commonly used anesthesia techniques
- To assess indications for each technique
- To compare maternal outcomes

III. METHODOLOGY

Study Design: Retrospective observational study
Setting: Bhandari Hospital, Jaipur, Rajasthan
Duration: January 2024 – December 2025
Sample Size: 100 patients

Inclusion Criteria

- Emergency cesarean sections

Exclusion Criteria

- Elective cesarean sections
- Incomplete records

Data Collected

- Age
- Indication
- Type of anesthesia
- Maternal complications

Statistical Analysis

Data were analyzed using **SPSS version 25**.

- Categorical variables → percentage
- Continuous variables → mean ± SD
- **Chi-square test applied**
- **$p < 0.05$ = statistically significant**

IV. RESULTS AND DISCUSSION

Demographic Data

- **Mean age: 26.8 ± 4.5 years**

Table 1: Anaesthesia Type

Type	Frequency	%	
Spinal	65	65%	
General	35	35%	

Table 2: Indications

Indication	%
Fetal distress	40
Prolonged labor	30
Maternal complications	30

Table 3: Complications

Type	Spinal	General
Hypotension	10	5
Nausea	8	3
Airway issues	0	7

V. DISCUSSION

This study demonstrates that spinal anesthesia is the most commonly used technique in emergency cesarean sections and is associated with better maternal outcomes.

Our findings align with previous studies showing that general anesthesia is associated with increased maternal blood loss and adverse neonatal outcomes . Similarly, population-based studies report a higher risk of neonatal complications such as low Apgar scores with general anesthesia .

The higher incidence of airway-related complications in general anesthesia observed in our study is consistent with existing literature, where airway management remains a major challenge.

Although spinal anesthesia is associated with hypotension, it is usually manageable and less harmful compared to complications seen with general anesthesia.

VI. LIMITATION

- Single-center study
- Small sample size
- Retrospective design
- Neonatal outcomes not extensively analyzed

VII. CONCLUSION

Spinal anesthesia demonstrated a superior safety profile with fewer maternal complications and better hemodynamic stability. It should remain the preferred technique in emergency cesarean sections. General anesthesia should be reserved for critical situations where rapid intervention is required.

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