“A CROSS SECTIONAL STUDY OF CESAREAN SECTIONS - ONE YEAR HOSPITAL BASED STUDY AT A TEACHING HOSPITAL”

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Dr. KAMAL PATIL$_{M.D}$
Professor & Head
Department of Obstetrics andGynecology
J.N. Medical College
Nehru Nagar,
Belagavi- 590010

Date:
Place: Belagavi

Dr. (Mrs.) N. S. Mahantshetti$_{MD}$
Principal
J.N. Medical College
Nehru Nagar,
Belagavi- 590010

Date:
Place: Belagavi

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JAWAHARLAL NEHRU MEDICAL COLLEGE

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Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category "A" by MHRD (GoI)

Nehru Nagar, Belagavi-590 010, Karnataka-India

Website : http/www.jnmc.edu
E-Mail : Principal@jnmc.edu

☎ Office :+91-(0)831 2471350
FAX :+91 (0)831-2470759

Ref. No. : MDC/PG/2626 Date : 22-10-2019

To,

Reg. noB J 0 1 1 7 0 0 3
Postgraduate Student,
Department of Obst. & Gynecology,
2017-18 Batch,
J. N. Medical College,
Belagavi.

Sub: Acceptance Letter

Sir/Madam,

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23/10/19

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Coordinator
Department of Obst. & Gynecology
J. N. M. C. Belagavi.

Guide.

Chairman,
Antiplagiarism Committee

ABBREVIATIONS

CS	-	Cesarean section
Em	-	Emergency
El	-	Elective
PCS	-	Primary Caesarean Section
RCS	-	Repeat Caesarean Section
SSI	-	Surgical Site Infection
UTI	-	Urinary Tract Infecion
TTN	-	Transient Tachypnea of the Newborn
RDS	-	Respiratory Distress Syndrome
GA	-	General Anesthesia
WHO	-	World Health Organisation
PPH	-	Post Partum Hemorrhage
NICU	-	Neonatal Intensive Care Unit
GDM	-	Gestational Diabetes Mellitus
HELLP	-	Hemolysis Elevated Liver Enzymes Low Platelets
VBAC	-	Vaginal Birth After Cesarean Section
PROM	-	Premature Rupture of Membrane

PPROM	-	Preterm Premature Rupture of Membrane
CPD	-	Cephalopelvic Disproportion
FGR	-	Fetal Growth Restriction
BOH	-	Bad Obstetric History
LBW	-	Low Birth Weight
KMC	-	Kangaroo Mother Care
APH	-	Ante Partum Hemorrhage
PE	-	Preeclampsia
APE	-	Antepartum Eclampsia

ABSTRACT

A cross sectional study of Caesarean sections - one year hospital based study at a teaching hospital attached to KAHER's J N Medical College, Belagavi.

Background and Objective:

Caesarean section has its own morbidity and mortality for mother and baby. There is rise in Caesarean section rate due to various reasons. The present study is undertaken to find out how safe the procedure is for mother and baby.

The objective of the study is to find out the major indications, perioperative complications, maternal and fetal outcome of caesarean section.

Methods:

This is a cross sectional study conducted for one year in the teaching hospital hospital attached to KAHER's J N Medical College, Belagavi. All the women who underwent cesarean section from January 2018 to December 2018 were enrolled into the study.

The details regarding antenatal complications, indications, intra-operative complications and the outcome were collected through the case records and registers. These women and babies were followed until discharge.

Sample size:

From theCochran's formula, $n=\frac{Z^2P(1-P)}{d^2}$, 736 was the required sample for analysis. The actual sample size is 736. However, 1642 cases which had complete data as required for study, were analysed during the study period (2099 cases were screened, 457 cases were excluded as they did not meet the criteria).

Results:

Out of the 4232 deliveries during the study period, caesarean sections were 2099(49.5%) cases and vaginal deliveries were 2133(50.5%). Further analysis was done for 1642 cases.

Among 1642 cases, 1511(92.1%) underwent emergency caesarean section and 131(7.9%) underwent elective cesarean section. The rate of primary section was 58.2% (955) and repeat section was 41.8% (687). Fetal distress 440(26.8%) was the commonest indication followed by Previous cesarean section not willing for VBAC (19.9%). Atonicity of uterus 152(9.2%) was the commonest intra-operative complication.

A total of 1692 babies were delivered through caesarean section. There were 20 stillbirths and 17 neonatal deaths. The commonest cause for neonatal death was sepsis.

Hypotension 60(3.65%) was the commonest intra-operative anesthetic complication.

Conclusion:

Though the cesarean section is commonly done procedure, it has its own complications. One must anticipate and be prepared for the complications before performing the procedure.

Key Words:

Cesarean section, maternal outcome, fetal outcome.

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INTRODUCTION

Cesarean section (CS) is the common operative procedure in obstetrics.[1]Cesarean section is associated with complications that may result in morbidity or death. The morbidity and fatality is high in women undergoing emergency Caesarean section and in women undergoing repeat Caesarean section.[2]

The Cesarean Section has four times higher morbidity than vaginal delivery.[3]The commonest cause for maternal morbidity is hemorrhage. Blood loss of >1000 ml is considered as Postpartum Haemorrhage. Various risk factors are multiparity, age≥ 35years, multiple pregnancy, preeclampsia, placenta previa, abruption, and uterine rupture. Other morbidities seen are blood transfusion, peripartum hysterectomy, injury to surrounding structures and vessels, thromboembolism, amniotic embolism, and postpartum infections like Surgical Site Infection(SSI), Urinary Tract Infection(UTI), Pneumonia and Sepsis.[2]

The Cesarean Section is also associated with long term complications which may affect subsequent pregnancies, like Placenta previa/accreta, uterine rupture, scar ectopic, adhesions and chronic pain.[2]

The maternal mortality rate of Cesarean section was estimated to be between 5.81 and 6.1 per 100,000procedures.[4]

The mortality rate is 4-5 times higher in cesarean section when compared to vaginal delivery.[5] Emergency cesarean section has 5 times the higher risk of maternal deaths when compared to vaginal delivery.[6]

The mortalities can occur by direct causes accounting for 73% and indirect causes accounting for 27%.

The direct causes are

1. Hemorrhage (27.1%)
2. Hypertensive disorders (14%)
3. Sepsis (10.7%)
4. Abortion (7.9%)
5. Embolism (3.2%).[7]

The indirect causes are

1. Cardiovascular disorders (9%)
2. Cerebrovascular accidents (7%)
3. Pulmonary system disorders (8%)
4. Gastrointestinal system disorders (4%).[8]

Neonatal and perinatal morbidity and fatality are also high in babies born through cesarean sections. These babies lack the catecholamine surge that occurs after vaginal delivery, which helps in adaptation to extrauterine life. They are more prone to hypoglycemia, hypothermia and delayed neurologic development. They also lack the mechanical stress of vaginal birth which stimulates sodium channels that transport liquids from the lungs which help the neonate to start breathing.[9] Thus, the babies born through cesarean section can present with respiratory difficulties like

1. Transient Tachypnea of the Newborn (TTN)
2. Respiratory Distress Syndrome (RDS)
3. Persistent Pulmonary Hypertension (PPH) [10-12]

The reasons for the respiratory morbidity include surfactant deficiency in prematurity and decreased fetal catecholamine release.[9] The babies also have risk of fetal lacerations, low immunity, Asthma, Allergic Rhinitis and Atopy.[13]

Regional anesthesia or general anesthesia (GA) can be given in the cesarean section. Regional anesthesia is given in low-risk cases, whereas general anesthesia can be given if regional anesthesia fails or in extreme urgency like acute fetal distress.[14]

During pregnancy, as a result of few anatomical changes like upper respiratory tract edema, enlargement of breast and excessive weight gain, and few physiological

In pregnancy, the important complication of general anesthesia is pulmonary aspiration, due to decreased gastric emptying in labor, raised intra-abdominal pressure and relaxation of the lower oesophageal sphincter due to hormones.[14]

The regional anesthesia can overcome the difficulties of GA like difficult airway and the administration of multiple drugs.[14]

The commonest complication of Spinal anesthesia is Spinal hypotension. It can affect maternal and perinatal outcomes. Women with prior hypovolemia are at a risk of cardiovascular collapse due to reduced venous return due to sympathetic

There is limited data about the maternal and perinatal morbidity and mortality of Caesarean section in this part of the country. This study is undertaken to find out how safe the procedure is for mother and baby.

AIMS AND OBJECTIVES

Primary objective-

- To find out the indications of cesarean section.

Secondary objective-

- To find out the maternal morbidity and mortality.
- To find out the perinatalmorbidity and mortality.
- To find out the anaesthesia complications.

REVIEW OF LITERATURE

World Health Organisation (WHO) in 1985, suggested that cesarean delivery prevalence between 5 and 15% would be ideal and rates above the 15% level may

The rate of Cesarean section differs from hospital to hospital across the world. For the past three decades, the rate of Cesarean Section is on the increasing trends due to several medical and non-medical reasons.[1]

The rising trend of Cesarean Section is an important health problem as many researchers have shown that the high incidence of Cesarean Section harms maternal health.

The incidence of the Cesarean section ranged from 18.5% to 65% in various studies. The rate of emergency cesarean section ranged from 44.9% to 93.7% and the rate elective cesarean section ranged from 6.3%-55.1%.[1,17-25]

The maximum women were between 21-30 years of age.[18,20-22] A study by Elzahaf et al. concluded that the mean age was 31.4± 6.06years with 45.4% in 20-30years and 46.6% women in 30-40years range.[23]

The incidence of cesarean section was high in Nulliparous women in few studies and multiparous women in few other studies.[1,19-23,26,27]

The rate of cesarean section was similar among the registered and unregistered cases and was high in women seeking more antenatal care.[1,19,21,22,26]

The cesarean section rate was high in both the middle and the high socioeconomic classes.[18,22]

The commonest antenatal complications were GDM, Gestational hypertension, anemia, malpresentation, oligohydramnios, preeclampsia, and eclampsia.[20,21]

The commonest indication for cesarean section was the previous cesarean section, the incidence of which ranged from 21.5% to 40.4% and Fetal distress ranging from 27.8% to 30.7%.[1,18,21-24,27]

The commonest intra-operative complications were hemorrhage, uterine incision extensions, atonic and traumatic PPH.[20,21,27]

Anemia, infections and abdominal distension were the commonest postoperative complications.[1,21,22,27]

The intra-operative and post-operative complications were more after the emergency cesarean section. Thus, the maternal morbidity was high in emergency procedures.[20,27]

The maternal fatality rate ranges from 0.7% to 4.5%. The important causes were hemorrhage, ruptured uterus and obstructed labor. The indirect causes were Cerebrospinal meningitis, fulminating hepatitis and pulmonary infections.[1,25]

Divyamol N et al. concluded that the higher educational status and the higher occupational status of women and husband, and women undergoing ultrasonography >3 times antenatally were significantly associated with high risk of cesarean section.[18]

The risk factors for high cesarean section rate were older women, obesity, urban areas, primiparity, high educational status, professional husband, seeking antenatal care from private hospitals, more antenatal visits, and delivery in private sectors.[19,26]

The anesthetic complications were Spinal headache, failed regional anesthesia and failed intubation. Regional block was better for neonates and mothers.[16]

The incidence of perinatal deaths ranged from 3.9% to 6.9% and the common causes were prematurity and asphyxia.[1,20,21,28]

Cesarean Section done in labor and without labor has higher risks for depression and respiratory complications when compared to assisted or spontaneous vaginal delivery. The risk of birth trauma was less in infants delivered through cesarean delivery in labor when compared with assisted or spontaneous vaginal delivery.[29]

METHODOLOGY

This study was conducted in the labor room at KAHERs Dr.Prabhakar Kore Charitable Hospital, Belagavi from January 2018 to December 2018.

1. Study design: A cross-sectional study.

2. Study period: Total study period 12 months (January 2018 to December 2018)

3. Source of data: The pregnant women delivered through cesarean section at the teaching hospital were enrolled. The data of enrolled women were collected from case records and delivery registers.

4. Sample size:

Cochran's formula was used to calculate the sample size which is given by,

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where z=1.96 for 95% Confidence interval, p=prevalence of disease in a population, and d= acceptable margin of error (10% of p)From the previous study,[23] malpresentation is the commonest indication and was found to be 34.3% n= 735.84Hence at 10% margin of prevalence error, at least 736 samples are required for the analysis.

A total of 2099 cases were screened, 457 cases were excluded as they did not meet the criteria and 1642 cases which had complete data as required for study, were analyzed.

Selection criteria

Inclusion criteria:

• All the women who underwent cesarean section.

Exclusion criteria:

• Patients not willing to participate in the study.

Ethical Clearance:

Before the initiation of the study, the ethical clearance was received from the Ethical and Research Committee, Jawaharlal Nehru Medical College, Belagavi.

(Annexure 1 - Letter number MDC/DOME/33 dated 22/11/2017)

Consent:

An informed and written consent in their vernacular language was taken before enrolment.

Methodology:

A cross-sectional study was conducted for one year. The women with gestational age >20weeks undergoing cesarean section were enrolled for the study.

The details regarding antenatal complications like Hypertensive disorders of pregnancy, Gestational diabetes, Hypothyroidism, placenta previa, etc were collected.

The details regarding indications, intra-operative complications and the outcome was collected through the case records and registers.

Intra-operative complications like atonicity of uterus, PPH, Extension of uterine incision, injury to surrounding organs and anesthesia complications like hypotension, difficult airway, etc were noted.

Babies were looked for any complications and reason for the NICU admission and the cause of mortality was noted.

These women and babies were followed until discharge to look for postoperative complications like anemia, wound infection, abdominal distension.

Statistical Analysis:

The data obtained was coded and entered into Microsoft Excel Worksheet. The data was expressed in terms of Percentage and analysis was done using the chi-square test and p-value. The p-value of <0.05 was taken as statistically significant.

RESULTS

The present one-year cross-sectional study was conducted in the labor room of KAHER's Dr. Prabhakar Kore Charitable Hospital, Belagavi from January 2018 to December 2018.

A total of 4232 women were delivered during the study period. 2133 women had vaginal delivery and 2099 women underwent Caesarean section. All the women who had a cesarean section were enrolled in the study and 457 cases were excluded for analysis as they did not meet the criteria. 1642 cases of cesarean section (1586 singleton and 56 twin pregnancies), which had complete data as required for the study, were included for analysis. The results were reported as following.

Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Diagram

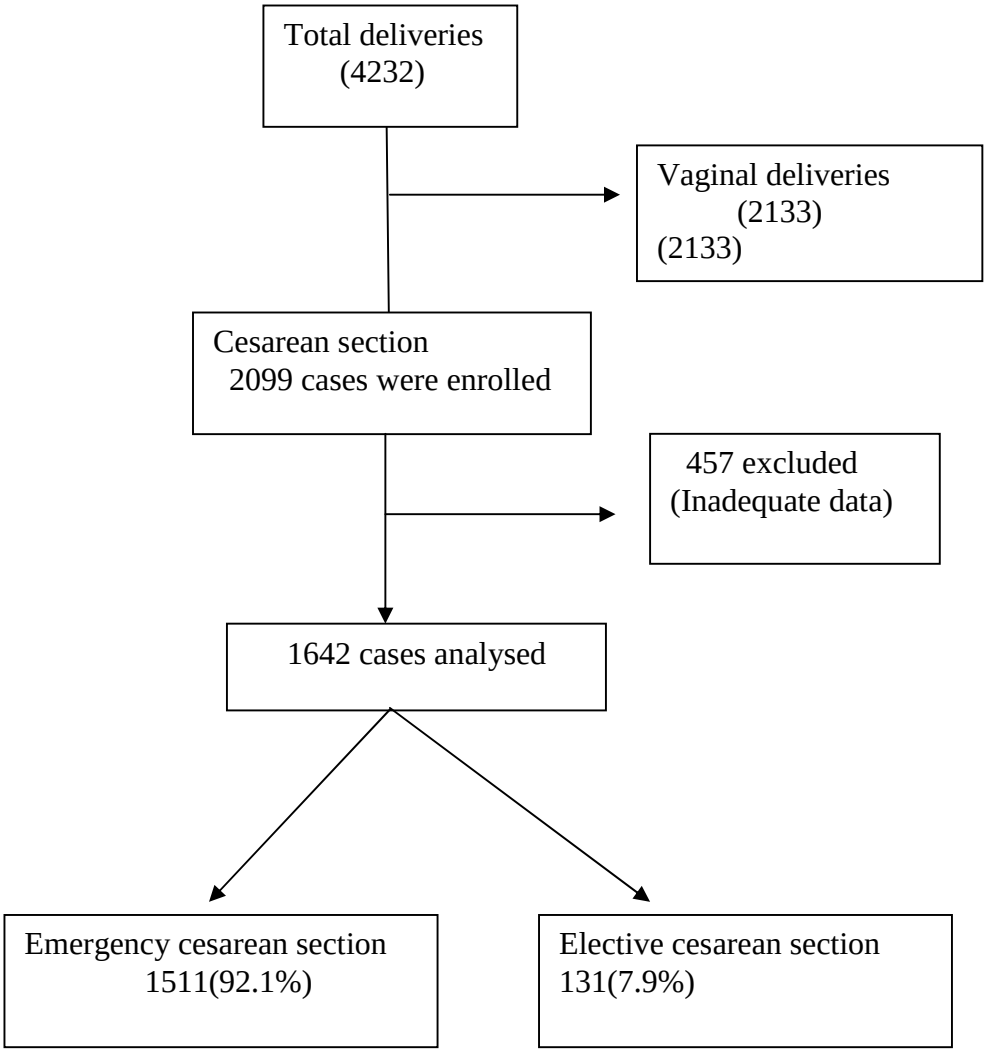
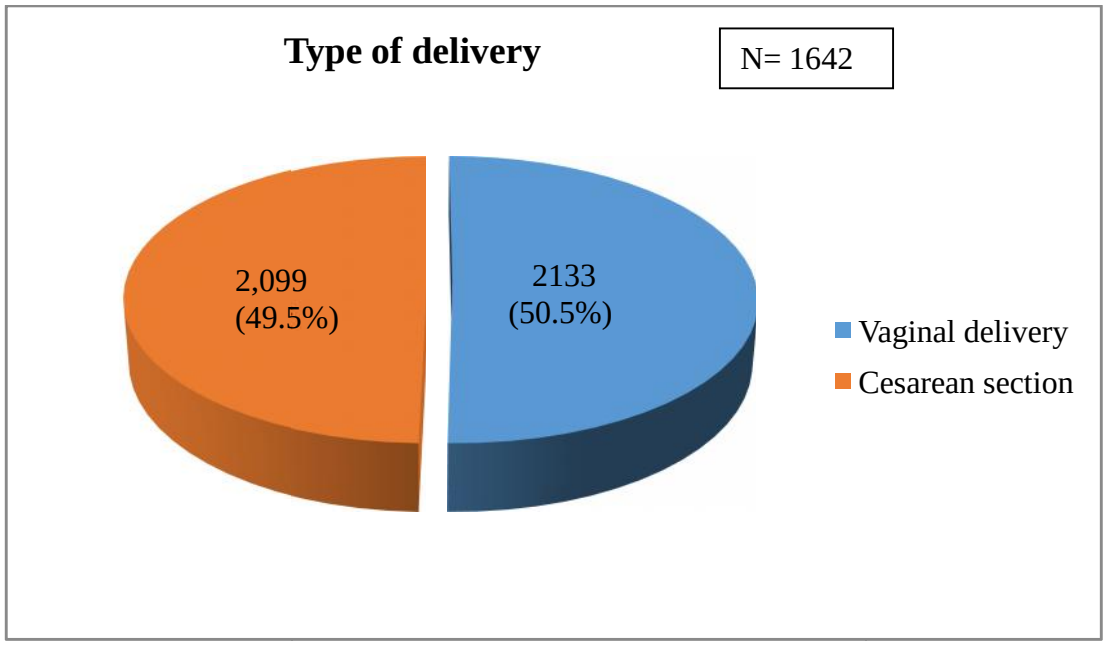


Figure 1: Distribution according to type of delivery



The prevalence of the cesarean section was around 50% as depicted in Figure1. However further analysis was done with 1642 cases.

Figure 2: Distribution according to age groups

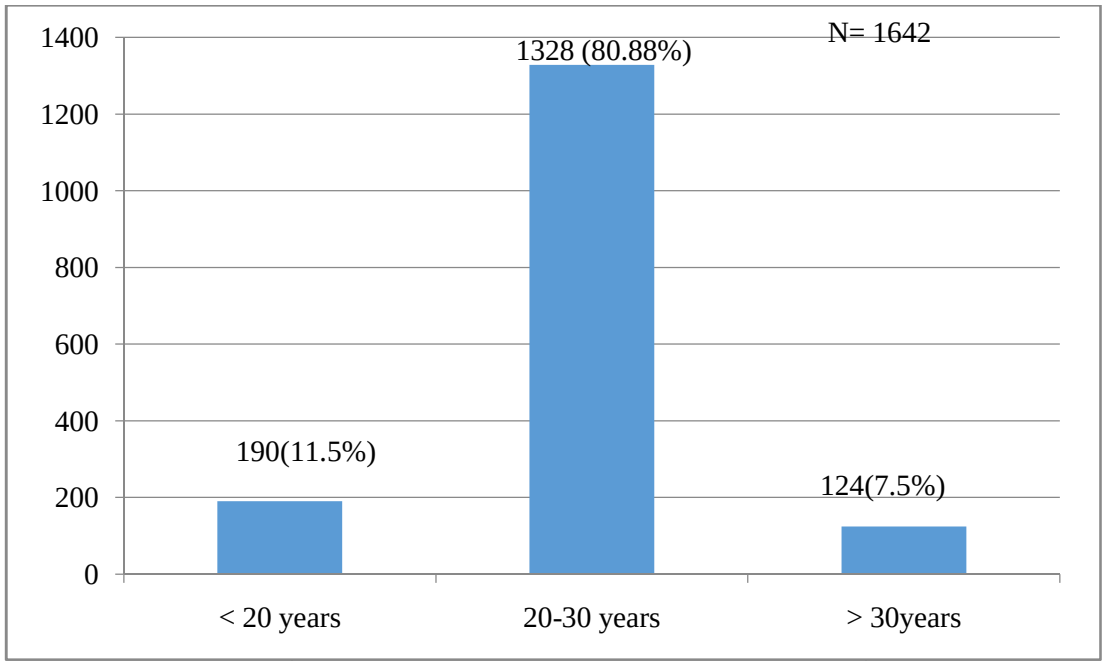


Figure 2 shows, 1328(80.88%) women were in the age group of 20-30years, 190(11.57%) women were <20 years and 124(7.55%) women were > 30 years of age.

Figure 3: Distribution according to antenatal registration in this hospital.

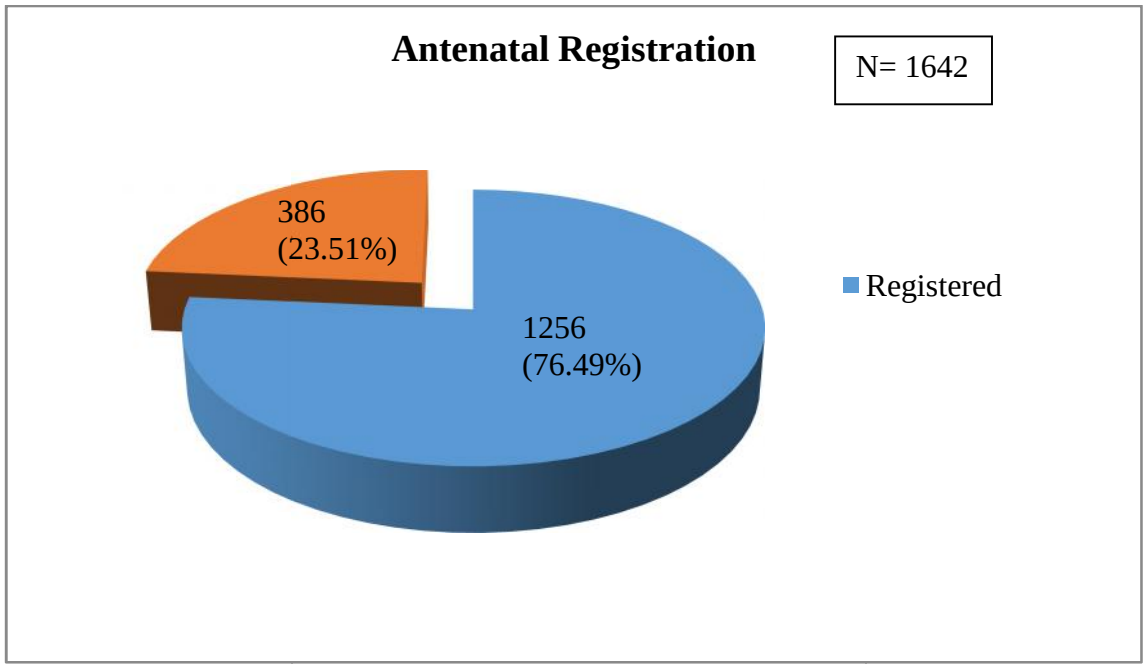


Figure 3 shows, the in-hospital registered and unregistered cases were 1256(76.49%) and 386(23.51%) respectively.

Figure 4: Distribution according to type of cesarean section(P/R)

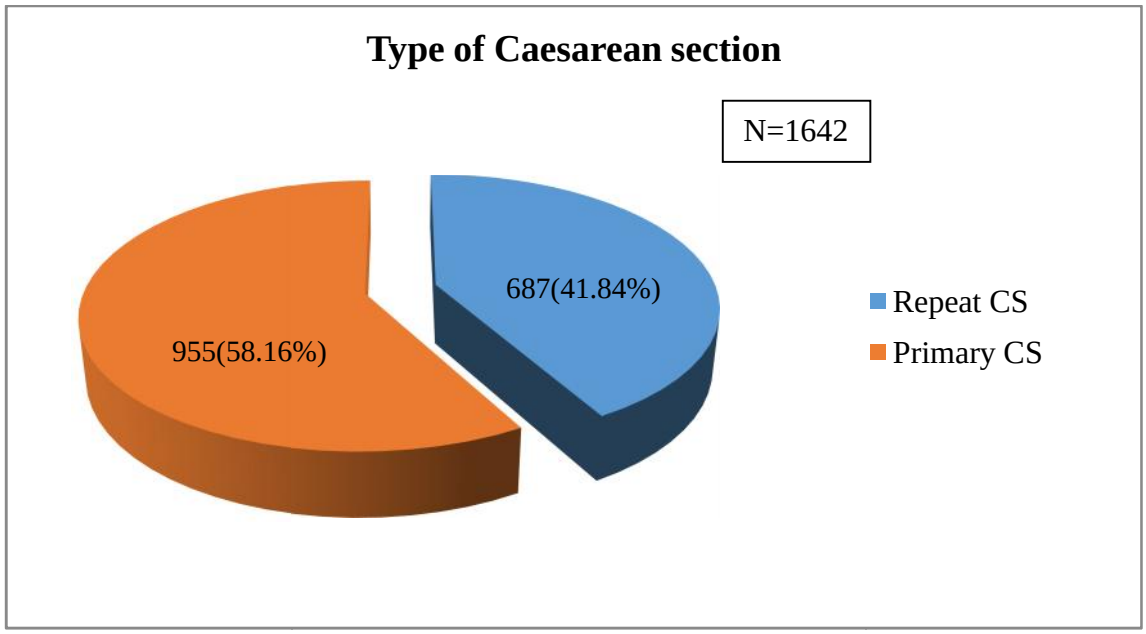


Figure 4 shows, 955(58.16%) women had primary cesarean section and 687(41.84%) women had repeat cesarean section.

Figure 5: Distribution according to type of Cesarean Section (E/El).

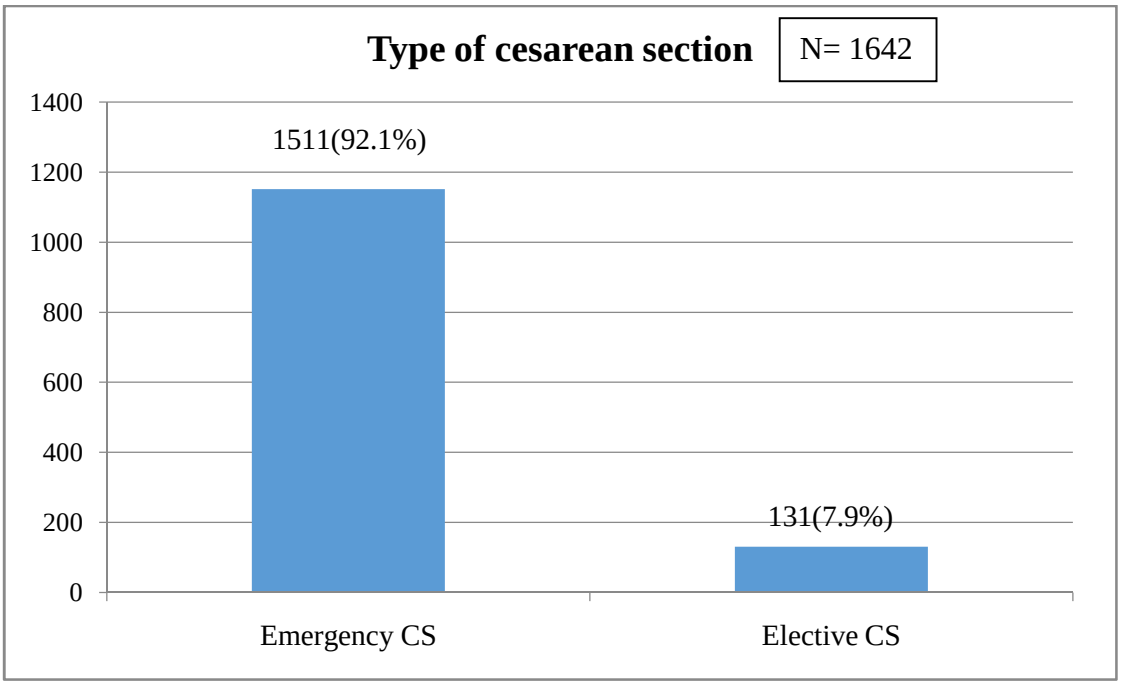


Figure 5 shows, 1511(92.1%) women had emergency cesarean section, and 131(7.9%) women had elective cesarean section.

Figure 6: Distribution of cesarean section according to gestational age

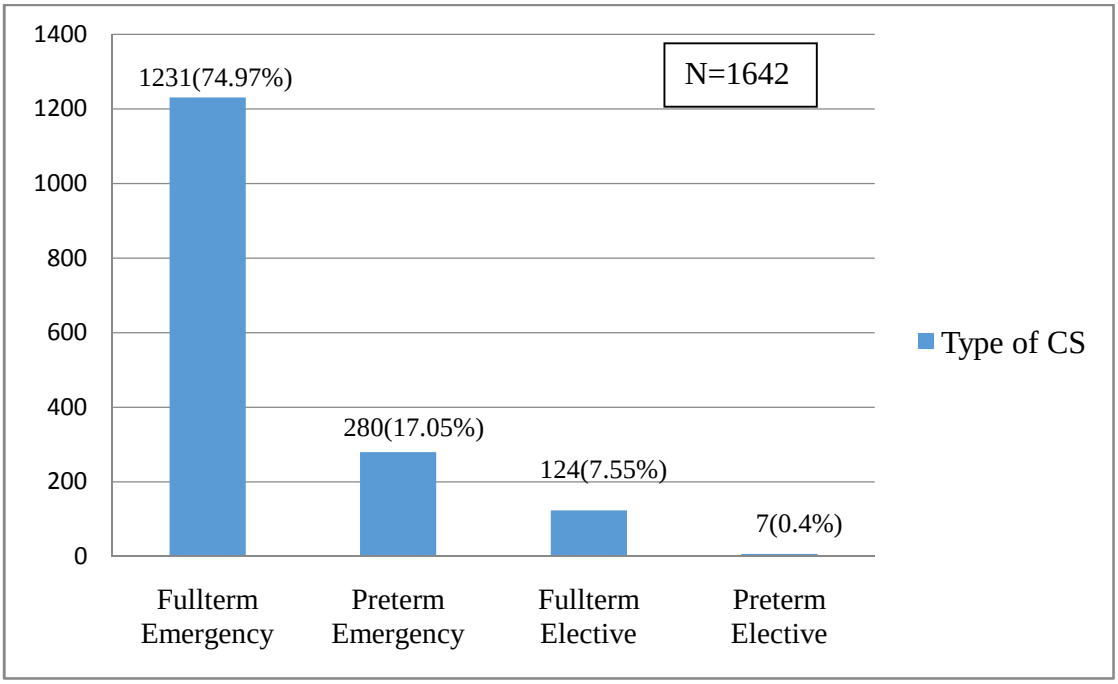


Figure 6 shows, 1231(74.97%) women had full term emergency cesarean section.

