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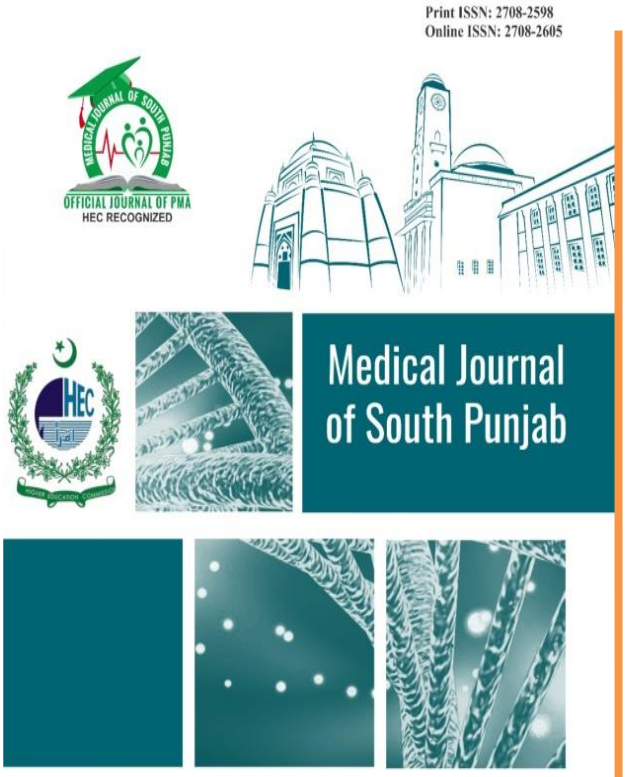

Elective cesarean section versus emergency cesarean section in primigravidae at term

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Original Article

Elective cesarean section versus emergency cesarean section in primigravidae at term

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ABSTRACT

Objective: To compare maternal and neonatal outcomes between elective cesarean section (ECS) and emergency cesarean section (EmCS) in primigravidae at term.

Methods: Comparative cross-sectional study was conducted in department of Obstetrics & Gynecology, Memon Medical Institute Karachi, Pakistan from January 2022 to December 2022. A total of 150 primigravidae at term (≥37 weeks gestation) undergoing cesarean section were included. Patients were divided into two groups: elective cesarean section (n=75) and emergency cesarean section (n=75). Data regarding maternal demographics, indications for cesarean section, intraoperative and postoperative complications, and neonatal outcomes were recorded.

Results: The mean age of patients was 26.3 ± 4.2 years. Maternal complications such as postpartum hemorrhage (18.7% vs 8.0%), wound infection (14.7% vs 5.3%), and need for blood transfusion (20.0% vs 9.3%) were significantly higher in the emergency cesarean section group compared to the elective group ($p<0.05$). Neonatal outcomes showed a higher frequency of low Apgar scores (≤7 at 5 minutes) (24.0% vs 10.7%) and NICU admissions (28.0% vs 12.0%) in the emergency group ($p<0.05$).

Conclusion: Emergency cesarean section is associated with significantly higher maternal and neonatal morbidity compared to elective cesarean section in primigravidae at term. Early identification of high-risk cases and timely decision-making can improve outcomes.

Keywords: Elective cesarean section, Emergency cesarean section, Primigravidae, Maternal outcomes, Neonatal outcomes

1. INTRODUCTION

Cesarean section (CS) is one of the most commonly performed surgical procedures in obstetrics worldwide. Over the past few decades, there has been a significant increase in cesarean section rates globally, particularly in developing countries[1]. The World Health Organization recommends that cesarean section rates should not exceed 10–15%, yet many regions report substantially higher rates, raising concerns regarding maternal and neonatal safety[2].

Cesarean sections are broadly classified into elective and emergency procedures[3]. Elective cesarean section is planned before the onset of labor, usually due to predefined maternal or fetal indications such as placenta previa, malpresentation, or previous obstetric complications[4]. In contrast, emergency cesarean section is performed due to unforeseen complications during labor, including fetal distress, obstructed labor, or failed induction[5].

