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RESEARCH ARTICLE

MATERNAL AND NEONATAL OUTCOMES IN EMERGENCY VERSUS ELECTIVE LSCS: A RETROSPECTIVE COHORT STUDY

Kiran Eshwar[1], RamyaK.[2] and Kala K.[3]

1. Junior Resident.
2. Assistant Professor.
3. Professor

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Abstract

Background: Caesarean section preferred as an emergency or elective procedure are entirely different entities according to the measures taken, facilities and skilled staff available, and preparation done. Complications are greater in emergencies compared with elective caesarean section.

Objectives: To evaluate the maternal and neonatal outcomes in emergency LSCS versus elective LSCS performed at our hospital

Method: The present retrospective study included all patients underwent caesarean section at Akash hospital between Dec 2022 to May 2023. Maternal and perinatal outcomes were compared between groups.

Results: Out of the 230 cesarean sections, 70 (30.5%) were elective and 160 (69.5%) were emergency. Age, parity, delivery method, indication, complications, and fetal outcome are among the maternal data gathered. Fetal distress was the highest indication for 66 (41.1%) and 94 (58.0%) of the 160 emergency LSCS primivida. Of the 70 elective LSCS procedures, 14 (20%) and 56 (80%) multigravidas had prior LSCS as the highest indication. NICU admission in elective LSCS 7 (10.2%) and emergency LSCS 62 (89.8%). The most frequent intraoperative complication in emergency LSCS is atonic PPH. RDS is the most common indication (53), accounting for 49 emergency and 4 elective LSCS admissions out of 69 NICU hospitalizations. Two neonatal deaths in the emergency unit. In the emergency LSCS group, post-operative problems were 39.5% greater.

Conclusions: Our study highlights the clinical distinctions in perinatal outcomes, indications, and consequences between elective and emergency LSCS. There are fewer problems with elective LSCS than with emergency LSCS, and the fetal prognosis is better in the elective group.

Corresponding Author:-Kiran Eshwar
Address:-Junior Resident.

Introduction:-

A cesarean section (CS) is regarded as one of the first examples of contemporary birth technology. It is a surgical operation in which the baby is delivered by making incisions in the uterus (hysterotomy) and abdomen (laparotomy). Since the procedure's first recorded cesarean section in AD 1020, it has undergone tremendous change. In the United States, caesarean births are now the most prevalent surgical treatment, with over a million women having them each year.[1]

The rate of cesarean sections has substantially increased worldwide over the last three decades. Maternal mortality related to the process has been considerably decreased by advancements including safer anesthetic, better aseptic and antiseptic procedures, broad-spectrum antibiotics, and easier access to blood transfusion services.[2]

The World Health Organization (WHO) states that cesarean section rates between 5% and 10% result in the best outcomes for both mothers and babies. (Vogel et al., 2015).[3]In the United States, 32.2% of all births in 2022 were caesarean deliveries. Additionally, rates differ significantly between nations; for instance, they are 36% in Brazil, 40% in Chile, 34% in Taiwan, 22.4% in Italy, 21.4% in the UK, and 26.1% in Turkey. The CS rate in India increased from 17.2% in 2016 to 21.5% in 2021. (Neethi Mohan et al., 2023).[4]More specifically, the rate in Karnataka rose from 35% in 2021–2022 to 38% in 2022–2023. As of December 2024, the state's cesarean rate stands at 46%.[5]

Increased use of electronic fetal monitoring, cesarean sections for breech presentations, labor dystocia, maternal problems like diabetes and preeclampsia, and shifts in maternal demographics are some of the causes that have contributed to this increase. Other causes include higher maternal age, nulliparity, decreased use of forceps and vacuum extraction, medico-legal issues, and enhanced procedural safety..[6, 7] (Balachandran et al., 2014; Diana &Tipandjan, 2016).