Figure 7: Distribution according to Parity

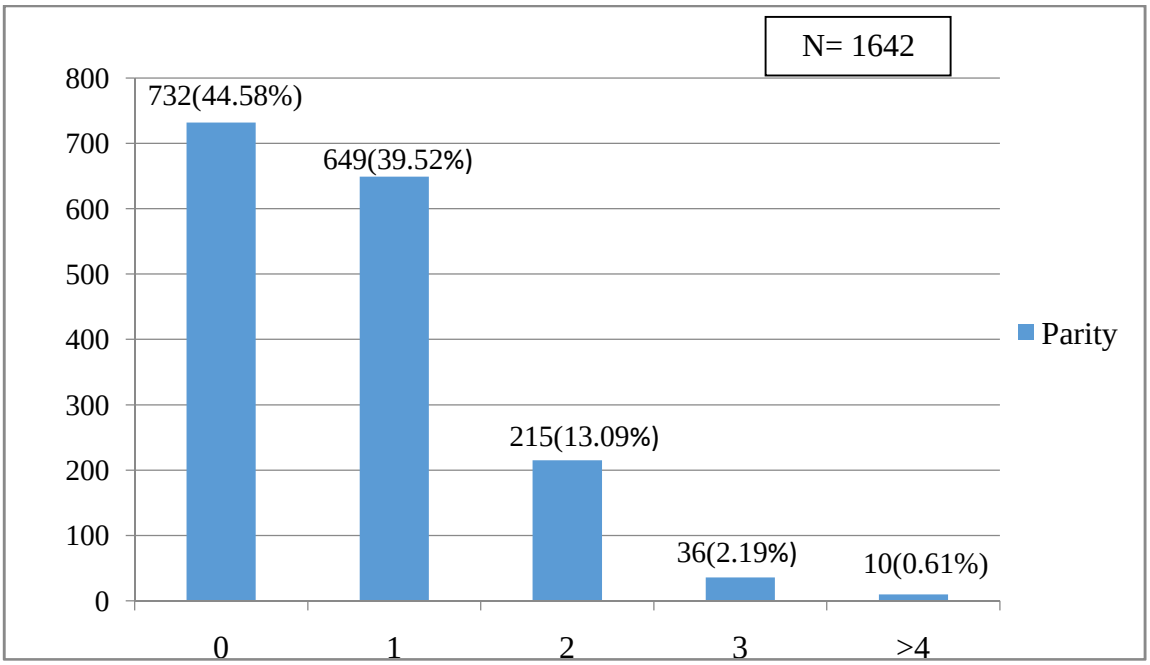


Figure 7 shows,732(44.58%) women were nulliparous, 900(54.8%) women were between para 1 and para 3 and 10(0.61%) women had parity ≥4.

Figure 8: Association between Parity and Type of Caesarean section (E/El)

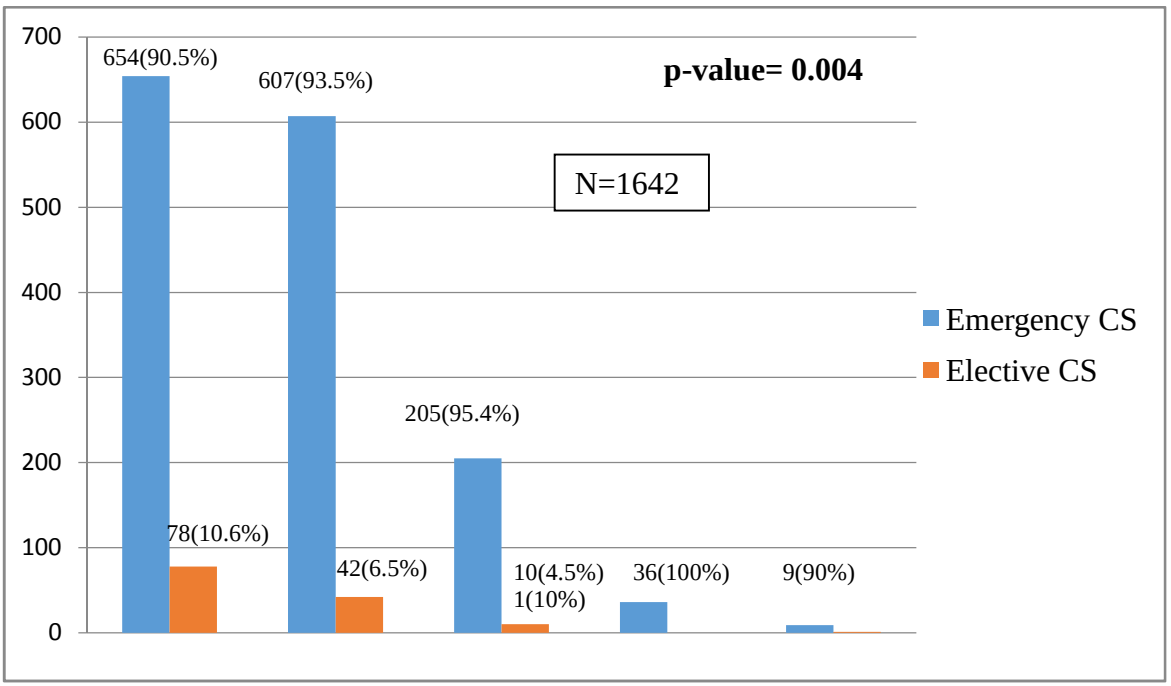


Figure 8shows, the rate of emergency Caesarean section was high in women with all parity which is statistically significant.

Figure 9: Association between Parity and Type of Caesarean section (P/R)

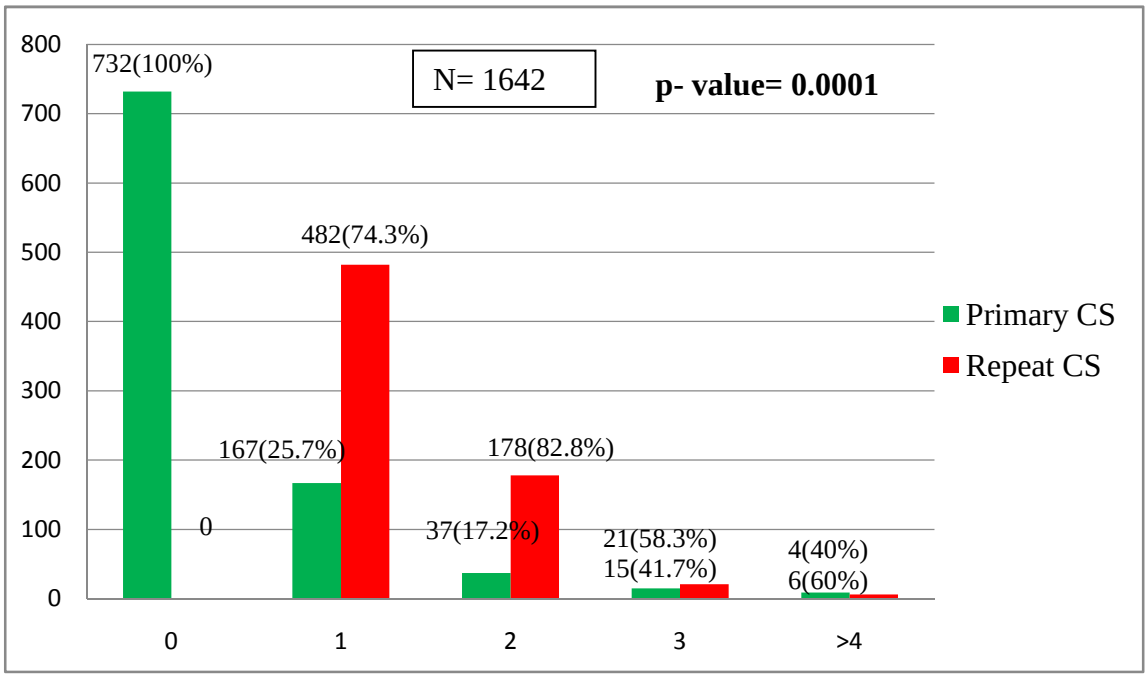


Figure 9shows, the rate of repeat Caesarean section was high in multiparous women which is statistically significant.

Figure 10: Association between Antenatal registration and type of Caesarean section (E/El)

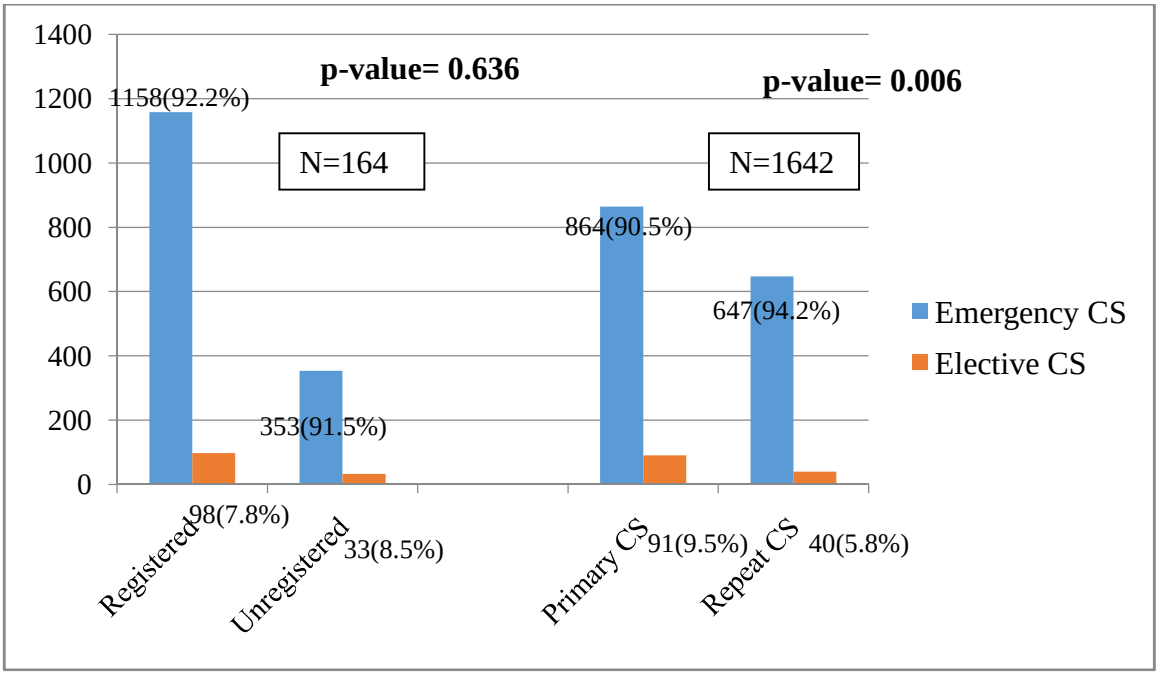


Figure 10 shows that, out of all the in-hospital registered cases, 1158(92.2%) underwent emergency cesarean section and 98(7.8%) cases underwent elective cesarean section. Among the unregistered cases, 353(91.5%) had emergency CS and 40(8.5%) had elective CS. This was statistically not significant.

Out of 955 primary Cesarean Section, 684(90.5%) cases had emergency cesarean section and 91(9.5%) cases had elective cesarean section. Out of 687 repeat cesarean section, 647(94.2%) cases had emergency cesarean section and 40(5.8%) cases had elective cesarean section. This was statistically significant.

Table 1: Distribution according to Antenatal risk factors at the time of admission

Antenatal risk factors	**No of cases**	**%**
Anemia	444	27.0
Mild(10-10.9)	269	16.4
Moderate(7-10)	168	10.2
Severe(<7)	7	0.4
Hypertensive disorders of pregnancy	271	16.5
Gestational hypertension	36	2.1
Mild Preeclampsia	145	8.8
Severe Preeclampsia*	73	4.4
Eclampsia	13	0.8
Chronic hypertension	4	0.24
Hypothyroidism	111	6.76
GDM	28	1.7
Cardiac diseases	23	1.4
Placenta Previa	20	1.2

*Severe Preeclampsia includes 12 cases HELLP, 30 cases of abruption and 31 cases of Preeclampsia with imminent signs.

Table 1 shows, Anemia constitutes the important risk factor 443(26.9%), followed by hypertensive disorders of pregnancy 271(16.5%) and Hypothyroidism 111(6.76%).

Table 2: Distribution according to Indications for cesarean section

Indications for Cesarean Section	No of cases	%
Fetal distress	440	26.8
Previous CS not willing for VBAC	327	19.9
Previous 2 Caesarean section	116	7.0
Previous CS with PROM/PPROM	16	0.97
Previous CS with Preeclampsia	16	0.97
Malpresentation	103	6.2
Severe preeclampsia with uncontrolled hypertension	75	4.5
Severe Preeclampsia	72	4.3
Failed induction	57	3.4
Oligamnios	56	2.6
CPD	51	3.1
Multiple gestation with first twin malpresentation	48	2.9
Scar tenderness	38	2.3
FGR with Doppler changes	34	2.0
Second stage arrest	32	1.9
Cervical dystocia	31	1.8
Placenta previa	20	0.97
Cardiac disease	14	0.85
BOH	13	0.79
Prolonged PROM/PPROM	10	0.60
Macrosomia	9	0.54
Cord prolapse	8	0.48
Others	56	3.4
Total	1642	100%

Table2 shows, Fetal distress(26.8%) was the commonest indication, followed by previous one cesarean section not willing for VBAC(19.9%) and previous 2 cesarean sections (7.0%).

Table 3: Distribution according to Indications for Primary Cesarean Section

Indications for Primary CS	**No of cases**	**%**
Fetal distress	406	42.5
Malpresentation	89	9.3
Severe Preeclampsia	72	7.5
Failed induction	57	5.9
CPD	47	4.9
Oligamnios	43	4.5
Multiple gestation	41	4.2
Second stage arrest	32	3.3
Cervical dystocia	31	3.2
Preeclampsia with uncontrolled hypertension	31	3.2
FGR with Doppler changes	20	2.0
BOH	13	1.3
Placenta previa	12	0.83
Prolonged PROM/PPROM	10	1.04
Cord prolapse	8	0.83
Cardiac disease	4	0.41
Macrosomia	3	0.31
Others	36	3.7
Total	955	100%

From table3, Fetal distress 406(42.5%) was the most common indication, followed by malpresentation 89(9.3%) and Severe preeclampsia 72(7.5%)

Table4: Distribution according to Indications for Repeat CS

Indications for Repeat CS	**No of cases**	**%**
Not willing for VBAC	327	47.5
Previous 2 Cesarean section	116	16.8
Previous CS with other obstetric indications		
Preeclampsia with uncontrolled hypertension	44	6.4
Scar tenderness	38	5.5
Fetal distress	34	4.9
Preeclampsia	16	2.3
PROM/PPROM	16	2.3
Malpresentation	14	2.0
FGR with Doppler changes	14	2.0
Oligamnios	13	1.8
Cardiac disease	10	1.4
Placenta previa	8	1.1
Multiple gestation	7	1.0
Macrosomia	6	0.87
CPD	4	0.58
Others	20	2.9
Total	687	100%

From table 4, the Previous Caesarean section not willing for VBAC(47.5%) was the commonest indication for repeat cesarean section, followed by Previous 2 Caesarean section(16.8%).

Table 5: Distribution according to Intra-operative complications

Intra operative complications	**No of cases**	**%**
Atonicity of uterus	152	9.2
Extension of uterine Incision	32	1.9
Couvalaire uterus	5	0.30
Hematoma	5	0.30
Rupture uterus	4	0.24
Bladder injury	2	0.12
Placenta accreta	1	0.06
Injury to internal iliac artery	1	0.06

Table5 shows, the commonest intra-operative complication was Atonicity of uterus 152(9.2%) and Extension of uterine incision 32(1.9%).