Primigravidae represent a unique population as they lack prior obstetric history, making labor outcomes less predictable[6]. Emergency cesarean section in this group is often associated with increased maternal stress, prolonged labor, and higher complication rates[7]. On the other hand, elective cesarean section allows for better preparation, controlled surgical conditions, and reduced risk of adverse outcomes[8].

Several studies have demonstrated that emergency cesarean sections are associated with increased maternal morbidity, including hemorrhage, infection, and anesthetic complications, as well as adverse neonatal outcome]es such as birth asphyxia and increased NICU admissions[9,10]. However, limited local data is available from South Punjab comparing these outcomes in primigravidae at term[11].

This study aims to compare maternal and neonatal outcomes between elective and emergency cesarean sections in primigravidae at term, thereby providing evidence to guide clinical decision-making and improve obstetric care in the region.

2. METHODOLOGY

This comparative cross-sectional study was conducted in the Department of Obstetrics & Gynecology Memon Medical Institute Karachi, Pakistan from from January 2022 to December 2022. A total of 150 primigravidae at term (≥37 weeks of gestation) undergoing cesarean section were enrolled using non-probability consecutive sampling. The participants were divided into two equal groups: Group A comprised 75 patients undergoing elective cesarean section, while Group B included 75 patients undergoing emergency cesarean section.

The inclusion criteria consisted of primigravidae with singleton pregnancies at gestational age ≥37 weeks who were scheduled for cesarean delivery. Patients with multiple pregnancies, preterm deliveries (<37 weeks), known medical disorders such as diabetes mellitus and hypertension, and those with congenital fetal anomalies were excluded from the study.

Data were collected using a structured proforma that recorded maternal age, gestational age, indications for cesarean section, intraoperative findings, and postoperative complications including postpartum hemorrhage, wound infection, and requirement for blood transfusion. Neonatal outcomes such as birth weight, Apgar score at 5 minutes, and admission to the neonatal intensive care unit (NICU) were also documented.

All data were analyzed using SPSS version 25. Quantitative variables were expressed as mean ± standard deviation, while qualitative variables were presented as frequencies and percentages. Stratification was performed for age and gestational age, and the Chi-square test was applied to assess associations between variables. A p-value of ≤0.05 was considered statistically significant.

3. RESULTS

A total of 150 primigravidae at term were included, with 75 patients each in elective (ECS) and emergency cesarean section (EmCS) groups. The mean maternal age (26.1 ± 4.0 vs 26.5 ± 4.4 years, p=0.62), gestational age (38.5 ± 1.1 vs 38.2 ± 1.3 weeks, p=0.18), and BMI (25.8 ± 3.2 vs 26.4 ± 3.5 kg/m², p=0.29) were comparable between ECS and EmCS groups.

Breech presentation (37.3% vs 8.0%) and placenta previa (16.0% vs 4.0%) were more common indications for elective cesarean section, whereas fetal distress (32.0% vs 6.7%) and failed induction (20.0% vs 5.3%) predominated in emergency cases.

Maternal complications were significantly higher in the EmCS group, including postpartum hemorrhage (18.7% vs 8.0%, p=0.03), wound infection (14.7% vs 5.3%, p=0.04), blood transfusion (20.0% vs 9.3%, p=0.02), and prolonged hospital stay (25.3% vs 12.0%, p=0.02).

Neonatal outcomes were also worse in emergency cases, with higher rates of low Apgar score (24.0% vs 10.7%, p=0.01), NICU admission (28.0% vs 12.0%, p=0.01), and respiratory distress (22.7% vs 8.0%, p=0.01). Low birth weight was slightly higher in the EmCS group (17.3% vs 13.3%, p=0.49), but the difference was not statistically significant.