The two main categories of cesarean deliveries are elective and emergency. Before labor begins, usually at 39 weeks of gestation, an elective cesarean section (ElCS) is planned and arranged. Placenta previa, malpresentation, repeated pregnancies, pelvic tumors, cephalopelvic disproportion, and a previous low transverse uterine incision are among the indications.[8] (Maskey et al., 2019).

On the other hand, unexpected labor difficulties such cord prolapse, uterine rupture, eclampsia, inability to progress, or fetal distress result in an emergency cesarean section.[9] (McCourt et al., 2011).

Although cesarean sections are relatively safe in the current era, complications can still occur—especially with emergency procedures. A study in Peshawar, Pakistan, reported higher rates of anesthesia-related complications, wound infections, and bladder injuries in emergency CS cases.Compared to 9.2% of babies delivered via elective CS, 40.4% of babies delivered via emergency CS experienced neonatal problems, according to a longitudinal descriptive research conducted in Kerala. These included stillbirth, sepsis, respiratory distress syndrome, neonatal hypoxia, and transient tachypnea of the newborn. The odds ratio for elective treatments was 0.15, which indicates a much decreased risk. Likewise, a prospective research conducted in Rabat, Morocco's Souissi Maternity Hospital revealed a perinatal mortality rate of 10.2 per 1,000 newborns, solely among emergency CS patients.[10]

Complications for both the mother and the fetus are also more likely to occur in repeat pregnancies following previous cesarean procedures. In light of this, the current retrospective study compares and assesses the differences in mother and fetal outcomes between emergency and elective cesarean sections carried out at our hospital.

Methods:-

All patients who had cesarean sections performed at Akash Hospital between December 2022 and May 2023 were included in the current retrospective analysis. The groups' maternal and perinatal outcomes were contrasted. The patient's age, parity, fetalmalpresentations, prior cesarean section, fetal distress, cephalopelvic disproportion (CPD), nonprogression, maternal request, hypertension, and unsuccessful induction were among the maternal variables taken into account. A compilation of the many intraoperative and postoperative problems was made. The study includes neonatal data from NICU admissions where fetal problems were observed.

Inclusion criteria:
All the patient underwent elective and emergency LSCS in our hospital

Exclusion Criteria:
Vaginal deliveries, Hysterotomies

Results:-

In the present study, a total of 230 cases of cesarean section were included. Of these 160 were emergency and 70 were elective surgery. Out of 230 cases we found maximum 172 cases between the ages of 21-30yrs, followed by 37 cases between the ages of 31-35yrs, followed by 15 cases between the ages of 18-20yrs, followed by least 6 cases were more than 35yrs of age. In the present study, maximum emergency cases 123 were found between 21-30yrs of age in comparison to 49 cases of elective surgery of same age group, followed by 19 emergency cases between 31-35yrs of age in comparison to 18 cases of elective surgery followed by 14 cases of emergency surgery between the ages of 18-20yrs in comparison to 1 case of elective surgery. Above 13 yrs only 4 cases of emergency surgery and 2 cases of elective surgery were found.

In this study, out of 230 cases primi were 80 and multi were 150. In emergency surgery primi were 66(41.1%) and multi were 94(58.75%). In elective surgery primi were 14(20%) and multi were 56(80%).

CHARACTERISTICS AGE (IN YEARS)	**TOTAL(n%) 230**	**EMERGENCY 160**	**ELECTIVE 70**
18-20	15	14	1
21-30	172	123	49
31-35	37	19	18
>35	6	4	2
GRAVIDA			
PRIMI	80	66(41.1%)	14(20%)
MULTI	150	94(58.75%)	56(80%)

In our study, out of 86 cases previous LSCS, 38(44.1%) underwent emergency, 6 were planned elective. LSCS done for 12 malpresentations cause of which 6 elective and 6 emergency.

A total number of cases done forfetal distress in emergency, followed by 14 for non progression, 6 cases were tab for LSCS at maternal request of which 5 were elective and 1 patient required LSCS in 1st stage and labor.