Figure 11: Association between Intra-operative complications and typeof CS (E/El)

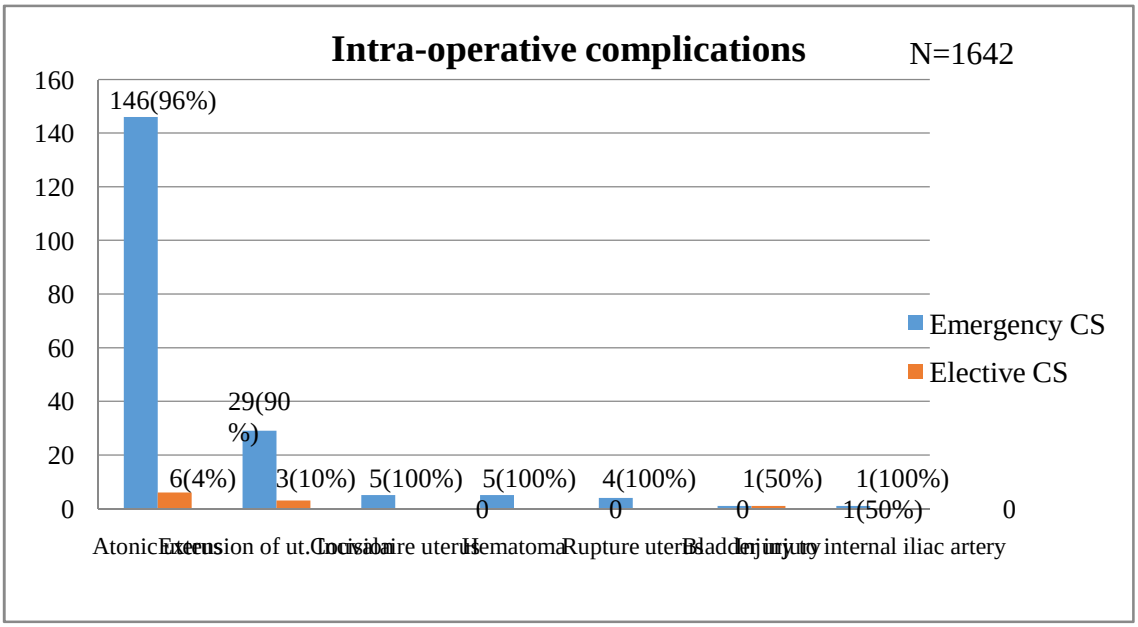


Figure 11 shows, the intraoperative complications were seen more with the emergency cesarean section, but it is statistically not significant.

Figure 12: Association between Intraoperative complications and typeof CS (P/R)

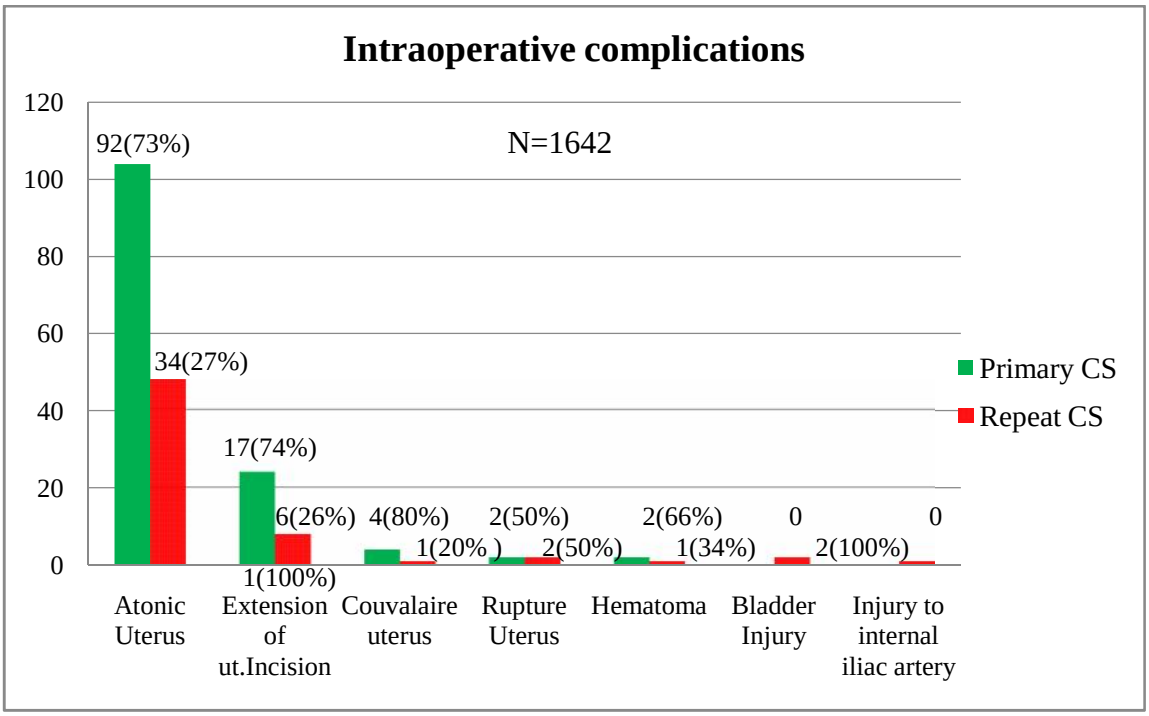


Figure12 depicts the intra-operative complications like Atonicity of uterus, Postpartum hemorrhage and Extension of uterine incision were associated with the

Complications like Couvalaire uterus, Hematoma were seen with primary cesarean section and bladder injury and injury to vessels were seen with repeat cesarean section. But they are statistically not significant.

Table 6: Distribution according to additional procedures

Additional procedures	**No of cases**	**%**
Uterine artery ligation	58	3.5
Hayman's suture	35	2.1
Internal iliac artery ligation	11	0.6
Cesarean myomectomy	4	0.2
B-Lynch	4	0.2
Peripartum hysterectomy	3	0.2
Ovarian Cystectomy	1	0.06
Cho suture	1	0.06

From table 6, Uterine artery ligation 58(3.5%) was the commonest additional procedure, followed by Hayman's suture 35(2.1%) and internal iliac artery ligation 11(0.6%).

Figure 13: Association between Additional procedures and typeof CS (E/El)

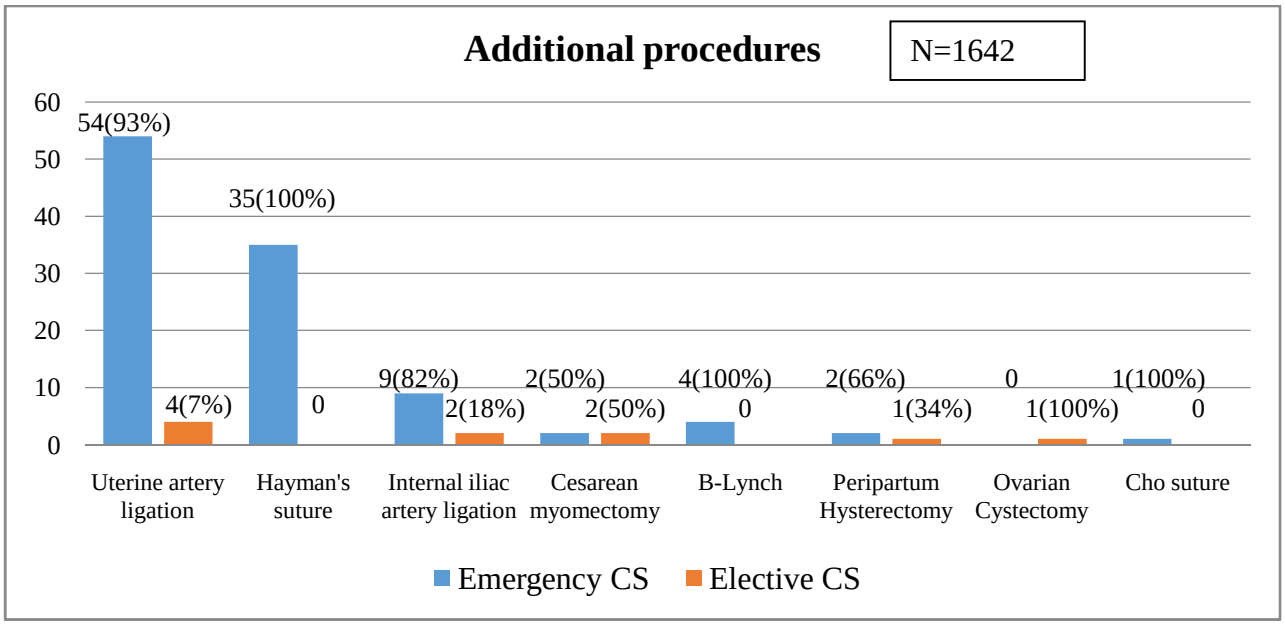


Figure 13 shows, the additional procedures were seen more with the emergency cesarean section, but it is statistically not significant.

Figure 14: Association between Additional procedures and typeof CS (P/R)

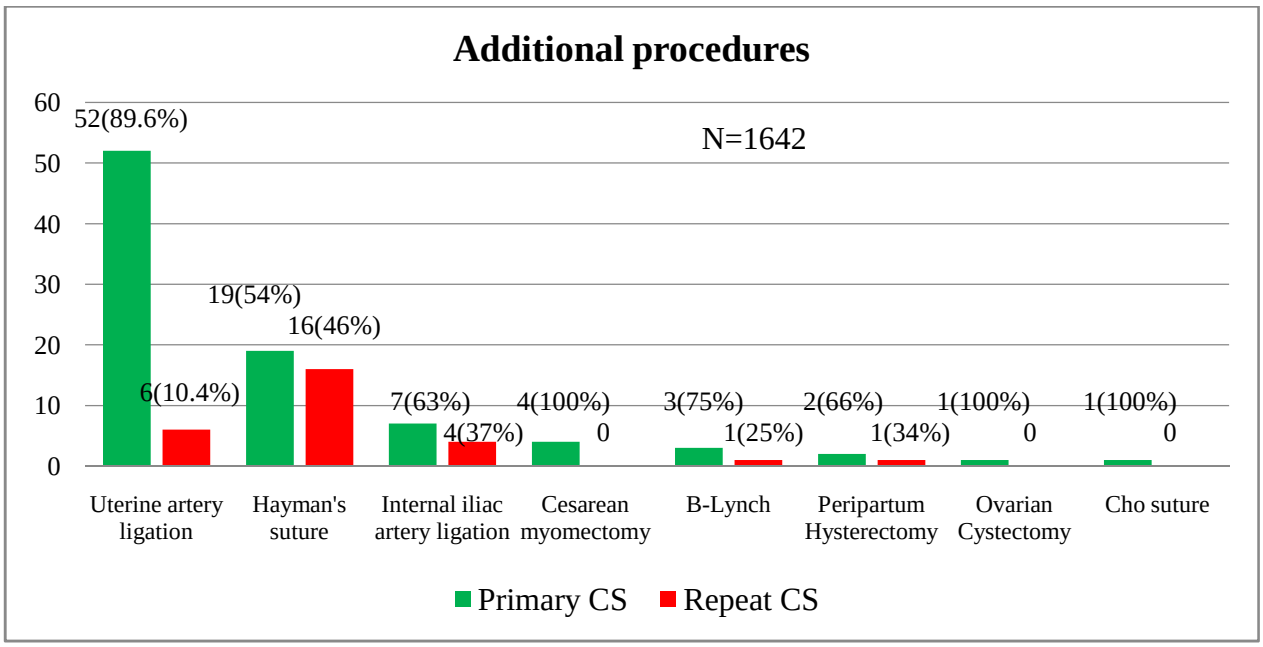


Figure 14 shows, the additional procedures were seen more with primary cesarean section, but it is statistically not significant.

Table 7: Distribution according to Post operative complications

Postoperative Complications	**No of cases**	**%**
Anemia	359	21.86
Surgical Site Infection	42	2.56
Secondary suturing	34	2.07
Fever	13	0.79
Abdominal distension	12	0.73
Other Infection	11	0.55
Deep vein thrombosis	1	0.06

From table 7, Anemia 359(21.8%) constitutes the commonest postoperative complication, followed by Surgical site infection 42(2.56%).

Figure 15: Association between Postoperative complications and type of CS(E/El)

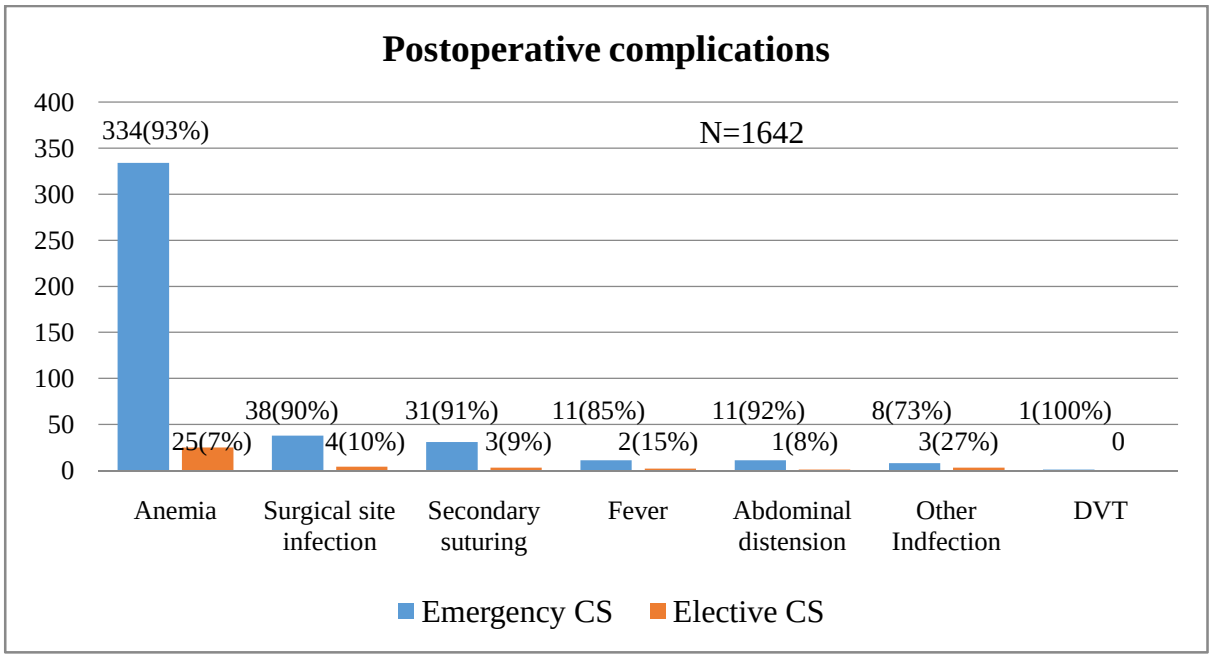


Figure 15 states that the postoperative complications were seen more in emergency cesarean section, but it is not statistically significant.

Figure 16: Association between Postoperative complications and type of CS(P/R)

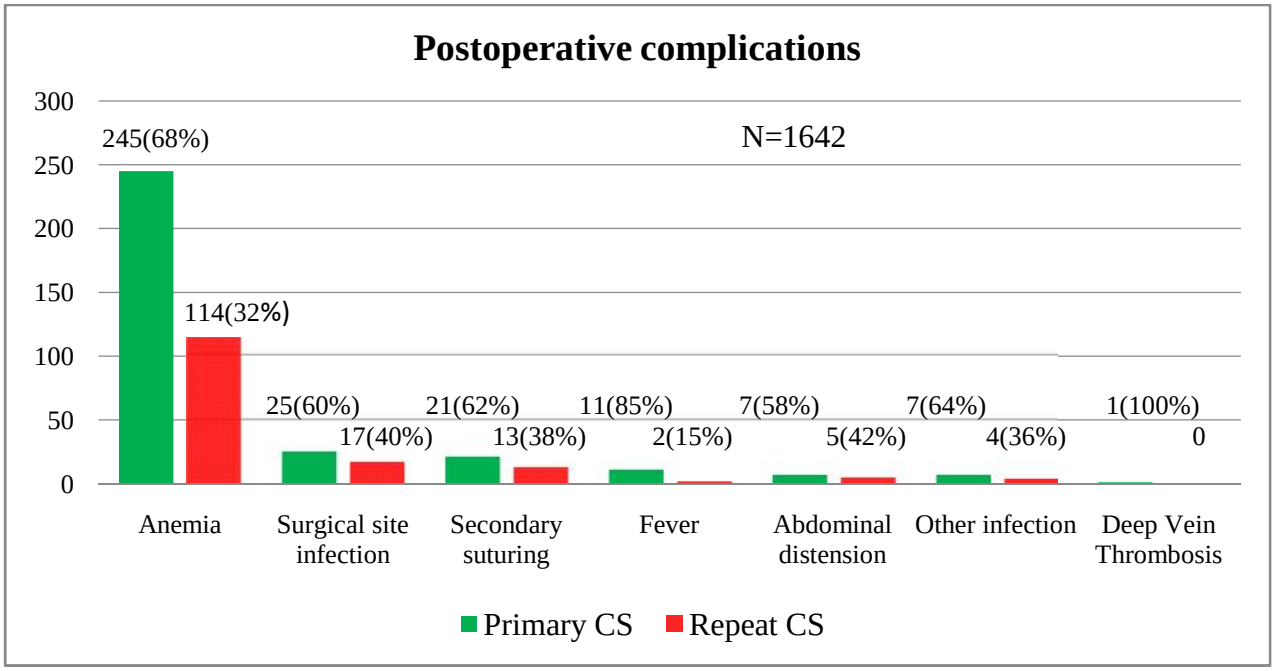


Figure 16 states that the postoperative complications were associated with the primary cesarean section. Anemia was more commonly associated with primary cesarean section and is statistically significant.