Table 1: Demographic Characteristics of Patients (n = 150)

Variable	Elective CS (n=75)	Emergency CS (n=75)	p-value
Mean Age (years)	26.1 ± 4.0	26.5 ± 4.4	0.62
Gestational Age (weeks)	38.5 ± 1.1	38.2 ± 1.3	0.18
BMI (kg/m²)	25.8 ± 3.2	26.4 ± 3.5	0.29
Rural Residence (%)	42 (56.0%)	48 (64.0%)	0.31
Urban Residence (%)	33 (44.0%)	27 (36.0%)	—

Table 2: Indications of Cesarean Section

Indication	Elective CS (%)	Emergency CS (%)
Breech presentation	28 (37.3%)	6 (8.0%)
Cephalopelvic disproportion	18 (24.0%)	20 (26.7%)
Placenta previa	12 (16.0%)	3 (4.0%)
Fetal distress	5 (6.7%)	24 (32.0%)
Failed induction	4 (5.3%)	15 (20.0%)
Others	8 (10.7%)	7 (9.3%)

Table 3: Maternal Outcomes

Outcome	Elective CS (%)	Emergency CS (%)	p-value
Postpartum hemorrhage	6 (8.0%)	14 (18.7%)	0.03
Wound infection	4 (5.3%)	11 (14.7%)	0.04
Blood transfusion	7 (9.3%)	15 (20.0%)	0.02
Prolonged hospital stay (>5 days)	9 (12.0%)	19 (25.3%)	0.02

Table 4: Neonatal Outcomes

Outcome	Elective CS (%)	Emergency CS (%)	p-value
Low Apgar score (≤7 at 5 min)	8 (10.7%)	18 (24.0%)	0.01
NICU admission	9 (12.0%)	21 (28.0%)	0.01
Low birth weight (<2.5 kg)	10 (13.3%)	13 (17.3%)	0.49
Neonatal respiratory distress	6 (8.0%)	17 (22.7%)	0.01

4. DISCUSSION

The present study demonstrated that primigravidae undergoing elective cesarean section (ECS) and emergency cesarean section (EmCS) were comparable in terms of baseline demographic and obstetric characteristics, including maternal age, gestational age, and BMI. Similar findings have been reported in previous studies, where no statistically significant differences were observed between elective and emergency groups regarding these baseline variables, suggesting that outcome differences are primarily attributable to the urgency and indication of the procedure rather than patient-related factors[12,13]. For instance, a study by Patel et al. reported mean maternal ages of 25.8 ± 3.9 and 26.2 ± 4.1 years in elective and emergency groups, respectively, with no significant difference ($p>0.05$)[12].

Maternal morbidity was significantly higher in the EmCS group in our study, particularly regarding postpartum hemorrhage (PPH), wound infection, need for blood transfusion, and prolonged hospital stay. These findings are in agreement with several previous studies. For example, a study by Darnal et al[15] reported PPH rates of 17–20% in emergency cesarean sections compared to 7–

10% in elective procedures. Similarly, wound infection rates of 12–15% in emergency cases versus 4–6% in elective cases have been documented[16]. The increased need for blood transfusion in emergency cases observed in our study (20.0% vs. 9.3%) is also consistent with findings by Ahmed et al[17] who reported transfusion rates of 18% in emergency versus 8% in elective cesarean sections. These differences may be explained by suboptimal preoperative preparation, increased intraoperative blood loss, and the urgent nature of the procedure in emergency settings.

Neonatal outcomes in our study were also significantly worse in the emergency cesarean section group. The higher frequency of low Apgar scores, NICU admissions, and respiratory distress is in line with previously published data. A study by Tura et al[18] found low Apgar scores in 22–26% of emergency cesarean deliveries compared to 9–12% in elective cases. Similarly, NICU admission rates of approximately 25–30% in emergency cases versus 10–15% in elective cases have been reported in other regional studies[19].

The increased incidence of neonatal respiratory distress in emergency deliveries may be attributed to fetal compromise prior to delivery, particularly in cases of fetal distress or prolonged labor. Although low birth weight was slightly more common in the emergency group in our study, the difference was not statistically significant, which is consistent with findings from other studies indicating that birth weight is not always a distinguishing factor between elective and emergency cesarean deliveries[20].

5. CONCLUSION

Emergency cesarean section is associated with significantly higher maternal and neonatal morbidity compared to elective cesarean section in primigravidae at term. Early identification of high-risk cases and timely decision-making can improve outcomes.

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