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Original Research Article

Comparative study on maternal morbidity in elective and emergency caesarean section at tertiary hospital

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ABSTRACT

Background: The incidence of caesarean sections has significantly increased over the previous thirty years and nearly doubled in the current decade, because of more liberalisation of indications of caesarean sections. India's caesarean section rates have surpassed the WHO cutoff point of 15%, raising serious public health issues. The prevalence of the C-section in India was 8.5% in NFHS-3 while data in NFHS-4 show that it has increased to 17.2%. Thus, almost 9% has increased over 10 years. Objective was to compare the maternal morbidity in elective and emergency caesarean section.

Methods: Institution based comparative study was conducted among 108 females undergoing lower segment caesarean section at JNUIMSRC, Jaipur. After taking written informed consent patients were enrolled for the study. Once the data was collected it was analysed as per appropriate statistical analysis.

Results: Incidence of emergency LSCS was 23.6% and of elective LSCS was 76.4%. the most common maternal indication was previous LSCS (38.1%) and most common fetal indication was fetal distress (13.3%) followed by malpresentation (11.4%). Incidence of intraoperative complications was 29% with most common complications being atonic PPH (12.4%) followed by traumatic PPH (5.9%), bladder and bowel injury (0.7%). Incidence of post operative complications was 51.9% with most common being anaemia (20.8%), PPH (10%), puerperal sepsis (8%).

Conclusions: If performed for medical reasons, CS can save the lives of both mothers and babies. Therefore, CSs should preferably only be performed when necessary for medical reasons. Morbidity is more with emergency LSCS than elective LSCS with PPH being the most common intraoperative complication and anemia being most common post operative complication.

Keywords: Elective, Emergency, LSCS

INTRODUCTION

A baby is delivered surgically via a laceration in the mother's abdomen and uterus during a caesarean delivery (C-section). The caesarean section is a traditional obstetric procedure. The most vital weapon in an obstetrician's arsenal is a caesarean section, which is the abdominal delivery of a foetus when necessary for the sake of the mother, the foetus, or both. Either elective surgery or emergency surgery is performed.¹

The World Health Organization (WHO) states that a caesarean section is a surgical surgery that, when carried out for or medical reasons, can save both the lives of the mother and her unborn child. Consequently, only complex pregnancies should use the surgery. Nonetheless, C-sections are increasingly popular in poorer nations and have long been relatively common undeveloped nations.² The incidence of caesarean sections has significantly increased over the previous thirty years and nearly doubled in the current decade, as a result of a sharp decline in maternal mortality and morbidity as well as a considerably more liberalisation

of indications. India's caesarean section rates have surpassed the WHO cutoff point of 15%, raising serious public health issues. The prevalence of the C-section in India was 8.5% in NFHS-3 while data in NFHS-4 show that it has increased to 17.2%. Thus, almost 9% has increased over 10 years.³

Technology monitoring of labour increased the likelihood of detecting foetal distress, breech presentation or prolonged labour (beyond 18 to 24 hours) may require intervention, forceps deliveries are less likely to be attempted due to high foetal risk, and elderly primis are at higher risk of complications with vaginal delivery and dystocia. These factors have all contributed to an increase in the caesarean delivery rate in recent years. The rise in institutional births, along with other contributing factors including unregulated health facilities, mostly private institutions, and an increasing tendency of women choosing it, is one of the most important causes of this rising C-section rate.⁴ Obstetricians can greatly improve foetal survival and well-being by using techniques for assessing foetal growth and maturity, including ultrasound, amniocentesis with specific biochemical testing, Rh incompatibility, and meconium presence. The rate of caesarean sections has increased four-fold in the past five years due to malpresentations.⁵

Recent years have seen a sharp decline in both maternal and perinatal mortality and morbidity following caesarean sections, as a result of factors including quick advances in surgical knowledge and practise, improved anaesthetic methods, improved and modernised neonatal and premature care facilities, and newer techniques for early foetal distress detection that have helped save infants before they are too late.⁶

Despite all of these advancements in medical care, there is still a disproportionately higher rate of maternal and perinatal mortality following caesarean sections, particularly when the procedure is considered an emergency and a maternal or foetal complication is the reason for the section in the first place.⁷