Table 8: Distribution according to Perinatal outcome

	No of cases	**%**
Perinatal outcome		
Livebirth	1678	
Stillbirth	20	
Total	1698	
Perinatal complications		
NICU admission	327	19.4%
KMC	274	16.3%
Perinatal deaths	37	2.2%

Table 8 shows that there were 1,678 live births and 20 stillbirths. 19.4% of babies required NICU admission. The incidence of perinatal mortality was 2.2%.

Table 9: Distribution according to Neonatal complications

Neonatal complications	**No of cases**	**%**
LBW	356	21.2
Preterm	248	14.7
Hyperbilirubinemia	157	9.3
Respiratory distress	109	6.4
Hypoglycemia	10	0.57
Asphyxia	7	0.4
Feeding problems	7	0.4
Fever	5	0.29
Milk aspiration	3	0.17
Convulsions	2	0.11

Table 9 shows that Low Birth Weight 356(21.2%) constitutes the commonest neonatal complication, followed by Preterm 248(14.7%) and Hyperbilirubinemia 157(9.3%).

Figure 17: Distribution according to cause of Perinatal death

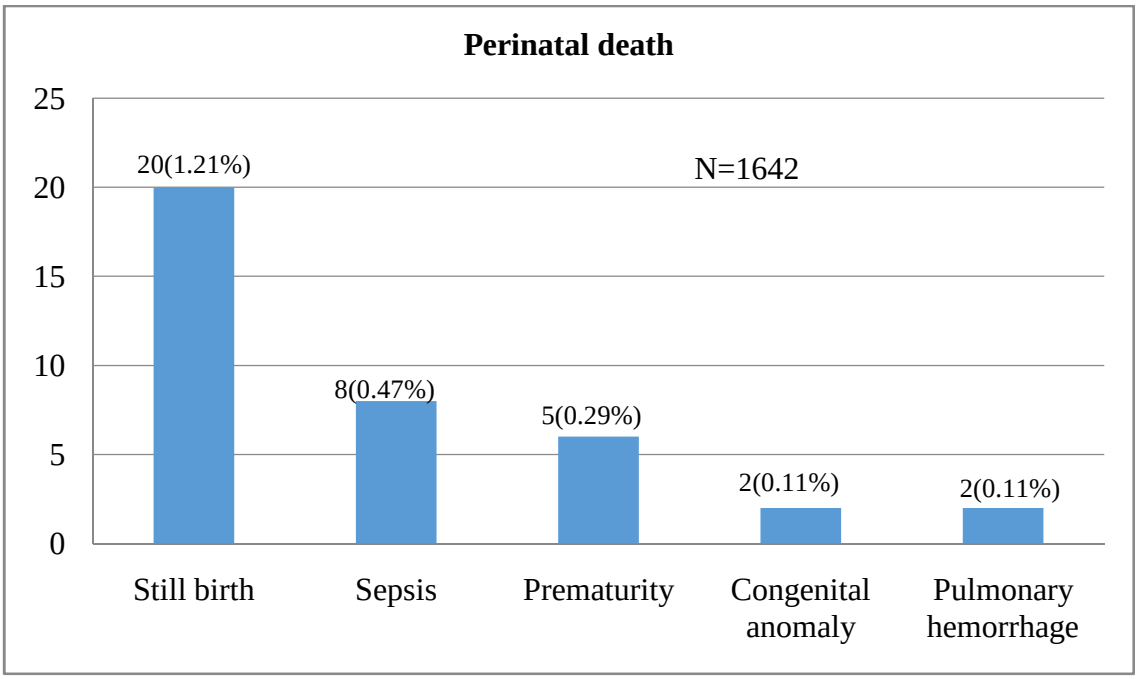


Figure 17 depicts that, there were 37(2.2%) of perinatal deaths. The cause of death was sepsis in 8 babies, Prematurity in 5 babies, congenital anomalies and pulmonary hemorrhage in 2 babies each.

Table 10: Distribution according to antenatal risk factors in stillbirths

Antenatal risk factor	**No of cases**	**%**
Decreased fetal movements (Unexplained)	9	45
Abruptio placenta	8	40
Preeclampsia	2	10
Oligohydramnios	1	5
Total	20	100%

Table 10 shows that 8(40%) cases of stillbirths were associated with abruptio placenta.

Table 11: Distribution according to type of anesthesia

Type of anaesthesia	**No of cases**	**%**
Spinal anaesthesia	1618	98.54
General anaesthesia	31	1.89
Spinal + General anesthesia	9	0.54
Epidural anaesthesia	2	0.12

Table 11 states, out of 1642 cases Spinal anesthesia was given in 98.54% cases, General anesthesia was given in 1.89% cases, combined Spinal-general anesthesia was given in 0.54% cases and Epidural anesthesia was given in 0.12% cases.

Table 12: Distribution according to Intraoperative anesthesiacomplications

Intraoperative anesthesia complications	**No of cases**	**%**
Hypotension	60	3.65
Failure of spinal Anaesthesia	10	0.61
Central venous access	9	0.55
Difficult intubation	9	0.55
Difficult airway	8	0.49

Table 12 states that Hypotension(3.65%) was the commonest intra-operative anesthetic complication, followed by failure of spinal anesthesia (0.61%).

Figure 18: Association between Intra-operative anesthesia complication and type of CS(E/El)

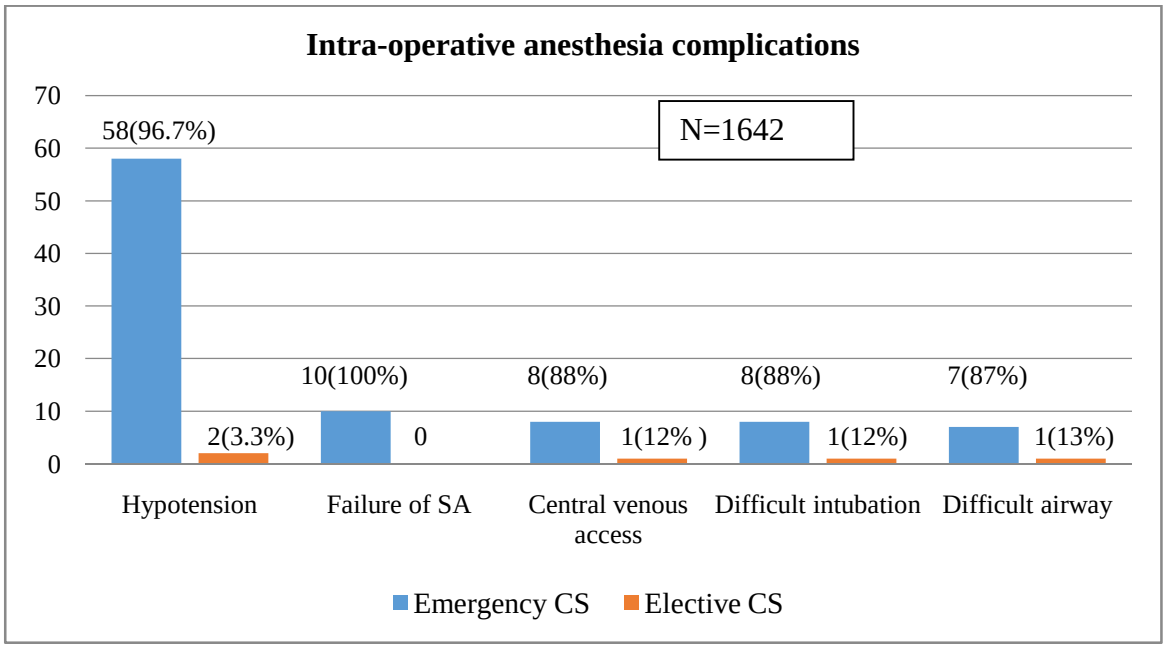


Figure 18 depicts that, the intra-operative complications were seen more in the emergency cesarean section. But, it is statistically not significant.

Figure 19: Association between Intra-operative anesthesia complication and type of CS(P/R)

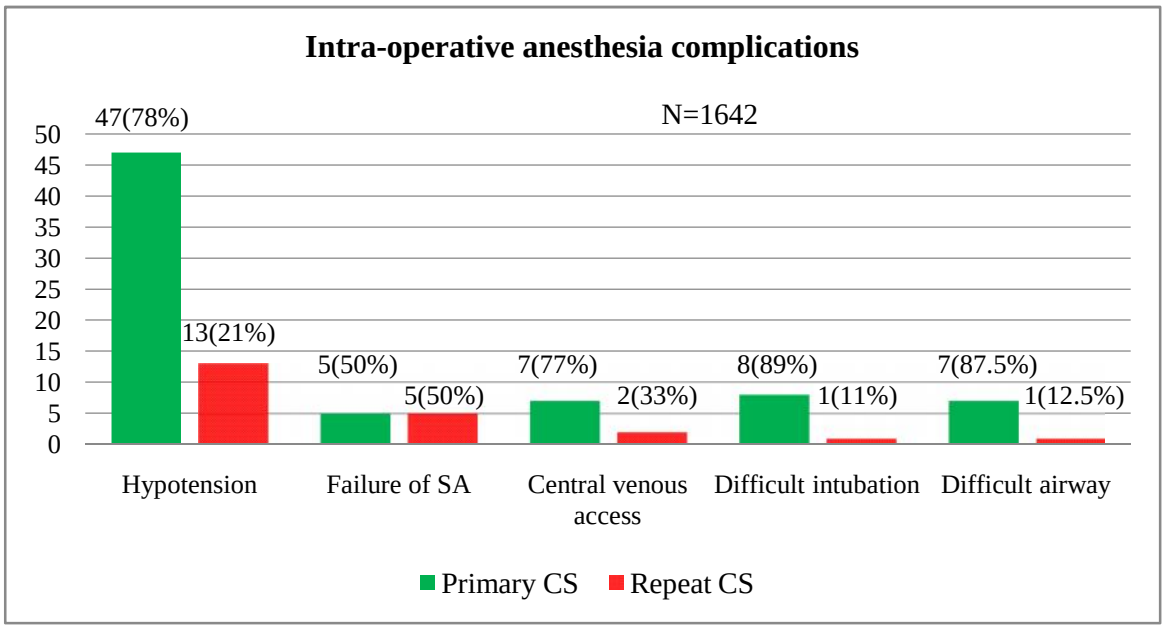


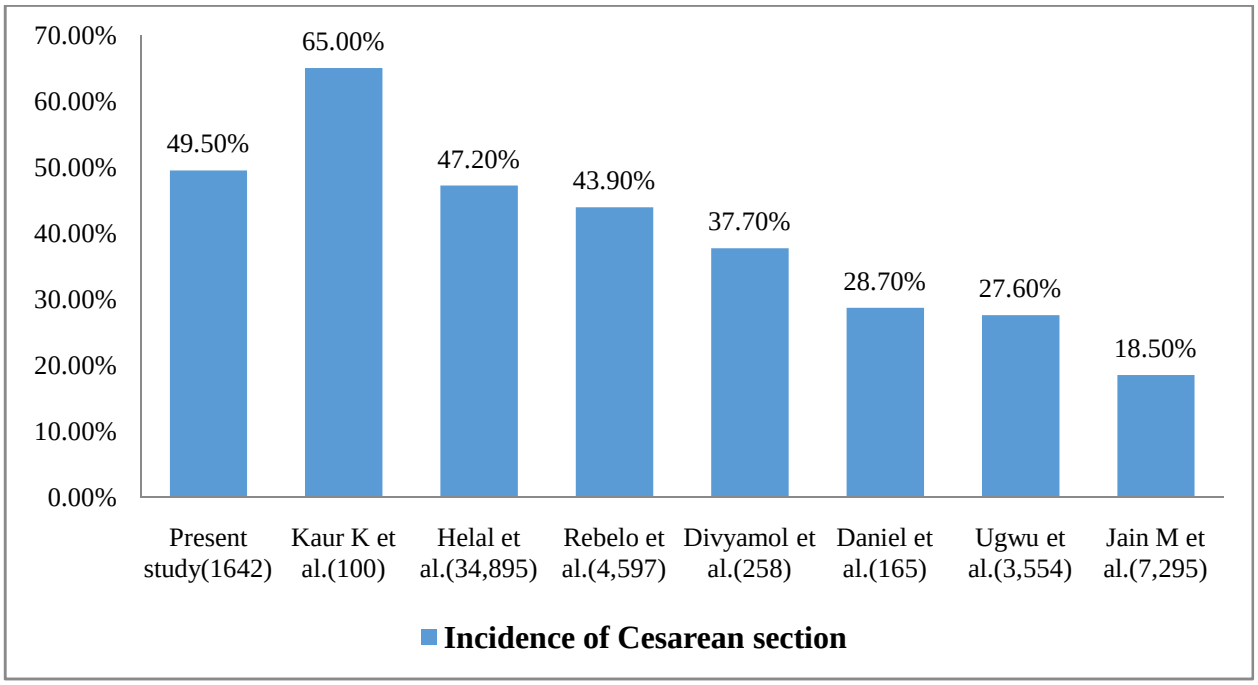
Figure 19 depicts that, theIntra-operative complications were more associated with the primary cesarean section.

DISCUSSION

This one-year cross-sectional study was conducted from January 2018 to December 2018 in the labor rooms of KAHER's Dr. Prabhakar Kore Charitable Hospital, Belagavi.

Incidence of Cesarean section.

During this study period, 4232 women were delivered. Out of which, 2099 women underwent Caesarean section giving the incidence of 49.5%.

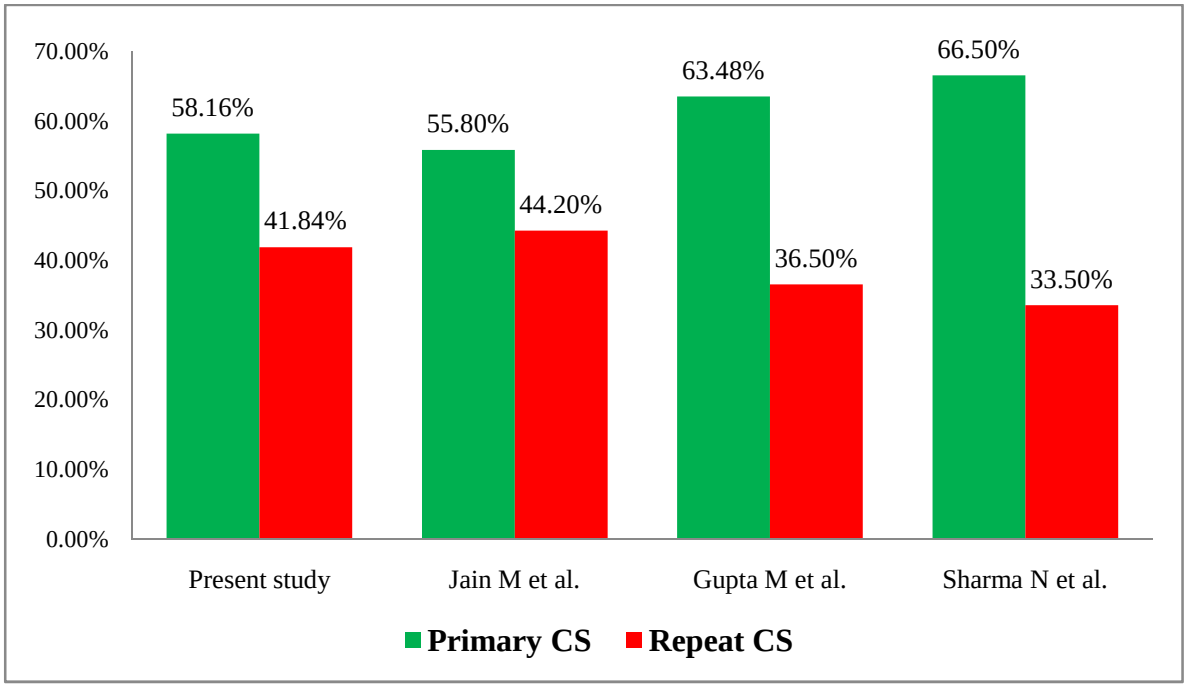


The present study correlates with other studies.[19,24] The incidence was higher than few studies.[1,18,20,21]

The overall cesarean rate was high in this hospital compared to WHO guidelines. The reason being, this hospital is the largest referral centre in this part of the country and receives several referrals from peripheries. The incidence in a study by Kaur K et al. was higher than other studies, maybe because of less sample size.