INDICATION	**TOTAL-230**	**EMERGENCY- 160**	**ELECTIVE-70**
PRPEVIOUS LSCS	**86**	**38(44.1%)**	**48(55.9%)**
MALPRESENTATION	12	6(50%)	6(50%)
CPD	15	9(60%)	6
FETAL DISTRESS	48	48(100%)	-
NON PROGRESSION	14	14(100%)	
MATERNAL REQUEST	6	1(16%)	5(84%)
PREECLAMPSIA	35	30(85.7%)	5(14.3%)
FAILED INDUCTION	14	14(100%)	

In the present study out of 239 cases 89 were preterm and 141 were post term. Out of 89 preterm 86 were emergency and 4 were elective and out of 141 post term 74 were emergency and 67 were elective.

Thepresent study shows more of intra operative complication in emergency compared to elective surgery. Out of 26 cases of PPH (ATONIC UTERUS) 20 cases were emergency and 6 were elective. Out of 9 cases of Extension of uterine incision, 6 wereemergency and 3 were elective. Out of 10 uterine artery ligation, 7 were emergency and 3 were elective.

POG	TOTAL	EMERGENCY	ELECTIVE
<37WKS(PRETERM)	**89**	**86**	**3**
>37WKS (TERM)	141	74	67
INTRA OP COMPLICATIONS			
PPH (ATONIC UTERUS)	**26**	**20**	**6**
Extension of uterine incision	9	6	3
uterine artery ligation	10	7	3
Bladder Injury	-	-	-

In the present study, on comparing emergency Vs elective surgery, out of 69 NICU admission, 62 were emergency and 7 were elective and out of 160 mother side, 97 were emergency and 63 were elective.

BABY OUTCOME	TOTAL	EMERGENCY	ELECTIVE
NICU ADMISSION	69	62	7
MOTHERSIDE	160	97	63

The present study showed some post operative and fetal complications.
Post operative complications

	TOTAL-230	EMERGENCY-160	ELECTIVE-70
FEVER	30	20	10
UTI	36	26	10
BLOOD TRANFUSION	17	11	6
WOUND INFECTION	8	6	2
DIC	-	-	-
MATERNAL DEATH	-	-	-

Fetal complications

FETAL COMPLICATIONS	TOTAL	EMERGENCY	ELECTIVE
RESPIRATORY DISTRESS	53	49	4
MECONIUM ASPIRATION	9	7	2
SEPSIS	7	6	1
DEATH	2	2	0

Discussion:-

Worldwide, cesarean sections (CS) continues to be among the most popular obstetric procedures. Regardless of the mother's age, race, or parity, cesarean rates have increased dramatically in recent years for all groups. Obstetric results have significantly improved due to developments in anesthetic methods and sterile procedures.[11] (Aaisha et al., 2018).

Of the 230 cesarean deliveries that took place at Akash Hospital between December 2022 and May 2023, 160 (69.5%) were emergency procedures, while 70 (30.5%) were elective surgeries, according to the current study. The average maternal age was in line with earlier studies, such as those by Garima Nag et al., who found that the mean age of both emergency and elective groups was 26 years.[12]

Gravidity and Type of Surgery

56 (80%) of the elective CS group were multigravida, while 14 (20%) were primigravida. On the other hand, 94 (58.75%) and 66 (41.1%) of the emergency CS cases were multigravida. According to this distribution, multigravida women were more likely to have elective cesarean sections, especially if they had a history of prior cesarean deliveries.

Our results are in agreement with a longitudinal descriptive study in Kerala by Daniel et al. (2014),[13] which reported higher maternal age and gravidity in the elective group, with previous cesarean section being the most common indication. Similarly, Al Riyamiet al.[10] found mean gravidity was significantly higher in the elective CS group (4.16 ± 2.17) compared to the emergency group (2.93 ± 4.96).