Due to illiteracy, a lack of health information, and low socioeconomic status, the majority of prenatal cases in underdeveloped nations like India will go unbooked without any frequent visits. Additionally, particularly in remote and interior locations, there are inadequate health care and transportation amenities. Due to all of these variables, the majority of these individuals would require emergency caesarean sections in very poor clinical conditions and with delayed arrival to higher hospitals, which will further raise morbidity and death, contrary to the scenario in developed countries.⁸ This can be effectively combated by raising literacy levels and providing all pregnant women with health education. This will help them understand the various complications associated with pregnancy and delivery and the importance of receiving proper antenatal care, regular check-ups, better nutrition, and prompt medical attention

in the event of any complications. To reduce morbidity and mortality, it is also crucial to provide better mobility options, early referral systems, and health care facilities, even in distant areas.⁹

Compared to vaginal deliveries, the risk of haemorrhage, sepsis, thromboembolism, and amniotic fluid embolism is roughly five times higher in caesarean births. CS raises the likelihood of placenta previa and adherent placenta in a future pregnancy, which may further increase the risk of haemorrhage and peripartum hysterectomy. Adhesion-related technical issues raise the possibility of bladder and bowel damage. Despite the fact that CS can save the life of a baby in danger, high caesarean rates are associated with higher infant mortality and morbidity, including iatrogenic preterm deliveries and respiratory illness. Perinatal mortality is also increased in women with prior CS due to the risk of uterine rupture and stillbirths.¹⁰

Neonatal adaptations, such as maintaining body temperature, blood sugar levels, and pulmonary breathing, are delayed in caesarean new-borns. In babies born via CS, the development of the new born immune system is also impacted. Therefore, CS should only be performed when medically necessary.

Thus, this study was conducted to assess the maternal morbidity following elective and emergency LSCS.

METHODS

Institution based comparative study was conducted among 108 females undergoing lower segment caesarean section at JNUIMSRC, Jaipur. JNU is a multi-specialty hospital with daily obstetrics and gynaecology OPD of approximately 500 females of which approximately 50% were antenatal.

Study design and setting

It was comparative study. The study was conducted in the department of obstetrics and gynaecology, JNUIMSRC Jaipur.

Study period

Study period was 1 year from January 2021 to January 2022

Study population

108 antenatal females who underwent lower segment caesarean section at JNUIMSRC, Jaipur.

Sample size

108 antenatal females who underwent LSCS at JNUIMSRC, Jaipur. Before enrolling the patient into the study, patient was explained the type and nature of the study and informed written consent was taken.

Statistical analysis

Data related to demographic characteristics, maternal and fetal indication of LSCS, intraoperative and post operative complications were noted down. The data was analysed as per appropriate statistical analysis. Once the data was collected, it was further processed and analysed using descriptive statistics and tests of association.

RESULTS

108 questionnaires were administered and the response rate was 100%.

The maximum (45.4%) respondents were in the age group of 25-29 years, 38% in the age group of 20-24 years, 11.1% in the age group of 30-34 years and remaining 5.5% were above 35 years of age. Majority (53.7%) of the respondents were from the rural area and majority (38%) had secondary level of education and majority (79.4%) were housewife by occupation and majority (42.5%) belonged to middle class in socioeconomic status. Out of the total 108 patients 76.4% underwent elective LSCS and remaining 23.6% had emergency LSCS.

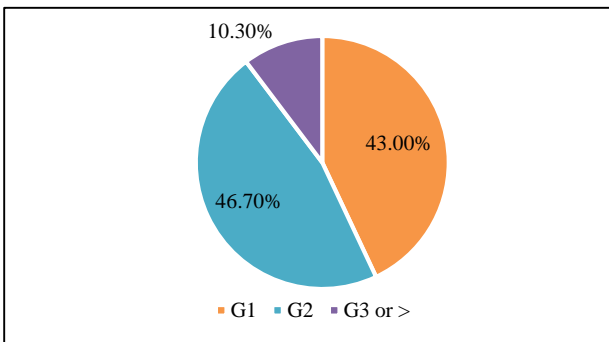


Figure 1: Parity of patients.