Type of cesarean section. (P/R)

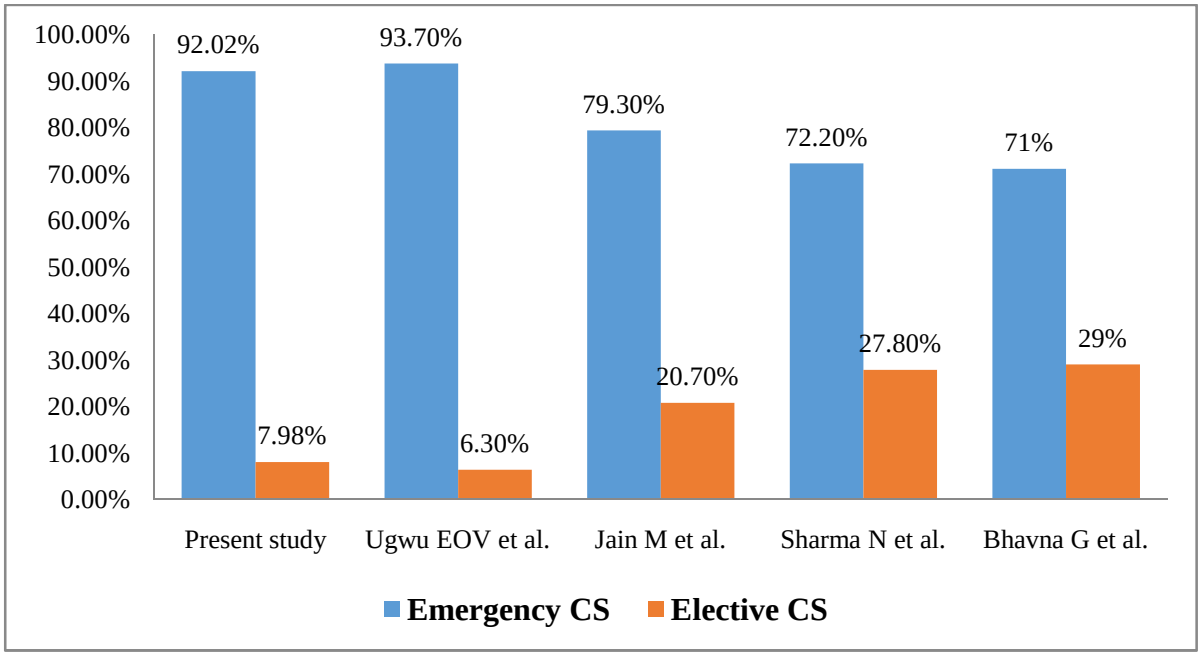
In this study, the primary cesarean section rate was 58.16% and repeat cesarean section rate was 41.84%.



The rate of primary and repeat cesarean section was comparable with other studies.[21,30,31]

Type of cesarean section.(E/El)

In this study, the rate of emergency cesarean section was 92.02% and elective cesarean section was 7.98%.



The rate of Emergency and Elective cesarean section in the present study correlates with the other studies.[1,21,31,32] The maximum number of referred cases with complications has led to an increased risk of emergency procedures.

Age group

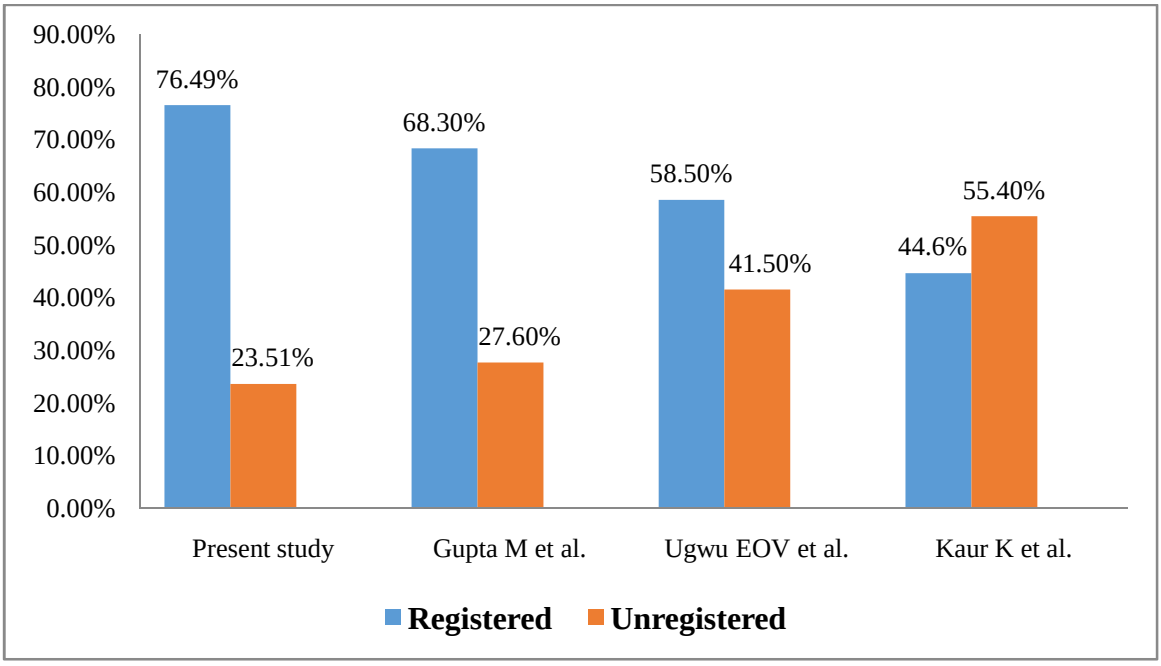
In this study, 80.88% of women were in the age group of 21-30 years.

Study	Present study	Gupta M etal.[30]	Kaur et al.[22]	Jain M et al.[21]	Rahman et al.[26]	Sharma N et al.[31]	Rebelo F et al.[19]
Age group	21-30	21-30	21-30	21-30	21-30	21-30	>31
%	80.9%	80.1%	78.3%	75.3%	68.3%	91%	60.2%

The present study correlated with other studies. The teenage pregnancies and elderly pregnancies are less common in this part of the country.[19,21,22,26,30,31]

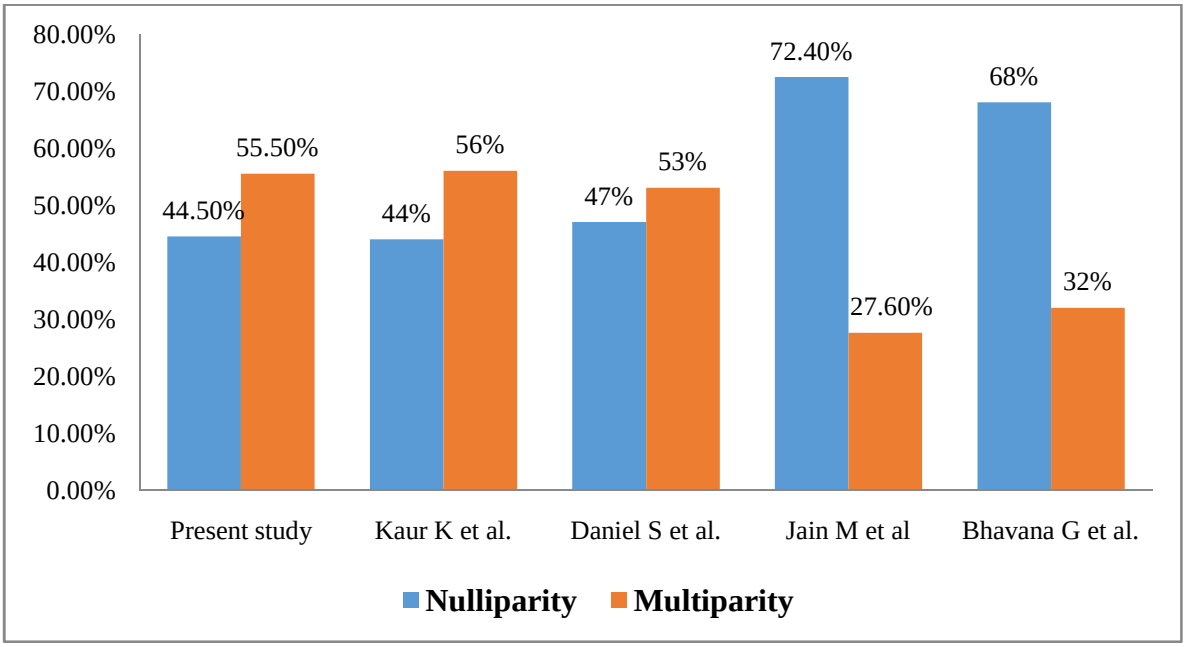
Antenatal Registration in this hospital.

In this study, 76.49% of women were registered and 23.51% were unregistered.



This was comparable with the study by Gupta M et al.[30] In-hospital registered women were high because of the good antenatal care and the women taking antenatal visits outside were also referred, mostly in advanced pregnancy as they planned for delivery in this tertiary centre.

Parity: In this study, 44.5% of women were nulliparous and 55.5% were multiparous.



This is comparable to the other two studies, where the incidence of cesarean section was nearly equal in nulliparous and multiparous women.[20,22] Other studies showed that the incidence is high in nulliparous women.[21,32]

Antenatal risk factors

In this study, the important risk factors were Anemia (26.9%) followed by Hypertensive disorders in pregnancy(16.5%) and hypothyroidism(6.76%).

Antenatal Risk factors	**Present study**	**Jain M et al.[21]**	**Daniel S et al.[20]**
-Anemia	27%	37.8%	-
-Hypertensive disorders of Pregnancy(HDP)	16.5%	6.3%	8%
-Hypothyroidism	6.7%	-	-
-GDM	1.7%	-	16%

Indications:

In this study, the commonest indication was fetal distress 440(26.8%) followed by Previous cesarean section 327(19.9%).

Indications	Present study	Kaur K et al.[24]	Bhavana G et al.[32]	Ugwu EOV et al.[1]	Sharma N et al.[31]
Fetal distress	26.8%	30.7%	29%	19%	13%
Previous CS	19.9%	29.2%	-	21.5%	35%
Severe PE	8.8%	12.3%	-	14.3%	8.2%
Malpresentation	6.2%	13.8%	12%	-	9.4%
Failed induction	3.4%	-	3%	-	4.3%
CPD	3.1%	-	8%	20.2%	6.7%
Oligamnios	2.6%	18.4%	-	-	-
FGR	2%	18.4%	-	-	8%

This study correlates with the other two studies.[24,32] The rate of fetal distress is high because of various antenatal high-risk factors and because of the use electronic fetal heart rate monitoring by NST machines.

The second most common indication is Previous LSCS not willing for VBAC. This is because of high primary cesarean section and lack of epidural anesthesia in women with trial of VBAC.

Intra-operative complications:

The most common intra-operative complications were Atonic uterus 152(9.2%) and Extension of uterine incision 32(1.9%).

Study	Present study	Jain M et al.[21]	Ghazi A et al.[27]	Daniel S et al.[20]
Intra-operative complications	-Atonic uterus -Extension of ut. Incision -Couvalaire Uterus	-Hemorrhage -Extension of ut. Incision -Couvalaire Uterus	-Hemorrhage -Tear extension and laceration -Obstetric Hysterectomy	-Hemorrhage

The present study correlates with other studies.[20,21,27] The commonest additional procedure was Uterine artery ligation done in 58(3.5%) cases followed by Hayman's sutures 35(2.1%). Since the most common complication was atonic uterus leading to hemorrhage, these procedures were done to reduce the blood loss.

There were three cases of peripartum hysterectomy, in which two were done for postpartum hemorrhage due to atonicity of uterus and one case was due to

There was one case of reactionary hemorrhage which required relaparotomy.

The intra-operative complications were more in the emergency cesarean section. This was because antenatal risk factors were more associated with

The intra-operative complications were more common in the primary cesarean section. This may be attributed to the high rate of primary cesarean section.

Post-operative compltions:

The commonest postoperative complication was Anemia, incidence being 21.86%.

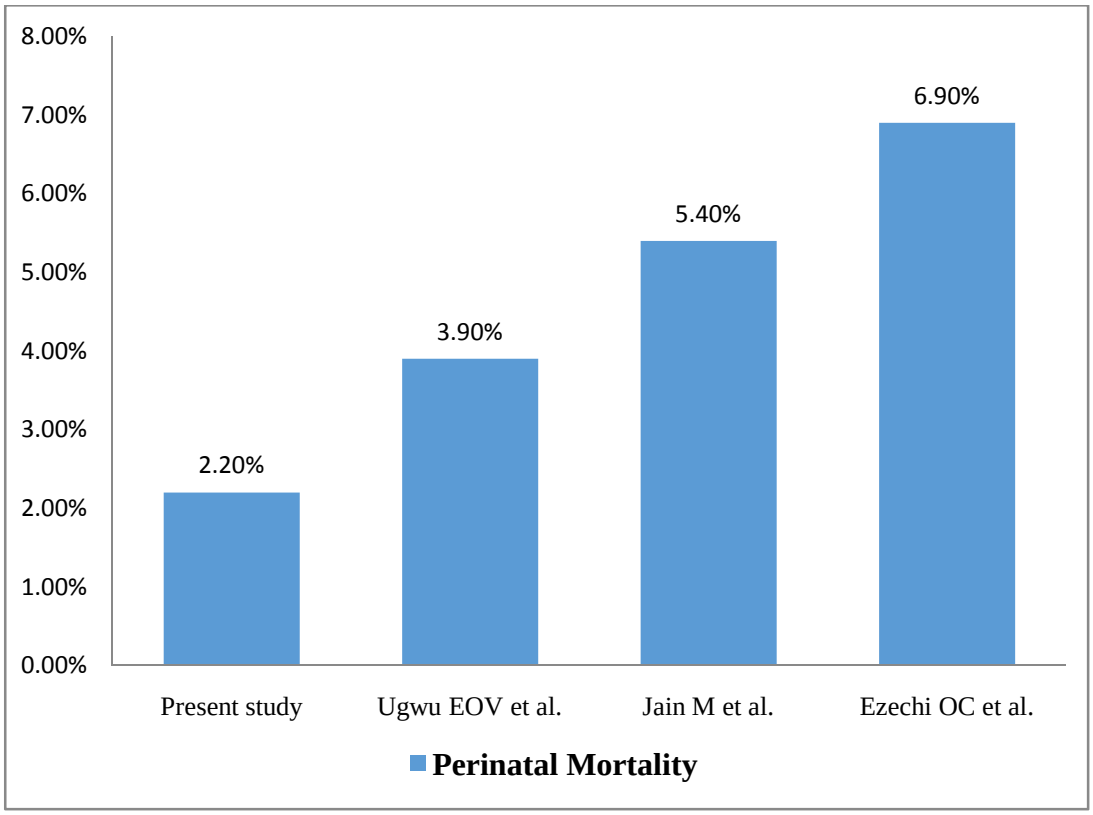
Post-operative complications	Present study	Uguwu EOV et al.[1]	Daniel S et al.[20]	Jain M et al.[21]
Anemia	21.8%	32.5%	-	-
Surgical Site Infection	2.5%	9.0%	8.4%	2.4%
Fever	0.8%	24%	-	2.0%
Abdominal distension	0.7%	-	-	2.6%
Deep Vein Thrombosis	0.06%	-	0	-

This was comparable with another study.[1]There was one case of Deep vein thrombosis. The postoperative complications were seen more in the emergency cesarean section and primary cesarean section. This may be attributed to the high rate of primary cesarean section.

Perinatal outcome:

There were 1678 live births during the study period. 19.4% babies required NICU admission. The commonest cause for NICU admission was Prematurity and Hyperbilirubinemia.

Perinatal deaths during the study were 37, incidence is 2.2%. This included 20 stillbirths and 17 neonatal deaths. The commonest antenatal risk factor for intrauterine fetal demise was abruptio placenta. The commonest cause of neonatal death was sepsis seen in 8 babies.2 babies died due to congenital anomalies, viz., Tracheal atresia and Open spina bifida.



Anaesthesia complications

Intra-operative anesthetic complications	Present study	Ghazi A et al.[27]	Borkar Patil VP et al.[14]
Hypotension	3.6%	-	-
Failure of spinal Anesthesia	0.6%	7%	4%
Difficult intubation	0.5%	-	-

Hypotension was the commonest intra-operative complication, which was seen more in the emergency cesarean section.