Indications for Cesarean Section

Preeclampsia and eclampsia, hypertensive diseases, contracted pelvis, malpresentation, elderly primigravida, and mother request were the top five reasons for elective cesarean delivery in this study (68.5%). This is consistent with Ali et al. (2005),[15] who found that repeat cesarean was the most frequent indication (43.24%).

The most frequent indication in the emergency group was fetal distress (30%), which was followed by maternal comorbidities, non-progress of labor, malpresentation, antepartum hemorrhage, and prior CS (23.75%). Rajbhandary S et al. corroborate these findings, pointing out that the main causes of emergency CS were cephalopelvic disproportion and fetal discomfort.

Al Riyamiet al.[10] also identified previous CS as a major indication in both emergency (34.7%) and elective (52.7%) groups, with statistically significant differences. Thakur et al. (2017)[16] emphasized that older mothers—more likely to have undergone previous CS—tended to require elective procedures, while younger mothers were more likely to attempt vaginal delivery, resorting to CS only in emergencies.

Institutional and Referral Factors

Since Akash Hospital is a tertiary care facility with state-of-the-art NICU capabilities, a sizable portion of high-risk cases are referred from other clinics. Poor prenatal care, insufficient intrapartum monitoring, or postponed decision-making are frequently the causes of the high number of referrals that take place at advanced stages of labor.
Notably, mild occurrences with cephalopelvic disproportion (CPD) were first treated with a trial of labor; however, in about 14 of these cases, induction failed or the patient refused to proceed, necessitating immediate CS.

Maternal Complications

In the emergency CS group, maternal intraoperative and postoperative problems were significantly more common. Emergency measures were mostly responsible for the 17.8% overall intraoperative complication rate. The most common intraoperative problem was hemorrhage(11.3%), with 64.7% of patients needing a blood transfusion. Nelison et al.'s findings, which showed an 11.6% incidence of intraoperative maternal problems, are consistent with this.[17]

Other studies, including those by Santhanalakshmi et al. (2015)[18] and Agrawal & Agarwal (2018),[19] confirm a higher risk of hemorrhage and respiratory distress during emergency CS. Garima et al. (2019)[20], however, reported no statistically significant difference between elective and emergency CS in terms of maternal complications.

Postoperative problems occurred in 39.5% of cases in our study, with the emergency group experiencing the majority of these occurrences. Fever, urinary tract infections, and postpartum bleeding were common problems.These findings are consistent with those of Al Riyami et al.,[10] who also reported higher rates of fever, anemia, abdominal distension, and respiratory complications following emergency CS.

Neonatal Outcomes

89.8% of the 69 neonates who needed NICU admission out of the 230 deliveries came from the emergency CS group, mostly as a result of respiratory distress.Najam et al. (2013)[21] also observed higher perinatal morbidity in the emergency group (84% vs. 16% for elective CS).

Daniel et al.[13] and Yang et al.[22] similarly reported significantly higher neonatal complications associated with emergency CS, likely linked to delayed referrals, poor antenatal follow-up and suboptimal intrapartum care in peripheral settings.

Limitations:-

There are a few limitations of this study. Some clinical details were inaccessible due to the design's retrospective nature. The findings' generalizability may be constrained by the single-center design and the very small sample size. To validate these findings, prospective, multicentric investigations with bigger populations are necessary.

Conclusion:-

The indications, mother and newborn outcomes of emergency and elective cesarean sections differ significantly. Due to factors like delayed referrals, inadequate prenatal care, and inadequate intrapartum monitoring, emergency cesarean sections were linked to worse newborn outcomes as well as greater rates of intraoperative and postoperative maternal problems. A prior cesarean section was the most frequent reason for both elective and emergency cesarean sections

The need for emergency cesarean births may be decreased, and overall maternal and newborn outcomes may be improved, by enhancing labor monitoring procedures, enhancing antenatal surveillance, and facilitating prompt referrals from peripheral hospitals. These results are consistent with previous research and point to crucial areas for healthcare system improvement, despite the study's limitations as a retrospective single-center investigation.

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