Majority (46.7%) of patients were second gravida followed by primigravida which were 43% and 10.3% were multigravidas (G3 and above).

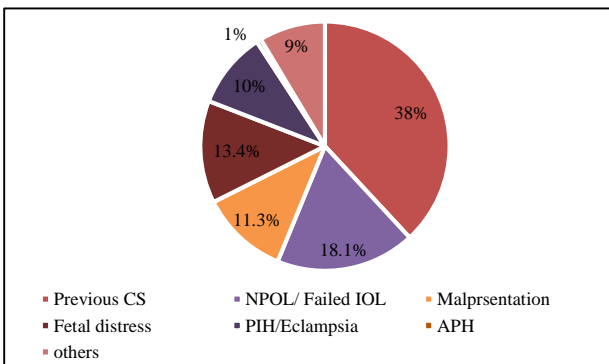


Figure 2: Indications of LSCS.

The most common maternal indication of LSCS was previous LSCS (38.1%) followed by non-progress of

labour/failed induction (18.1%), PIH/eclampsia (10%), antepartum haemorrhage (1%). The most common fetal indication of LSCS was fetal distress (13.3%) followed by malpresentation (11.4%). The most common maternal indication of elective LSCS were previous LSCS and most common maternal indication of emergency LSCS was non progress of labour/failed induction. Most common fetal indication of elective LSCS was malpresentation and of emergency LSCS was fetal distress.

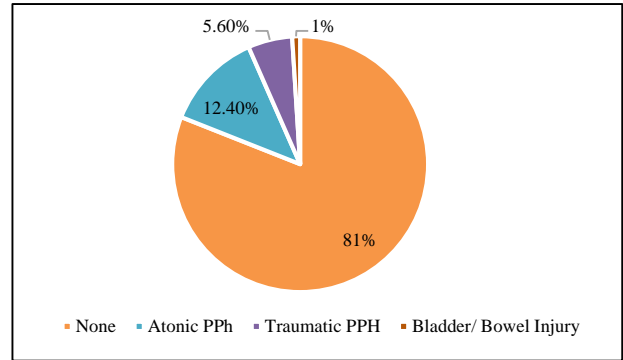


Figure 3: Intraoperative complications.

Majority (81%) of LSCS were uneventful with no intraoperative complications while Atonic PPH occurred in 12.4% cases, traumatic PPH occurred in 5.9% cases and bladder injury was seen in 0.7% cases. Most of the elective LSCS had no intraoperative complication and most common intraoperative complication in emergency LSCS was PPH.

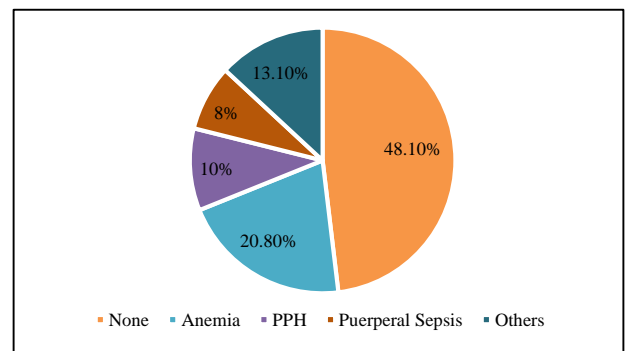


Figure 4: Postoperative complications.

Majority (48.1%) of cases had no post operative complications while anaemia was seen in 20.8% cases, PPH in 10%, puerperal sepsis in 8% and remaining 13.1% had complications like paralytic ileus, wound gaping, wound sepsis, urinary tract infection, mastitis. Most common post operative complication in elective LSCS was paralytic ileus and in emergency LSCS was anaemia followed by PPH and wound sepsis.

The maternal and fetal outcome were better in elective LSCS than emergency LSCS. The majority (77.4%) cases had normal baby weight while 18.9% had low birth weight baby and remaining 3.7% had very low birthweight babies.