There was no maternal death during the study period.

Strength of the study:

- The study was done on a large sample size.
- It was a prospective observational study.

Limitations of the study:

- The data was collected through the case records and registers.
- The information was not collected in all the cases from surgeons, anesthetists, and assistants.
- The cord blood pH was not collected in all cases of fetal distress.
- The details regarding the readmission were not collected.

CONCLUSION

From this study, it was evident that the incidence of cesarean section was 49.5%.

It is important to note that repeat cesarean sections were 42%, as most of the women were not willing for VBAC (19.9%). If primary cesarean sections are reduced, subsequent cesarean sections can be avoided.

The most common indication was fetal distress, incidence being 26.8%. The reasons contributing to this indication need to be further evaluated by proper methods to diagnose in this part of country (developing country).

Atonicity of uterus was the commonest intra-operative complication leading to hemorrhage.Hypotension was the commonest intra-operative anesthetic complication.

Low Birth weight (21.2%) was the commonest perinatal morbidity. Probably this is the reason for higher incidence of fetal distress as these babies may not sustain the stress of vaginal delivery.

Though the cesarean section is commonly done procedure, it has its own complications. One must anticipate and be prepared for the complications before performing the procedure.

SUMMARY

The present one-year cross-sectional study was conducted from January 2018 to December 2018 in the labor room of KAHER's Dr.Prabhakar Kore Charitable Hospital, Belagavi.

A total of 4232 women were delivered during the study period. 2133 women had vaginal delivery and 2099 women underwent Caesarean section. All the women who had a cesarean section were enrolled in the study, 457 cases were excluded as they did not meet the criteria.

- The prevalence of cesarean section was 49.5%. 1642 caseswhich had complete data as required for study,were furtheranalysed.
- The rate of emergency cesarean section was higher than the electivecesarean section.
- The rate of primary cesarean section was higherthan repeat cesarean section.

  The emergency cesarean section was common in both types and was statistically significant.
- The maximum women were in the age group of 20-30years and were nulliparous. Emergency cesarean section was more common in both nulliparous and multiparous women.
- The in-hospital registered cases were higher than unregistered cases.
- The important risk factors were anemia, Hypertensive disorders of pregnancy and Hypothyroidism.
- Fetal distress was the commonest indication followed by the Previous Cesarean section.
- The commonest intra-operative complications were atonicity of uterus and

Extension of uterine incision. Uterine artery ligation was the commonest additional procedure done to reduce the hemorrhage.

- The commonest postoperative complication was anemia.
- There was no maternal mortality during the study period.
- Hypotension was the commonest intra-operative anesthetic complication.
- There were 1678 live births and 20 still births from the cesarean section.
- The commonest perinatal morbidity was Low Birth Weight, Prematurity and hyperbilirubinemia.
- The incidence of perinatal mortality was 2.2%. The commonest antenatal risk factor for IUFD was abruption and the commonest cause of neonatal death was sepsis.

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ANNEXURE I – ETHICAL CLEARANCE CERTIFICATE

K.L.E.UNIVERSITY'S
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
(Accredited 'A' Grade by NAAC)

Website: http://www.jnmc.edu
E-Mail : director@jnmc.edu

Phone: (+ 91-(0)831 Office : 2471350
Principal: 2471701
Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/ 33 **Date: 22/11/2017**

To,

Dr.
PG student in Obstetrics and Gynaecology,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"A CROSS SECTIONAL STUDY OF CAESAREAN SECTION – ONE EAR HOSPITAL BASED STUDY AT A TEACHING HOSPITAL."**, is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Arathi Darshan)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Roopa M Bellad)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

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ANNEXURE II – CONSENT FORM

Study- A Cross-Sectional study of Caesarean Section- one year hospital based study at a teaching hospital conducted by Dr._____ , Post Graduate in M.S. Obstetrics And Gynaecology under the guidance of Dr_____ . Professor and Head, Department of Obstetrics And Gynaecology , J.N. Medical College, KLE university, Belagavi.

Purpose of the study:

The caesarean sections rates are increasing now a days worldwide from 5 to 15% to 27%. The incidence of caesarean rate in KLE's Prabhakar Kore hospital is around 40%. This study is done to know the rate of caesarean delivery, indications, and complications, maternal and perinatal outcomes. In order to actively battle the unhealthy trend of increasing caesarean section rates, and to be well equipped to tackle the complications arising, it is mandatory to know the rate, indications, risk factors and maternal and fetal outcome.

Study Procedure and Treatment:

Once you have signed the informed consent form, the personal details like name, age, place and address will be noted down. Your delivery details will be noted down. You will be followed up until you are discharged from the hospital.

Potential risks:

There are no observable risks associated with the study.

Benefits:

There is a benefit as you will be followed up in your postnatal period for any risk factors and will be treated if found so.

Financial incentives for participation:

There are no payments for taking part in this research study.

Alternatives:

If I decide not to participte in the study, my health care provider will provide the usual standard care during my pregnancy, delivery and upto 6 weeks after delivery.

Privacy:

To protect your privacy all the collected information will be given a number rather than using your name. Any information collected during the study will remain confidential. The identifiable information about you willbw accessible to only the study pesonnels in the community. Your medical files will be reviewed only at the hospital (or study doctor's office) in order to check the information and verify the result without breaking your confidentiality. Only de-identified information on your pregnancy will be shared so that we can learn the results of the study.

Authorisation to Publish Results:

The information about me will be analysed together with other study participants. Results of this study will be published and presented to scientific groups for scientific purposes but i will never be individually identified in the presentation of the study results.

Institutional Policy:

In case you have any questions related to the study, in future or in case of study related injury or illness, you can contact Dr._____ , Department of Obstetrics And Gynaecology, KLE University's J.N Medical College, Ph. No._____ or phone number: _____or Dr. _____, Professor and Head, Dept. Of Obstetrics and Gynaecology, KLE University's J.N Medical College, Belagavi Ph.: _____or phone number: _____.

If you have any queries about your rights as a study subject, you may call Dr.Roopa M Bellad, Professor of Pediatrics, as Chairman of J. N. Medical College Institutional Ethics Committee on Human Subjects Research, Phone No.0831 2473777 ext-1527 at J.N.Medical College, Belagavi

VOLUNTARY PARTICIPATION:

My participation in this study is voluntary. In case i need any further information regarding my rights as a study participant. I may contact Dr.Roopa M Bellad, Professor of Pediatrics, as Chairman of J. N. Medical College Institutional Ethics Committee on Human Subjects Research, Phone No.0831 2473777 ext-1527 at J.N.Medical College, Belagavi .my doctor will take cre of me during this pregnancy or in the future. I am free to stop participation in this study at any time and for any reason.

Signatures:

Signature or thumbprint of the participant: _____

Date: _____

Signature or thumbprint of the participant guardian: _____

Date: _____

ಮಾಹಿತಿಒಪ್ಪಿಗೆಪತ್ರ

ಅಧ್ಯಯನದಉದ್ದೇಶ

ಡಾ. , ಸ್ನಾತಕೋತ್ತರವಿದ್ಯಾರ್ಥಿನಿ, ಎಪ .ಎಸ್ಪ್ರಸೂತಿಹಾಗೂಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರವಿಭಾಗ, ಡಾ. , ಪ್ರೊ.ಹಾಗುಮುಖ್ಯಸ್ಥರು, ಪ್ರಸೂತಿಹಾಗೂಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರವಿಭಾಗ, ಜೆ.ಎನ .ವೈದ್ಯಕೀಯಮಹಾವಿದ್ಯಾಲಯ, ಕೆ.ಎಲ .ಇವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿಇವರಮಾರ್ಗದರ್ಶನದಲ್ಲಿಕೆ.ಎಲ್.ಇವಿಶ್ವವಿದ್ಯಾಲಯದಜೆ.ಎನ .ವೈದ್ಯಕೀಯಮಹಾವಿದ್ಯಾಲಯದಕಲಿಕಾಆಸ್ಪತ್ರೆಯಲ್ಲಿಸಿಸೇರಿಯನಹೆರಿಗೆಗಳಕುರಿತುಒಂದುವಿಭಾಗೀಯಅಧ್ಯಯನ ಮಾಡಲಾಗುವುದು.

ಅಧ್ಯಯನದಉದ್ದೇಶ:

ಈ ಅಧ್ಯಯನವುಸಿಸೇರಿಯನ್ಹೆರಿಗೆ, ಅದರಕಾರಣಾತ್ಮಕಸಂಗತಿಗಳು, ತಾಯಿಹಾಗುಮಗುವಿನಮೇಲೆಏನುಪರಿಣಾಮಬೀರಬಹುದೆಂದುತಿಳಿಯಲುನಡೆಸಲಾಗುವುದು.

ಈ

ಸಿಸೇರಿಯನ್ಹೆರಿಗೆಗಳಿಂದಆಗುತ್ತಿರುವತೊಂದರೆಗಳನ್ನುನಿವಾರಿಸಲುನಮಗೆಇದರಸೂಚನೆಗಳುಹಾಗೂಅಪಾಯಕಾರಿಅಂಶಗಳಬಗ್ಗೆತಿಳಿಯುವುದುಅತ್ಯಂತಮಹತ್ವವಾಗಿದೆ.

ಅಧ್ಯಯನದವಿಧಾನ

ಈ ಪತ್ರಕ್ಕೆಸಹಿಹಾಕಿದನಂತರ, ನಿಮ್ಮವಯಕ್ತಿಕಮಾಹಿತಿಅಂದರೆಹೆಸರು, ವಯಸ್ಸು, ಸ್ಥಳ, ವಿಳಾಸ,

ಅದರಂತೆಬೇರೆಮಾಹಿತಿಯನ್ನುಪಡೆಯಲಾಗುವುದು.ನಿಮ್ಮಹೆರಿಗೆಯಮಾಹಿತಿಯನ್ನುಇಡಲಾಗುವುದು.ನಿಮ್ಮನ್ನುಆಸ್ಪತ್ರೆಯಿಂದಬಿಡುಗಡೆಹೊಂದುವತನಕಆರೈಕೆಮಾಡಲಾಗುವುದು.

ಅಪಾಯಗಳು

ಈ ಅಧ್ಯಯನದಲ್ಲಿಯಾವುದೇರೀತಿಯಅಪಾಯಗಳಿರುವುದಿಲ್ಲ.

ಲಾಭಗಳು

ನಿಮ್ಮಪ್ರಸವಪೂರ್ವದಎಲ್ಲಾಭೇಟಿಗಳಮಾಹಿತಿಇಡಲಾಗುವುದು,

ಹಾಗೆಯೇಹೆರಿಗೆಯನಂತರನಿಮ್ಮಆರೈಕೆಯನ್ನುಎಂದಿನಂತೆಮಾಡಲಾಗುವುದು.

ಹಣಕಾಸಿನನೆರವು

ನನಗೆಯಾವುದೇರೀತಿಯಹಣಕಾಸಿನನೆರವುನೀಡಲಾಗುವುದಿಲ್ಲ.

ಪರ್ಯಾಯಗಳು

ನಾನು ಈ ಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸದೇಹೋದರೆ,

ನನ್ನಆರೈಕೆಗರ್ಭಾವಸ್ಥೆಯಸಮಯದಲ್ಲಿಎಂದಿನಂತೆನಡೆಯುವುದುಹಾಗೂಹೆರಿಗೆಯ ೬

ವಾರಗಳವರೆಗೆಆರೈಕೆನೀಡಲಾಗುವುದು.

ಗೌಪ್ಯತೆ

ನಿಮ್ಮಗೌಪ್ಯತೆಯನ್ನುಕಾಪಾಡಲು,

ನಿಮ್ಮಿಂದಪಡೆದಮಾಹಿತಿಯನ್ನುಒಂದುಸಂಖ್ಯೆಯಮೂಲಕಇಡಲಾಗುವುದು.ನಿಮ್ಮಮಾಹಿತಿಯ

ನ್ನುಗೌಪ್ಯವಾಗಿಡಲಾಗುವುದು.ನಿಮ್ಮವೈದ್ಯಕೀಯಮಾಹಿತಿಯನ್ನುಆಸ್ಪತ್ರೆಯಉಪಯೋಗಕ್ಕೆ

ಬಳಸಲಾಗುವುದು.

ಫಲಿತಾಂಶಗಳನ್ನುಪ್ರಕಟಿಸುವಅಧಿಕಾರ

ನನ್ನಮಾಹಿತಿಯನ್ನುಸಂಪೂರ್ಣವಾಗಿಅಧ್ಯಯನಮಾಡಿ,

ಅದರಿಂದಬಂದಫಲಿತಾಂಶವನ್ನುವೈದ್ಯಕೀಯಸಂದರ್ಭಕ್ಕೆಬಳಸಲಾಗುವುದು,

ಆದರೆನನ್ನಯಾವುದೇಮಾಹಿತಿಯನ್ನುಹಾಗೂಫಲಿತಾಂಶಗಳನ್ನುವಯಕ್ತಿಕವಾಗಿಪ್ರದರ್ಶನಮಾ

ಡಲಾಗುವುದಿಲ್ಲ.

ಸಾಂಸ್ಥಿಕನೀತಿ

ನಿಮ ಈ

ಅಧ್ಯಯನದಕುರಿತುಯಾವುದೇಪ್ರಶ್ನೆಗಳಿದ್ದಲ್ಲಿಅಥವಾಭವಿಷ್ಯದಲ್ಲಿಯಾವುದೇರೀತಿಯಗಾಯ

ಅಥವಾಖಾಯಿಲೆಆದಲ್ಲಿ, ಡಾ. , ಸ್ನಾತಕೋತ್ತರವಿದ್ಯಾರ್ಥಿನಿ,

ಎಷ .ಎಸ್ಪ್ರಸೂತಿಹಾಗೂಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರವಿಭಾಗ,

ಅಥವಾ ಅಥವಾಡಾ. ,

ಪ್ರೊ.ಹಾಗುಮುಖ್ಯಸ್ಥರು, ಪ್ರಸೂತಿಹಾಗೂಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರವಿಭಾಗ,

ಜೆ.ಎನ .ವೈದ್ಯಕೀಯಮಹಾವಿದ್ಯಾಲಯ, ಕೆ.ಎಲ .ಇವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ

ಅಥವಾಇದಕ್ಕೆಸಂಪರ್ಕಿಸಬಹುದು.

ಸ್ವಯಂಪ್ರೇರಿತಭಾಗಾವಹಿಸುವಿಕೆ

ಈ

ಅಧ್ಯಯನದಲ್ಲಿನನ್ನಭಾಗವಹಿಸುವಿಕೆಸಂಪೂರ್ಣಐಚ್ಛಿಕವಾಗಿದೆ.ಯಾವುದೇಸಂದರ್ಭದಲ್ಲಿನನ

ಗೆಬೇರೆಯಾವುದೇಮಾಹಿತಿಬೇಕಿದ್ದಲ್ಲಿನಾನುಡಾ.ರೂಪಾಬೆಲ್ಲದ, ಪ್ರೊ.ಶಿಶುವಿಭಾಗ,

ಅಧ್ಯಕ್ಷರು, ಜೆ.ಎನ .ವೈದ್ಯಕೀಯಮಹಾವಿದ್ಯಾಲಯದಸಾಂಸ್ಥಿಕನೀತಿಸಮಿತಿ ೦೮೩೧-

೨೪೭೩೭೭೭, ಎಕೆ೫೭:೧೫೨೭, ಇವರನ್ನುಸಂಪರ್ಕಿಸಬಹುದು.

ಭವಿಷ್ಯದಲ್ಲಿನನ್ನವೈದರುಗರ್ಭಾವಸ್ಥೆಯಸಮಯದಲ್ಲಿನನ್ನಆರೈಕೆಮಾಡುವರು.ನಾನುಯಾ

ವಾಗಬೇಕಾದರೂ ಈ ಅಧ್ಯಯನದಿಂದಹೊರಬರಬಹುದು.

ನಾನು ಈ ಪತ್ರವನ್ನುಓದಿದ್ದೇನೆಅಥವಾಓದಿಹೇಳಲಾಗಿದೆ.ನನ್ನಸಹಿ ಈ ಮೂಲಕ ಈ

ಅಧ್ಯಯನದಲ್ಲಿನನ್ನಭಾಗವಹಿಸುವಿಕೆಯನ್ನುತಿಳಿಸುತ್ತದೆ.