Majority (76.4%) of patients had an eventful puerperium period while remaining 21.7% had uneventful puerperium period

DISCUSSION

108 questionnaires were administered and the response rate was 100%.

The maximum (45.4%) respondents were in the age group of 25-29 years, 38% in the age group of 20-24 years, 11.1% in the age group of 30-34 years and remaining 5.5% were above 35 years of age. Majority (53.7%) of the respondents were from the rural area and majority (38%) had secondary level of education and majority (79.4%) were housewife by occupation and majority (42.5%) belonged to middle class in socioeconomic status. Out of the total 108 patients 76.4% underwent elective LSCS and remaining 23.6% had emergency LSCS.

Majority (46.7%) of patients were second gravida followed by primigravida which were 43% and 10.3% were multigravidas (G3 and above). The most common maternal indication of LSCS was previous LSCS (38.1%) followed by non-progress of labour/failed induction (18.1%), PIH/eclampsia (10%), antepartum haemorrhage (1%). The most common fetal indication of LSCS was fetal distress (13.3%) followed by malpresentation (11.4%). The most common maternal indication of elective LSCS were previous LSCS and most common maternal indication of emergency LSCS was non progress of labour/failed induction. Most common fetal indication of elective LSCS was malpresentation and of emergency LSCS was fetal distress. In a study by Villar et al, pregnancy-induced hypertension and eclampsia were the most frequent maternal indications for emergency LSCS, accounting for 32.5% of cases. Fetal distress was the most frequent fetal indication for emergency LSCS, at 60%.¹³ Majority (81%) of LSCS were uneventful with no intraoperative complications while atonic PPH occurred in 12.4% cases, traumatic PPH occurred in 5.9% cases and bladder injury was seen in 0.7% cases. Most of the elective LSCS had no intraoperative complication and most common intraoperative complication in emergency LSCS was PPH.

Majority (48.1%) of cases had no post operative complications while anaemia was seen in 20.8% cases, PPH in 10%, puerperal sepsis in 8% and remaining 13.1% had complications like paralytic ileus, wound gaping, wound sepsis, urinary tract infection, mastitis. Most common post operative complication in elective LSCS was paralytic ileus and in emergency LSCS was anaemia followed by PPH and wound sepsis. Majority (77.4%) cases has normal baby weight while 18.9% had low birth weight baby and remaining 3.7% had very low birthweight babies. Majority (76.4%) of patients has an eventful puerperium period while remaining 21.7% had uneventful puerperium period. In a study by Leth et al, compared to vaginal births, the risk of hemorrhage, sepsis,

thromboembolism, and amniotic fluid embolism is roughly five times higher in caesarean births.¹⁴

Summary

The maximum (45.4%) respondents were in the age group of 25-29 years. Majority (53.7%) of the respondents were from the rural area and majority (38%) had secondary level of education and majority (79.4%) were housewife by occupation and majority (42.5%) belonged to middle class in socioeconomic status. Out of the total 108 patients 76.4% underwent elective LSCS and remaining 23.6% had emergency LSCS. Majority (46.7%) of patients were second gravida. The most common maternal indication of elective LSCS were previous LSCS and most common maternal indication of emergency LSCS was non progress of labour/failed induction. Most common fetal indication of elective LSCS was malpresentation and of emergency LSCS was fetal distress. Most of the elective LSCS had no intraoperative complication and most common intraoperative complication in emergency LSCS was PPH. The maternal and fetal outcome was better in elective LSCS than emergency LSCS.

The major limitation of the study was the small sample size, if more patients were involved in the study then definitely better results would have been obtained. Therefore, further studies involving more number of patients and various ethnic groups and more extensive research are required to get a clearer understanding.

CONCLUSION

The maternal and fetal outcome was better in elective LSCS than emergency LSCS. Caesarean deliveries may be complicated, which could result in mortality or morbidity. CS-related morbidities might be either short-term or long-term. Women having emergency CSs and women who had previously undergone a CSs were at a greater risk of morbidity and mortality. If performed for medical reasons, CS can save the lives of both mothers and babies. Therefore, CSs should preferably only be performed when necessary for medical reasons. The morbidity is more with emergency LSCS than elective LSCS.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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