ಸಹಿಅಥವಾಹೆಬ್ಬೆಟ್ಟುಟ ದಿನಾಂಕ

_____ _____

ಪೋಷಕರಸಹಿಅಥವಾಹೆಬ್ಬೆಟ್ಟುಟ ದಿನಾಂಕ

_____ _____

सूचितसहमतिपत्र

डा.ः स्नातकोत्तरविद्यार्थिनि, एम.एसप्रसूति व स्त्रीरोगविभाग, डा.एम.बि.बेत र, प्रसूति व स्त्रीरोगविभाग, यांचामार्गदर्शनात, के.एल.इविश्वविद्यालयचा .एन.मेडिकलकालेजचाशिक्शादवाखानातहोणारेसिसेरियनसेक्षनडेलिवरिचिएकपारअनुभागीयअध्ययनकरण्याचाउद्देश.

अध्ययनचाउद्देश

याअध्ययनातसिसेरियनडेलिवरिकेलेनंतरहोणारसमस्या, आइअणिबच्चुमध्येहोणारसमस्यावरलक्ष्यठेविल. यासाठिसिसेरियन च दरम्यानहोणारकाहीसमस्यात्याचेदर, संकेत, जोखिमकारकयासगळ्याचजानकारिघेयायलाअनुकुलहोतिल .

विधान

सहमतिपत्रवरहस्थाक्षरकेलेतर, माझव्यक्तिगतविवरणन , वय, पता, अणिकाहीजानकारिघेतायेइल.दवाखान्यातूनडिस्चार्जहं उ पर्यंतकाळजिघेणार.

जोखिम

याअध्ययनातकाहीजोखिमनाहिहोणार.

लाभ

अध्ययनचादौरान,प्रसव च नंतरकाहीअडचनझालेतरत्याचिकाळजिघेतायेइल.

भागिदारिलावित्तीयप्रोत्साहन

मलाकोण्ताहिप्रकारचावित्तीयप्रोत्साहननाहीमिळनार.

वैकल्पिक

अध्ययनमध्येभाग न घेतलेतर, माझाप्रसवपूर्वअणिवितरणचा ६ आठवडापर्यंतदेखबालकरण्यातयेइल.

गौप्यता

माझ्यागौप्यतासाठि, माझाकडुनघेतलेलजानकारिलानंबरदेणार. तुमचिजानकारिगौप्यठेविल. तुमचिमेडिकलफाइलफक्तदवाखान्यातवापराजाइत .

परिणामचाप्रकाशितकरण्याचाअधिकार

तुमचिजानकारिसहीतरहसेनापाजाईल.वैज्नानिकसंदर्भालाइस्तेमालकरण्यातयेइल.

संस्थागतनीति

तुम्हालाकाहीप्रश्नअसेल , याभविश्यातघावयारोगलक्षणअसेलतर, डा. , स्नातकोत्तरविद्यार्थिनि, एम.एसप्रसूति व स्त्रीरोगविभा , और याडा. , प्रोफेसरतथाप्रमुख, प्रसूति व स्त्रीरोगविभा , के.एल.इविश्वविद्यालयकेजे.एन.मेडिकलकालेज, बेळगावि या यान्हासंपर्ककरा.

स्वैच्छिकभागीदारि

माझिभागिदारिसंपूर्णऐच्छिकआहे.यदिमलाकाहिमाहितिपाहिजेतर, मीडा.रूपा.एम.बेल्लद, प्रोफेसर, शिशुविभाग, अध्यक्षजे.एन.मेडिकलकालेज, मानवविशयअनुसंधानचासंस्थागतनीतिशास्त्रसमिति, 0831 2473777, 1527 यान्हासंपर्ककरा. माझेडाक्टरमाझिदेखबालकरणार. मीकधीपनयाअध्ययनसोडुनजाउशकतो.

हस्थाक्षर

मी सहमति फॉर्म वाचलेअणिसहमति फॉर्म मलावाचुनदाखवले.मी सहमति अणि हस्ताक्षर लासमझूनखालिदिलेसहिचिपुष्टिकरून अध्ययनात भाग घेण्याचिसहमतिआहेम्हणूनसांगते

_____ _____

प्रतिभागी या कानूनी हस्ताक्षर या अंगूठे तारीख

_____ _____

प्रतिभागी अभिभावक चा हस्ताक्षर या अंगूठे निशा तारीख

ANNEXURE III – PROFORMA

SCREENING FORM

Screening number: ☐☐☐☐☐

Date of screening (dd-mm-yyyy) : ☐☐ ☐☐ ☐☐☐☐

First Name: _____middle name: _____last name:_____

Age (years): ☐☐

IP number:

Address: H.no-☐☐☐☐☐☐_____

Street _____

Taluka_____

District_____

Phone number: _____

Landline (optional): _____

1-yes 2- no

Registered ☐

Unregistered ☐

Gestational age >20weeks ☐

Consented ☐

Not Consented ☐

Enrolled ☐

Not Enrolled ☐

DATA COLLECTION FORM

Screening Number: ☐☐☐☐☐

Enrollment Number: ☐☐☐☐☐

1. Obstetric History:

Obstetric Score: Gravida ☐ Living ☐ Abortion ☐

Previous Pregnancy Details:

	1st Pregnancy	**2nd Pregnancy**	**3rd Pregnancy**
1.Outcome: 1. Livebirth 2. Stillbirth 3. Ectopic 4. Abortion 5. MTP	☐	☐	☐
2.Mode of Delivery : 1.Full term vaginal delivery 2. Preterm vaginal delivery 3. Full term caesarean section 4. Preterm caesarean section	☐	☐	☐
Indication :	_____	_____	_____
3.Weight of Newborn: 1. < 2.5 kgs 2. 2.5- 3 kgs 3. > 3kgs	☐	☐	☐
4.Gender : 1. Male 2. Female	☐	☐	☐
5.Age in yrs:	☐☐	☐☐	☐☐
6.Condition of baby: 1.Alive and healthy 2. Dead	☐	☐	☐
If so, specify reason:	_____	_____	_____
7.Any maternal complications, Specify:	_____	_____	_____

2. Present Pregnancy:

- LMP (DD/MM/YY) : ☐☐ ☐☐ ☐☐☐☐
- EDD (DD/MM/YY) : ☐☐ ☐☐ ☐☐☐☐
- 1st trimester Scan EDD: ☐☐ ☐☐ ☐☐☐☐
- Corrected EDD(if any): ☐☐ ☐☐ ☐☐☐☐
- Period Of Gestation: ☐☐ eks Da☐

3. Condition of the patient at the time of admission: Yes=1, No=2

- Known Case Of Chronic Hypertension: ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known Case Of Preeclampsia: ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known Case Of Diabetes Mellitus: ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known Case Of Gestational Diabetes: ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known Case Of Pre-existing Cardiac Disorder: ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known Case Of Thyroid disorder: ☐
  If yes, specify: 1. Hypothyroidism ☐
  2. Hyperthyroidism ☐
  If yes, on any medication: ☐
  If yes, Specify: _____
- Known case of Epilepsy: ☐
  If yes, on any medication ☐
  If yes, Specify: _____
  Specify time since last episode:_____
- Known case of any Respiratory disorder: ☐
  If yes, Specify: _____
  On any medication ☐
  If yes, Specify: _____
- Known case of any Bleeding disorder: ☐
  If yes, Specify: _____
- History of long term intake of any medication: ☐
  If yes, Specify: _____
- History of any Anticoagulants: ☐
  If yes, Specify with dose: _____
  Started from: _____
  Stopped at: _____
- History of allergy to any medications: ☐
  If yes, Specify: _____
- Any history of previous surgery and anaesthesia exposure : ☐
  If yes, Specify: _____

Surgery: _____

Type of anaesthesia: _____

4. Examination

- Pulse rate: bpm
- Blood Pressure: / nmhg
- Temperature : ^{O}C/
- Height : cm
- Weight : kg
- BMI : kg/m^2

1. Yes 2. No

- Pallor :
- Icterus :
- Edema :
- Breast : 1. Normal
  2. Abnormal
  If yes, Specify: _____
- Spine : 1. Normal
  2. Abnormal
  If yes, Specify: _____
- Thyroid :1. Normal
  2. Abnormal
  If yes, Specify: _____

5. Investigations prior to Caesarean Section

- Blood group :_____
- Haemoglobin : gm
- PCV :
- Platelets : . mm
- Total Counts: mm^3
- Peripheral Smear:
  1. Normocytic Normochromic picture
  2. Normocytic Hypochromic Anemia
  3. Microcytic Hypochromic Anemia
  4. Dimorphic Anemia
  5. Neutrophilicleucocytosis
- Urine routine and Microscopy: 1.Normal
  2.Abnormal
  If yes, Specify: _____
- TSH : m
- DIPSI : mg/dl
- HIV : 1. Non Reactive
  2. Reactive

- HBsAg : 1. Non Reactive
  2. Reactive
- Urine Albumin: 1. Negative
  2. Trace
  3. 1+
  4. 2+
  5. 3+
- Liver Function Test:

Total Bilirubin .mg/dl
Direct Bilirubin . mg
Total Proteins .gm/dl
Serum Albumin .gm/dl
A:G Ratio .
SGOTU/L
SGPT U/
ALP U/L

- LDH U/L
- Renal Function Test:

Urea .mg/dl
Creatinine .mg/
Uric Acid .mg/dl

- Serum Electrolytes:
  Sodium mEq/L
  PotassiummEq/
  ChloridemEq/L
  Bicarbonatemm
- HsCRP: mg/L
- ECHO:1. Normal
  2. Abnormal
  If yes, Specify: _____

6. Indications For Caesarean Delivery: Yes=1, No=2

- Foetal Distress
- Previous LSCS Not Willing For VBAC
- Antepartum Eclampsia
- Abruption
- Malpresentations
- Second Stage Arrest
- Macrosomia
- Preeclampsia
- Multiple Gestation
- Cervical dystocia
- Previous2 LSCS

- Cephalopelvic Disproportion
- Deep Transverse Arrest
- Placenta previa
- Others:

If any, Specify: _____

7. Details Of Delivery :**Yes=1, No=2**

- Type Of Caesarean Section:
    1. Full Term Emergency
    2. Full Term Elective
    3. Preterm Emergency
    4. Preterm Elective
- Date of Caesarean Section: - -
- Time of Delivery: : M

8. Postoperative condition: Yes=1, No=2

- **Immediate postoperative condition:**
    - General condition: Good

Fair

Poor

- Pain :

If yes, Grade (According to visual analog score)

1. Grade 0
2. Grade 1
3. Grade 2
4. Grade 3
5. Grade 4

- Uterus : 1. Contracted

2. Flabby

- Bleeding: 1. Minimal

2. Heavy

If yes, any oxytocics used

If yes, Specify: _____

- Any blood or blood products transfusion:

If yes, specify: _____

- **Remote postoperative condition:**
    - General condition: Good

Fair

Poor

- Uterus : Involuting well

Subinvolution

- Lochia: Healthy

Foul smelling

Minimal ☐
Heavy ☐

- Breast : Normal ☐
  Engorged ☐
  Mastitis ☐

9.Investigations after Caesarean section

- Haemoglobin ☐☐☐ gm%
- Peripheral smear ☐

1. Normocytic Normochromic picture
2. Normocytic Hypochromic Anemia
3. Microcytic Hypochromic Anemia
4. Dimorphic Anemia
5. Neutrophilicleucocytosis

- Any other test done:_____

10. Postoperative Complications: Yes=1, No=2

- Anaemia ☐
  If yes, Specify fall in Haematocrit: _____
  - Any blood transfusion done ☐
  If yes, Specify : _____
  - Any iron correction done ☐
  If yes, Specify: _____
- Fever ☐
- Infection ☐
  If any, Specify: _____ ☐
- Abdominal Distension ☐
- Deep vein Thrombosis ☐
  If yes, specify treatment:_____
- Wound Gape ☐
  Was secondary suturing done ☐
  If yes, Specify: _____
  Organism isolated ☐
  If yes, specify with sensitivity: _____
- Others ☐
  If any, Specify: _____

11 . Condition of Mother at Discharge:

1. Good
2. Fair ☐
3. Poor

Mother discharged on Day: _____

LSCS OPERATIVE RECORD

- Type of Anaesthesia: Spinal☐ Epidural☐GeneralAnaesthesia☐
- Difficulty encountered during anesthesia: NO☐YES☐ specify if yes

Procedure:-

- Incision: transverse☐vertical☐
- Entry of abdomen: easy☐ difficult☐
- Abdominal wall adhesion: Yes☐ NO☐

Intraperitoneal findings:

- Bladder : easily separable☐ adherent☐
- Lower segment:well formed☐ not well formed☐thinned out☐
- Scar :Intact☐ dehiscence☐ rupture☐
- Uterine incision: vertical☐ transverse☐inverted T ☐
- Nature of liquor: Quantity :Normal☐Excessive☐Scanty☐Nil ☐
- Meconium staining: Yes☐No☐ if yes then specify Thick☐Thin☐Hind water stained
- Cord around neck:1 loop☐2 loop☐3loop, ☐
- Presence of true knot☐false knot☐Nil
- Extraction of baby: Vertex☐Breech☐Limbs☐

  Manual☐Ventouse☐Easy☐Difficult☐
- Number of babies:1 ☐ 2 ☐ 3☐
- Baby cried after birth: Immediately ☐Did not cry ☐

- Supportive measures done :Yes☐No☐
- Any congenital anomalies. Specify:_____
- APGAR Score: At Birth:_____
- Inj. Oxytocin 10U IM given: Yes☐No☐
- Any other uterotonics used with dosage:

Drug	**Route**	**Dose**
Oxytocin	IV ☐ IM☐	
Carboprost	IM☐	
Methergin	IM ☐ IV☐	
Misoprostol	SL ☐ PR☐ PV☐	

- Separation of Placenta: spontaneous☐ manual☐

Examination of placenta: Complete☐incomplete☐ Healthy☐

calcifications☐

- Retro placental clots : yes☐no☐
- Weight of placenta: _____gms
- Exteriorization of uterus: Yes☐No☐
- Adnexa normal: Yes☐No☐, specify abnormalities
- Cavity explored for retained products: Yes☐No☐
- Specify any congenital anomalies:
- Status of uterus:Contracted & retracted☐Flabby☐Intermittently relaxing
- Uterine closure: Single layer☐Double layer☐, specify suture material:
- Visceral Peritoneal closure done: Yes☐ No☐. if yes, specify material

- Haemostasis achieved: Yes☐NO☐

Complications : Extension of uterine incision☐flabby uterus☐PPH☐rupture uterus☐couvalaire uterus ☐

Any other, specify: _____

- Any additional procedure done: yes ☐ no ☐

If yes, Specify: Brace sutures: Hayman's stitch☐B-Lync☐Cho sutures☐ uterine artery ligation☐internal iliac artery ligation☐peripartumHysterectomy☐Cesarean Myomectomy☐Cystectomy ☐

If myomectomy ,done specify number of fibroids &location:

- ***TUBAL LIGATION*** done: Yes☐No☐, specify technique &suture material used
- Drain inserted: Yes☐No☐
- Blood or blood products transfusion: yes☐no☐
- if yes specify RDP:☐ SDP :☐ PCV:☐ WB:☐Cryo:☐ FFP:☐
- Mops, needle & instruments confirmed: Yes☐No☐
- Blood pressure prior closure: SBP: ☐ DBP:☐

Abdomen closure:-

- General Peritoneal closure: Yes☐No☐, If yes, specify suture material
- Rectus muscle approximated: Yes☐No☐, If yes, specify suture material
- Rectus sheath closure: continous☐continous interlocking☐interrupted☐if any other specify

Specify suture material:

- Subcutaneous fat closure: Yes☐No☐, If yes, specify suture material

- Skin closure: Subcuticular☐ Mattress☐ Stapler; Specify suture material
- Vaginal toileting done: Yes☐ No☐, Specify if excessive P/V bleed
- Blood loss: no. of mops_____* 30=_____ml
  Suction – liquor = _____ml
  Clots - _____gms
  Total blood loss = _____ml

Immediate postoperative Vitals:- 1.Pulse rate:_____

2. Blood pressure:_____

3. Status of uterus: Contracted & retracted☐ Flabby☐ Intermittently relaxing☐

Anaesthesia related proforma

1. Preoperative : Yes=1, No=2

- PAE done ☐
- Type of anaesthesia ☐
  - Spinal anaesthesia
    - Easy ☐
    - Difficult ☐
    - Failure ☐
  - Epidural anaesthesia ☐
    - Easy ☐
    - Difficult ☐
    - Failure ☐
  - General anaesthesia ☐
- Spinal needle used: _____

  IV access: Easy ☐ Difficult ☐
- Peripheral venous access ☐
- Central venous access ☐

2. Anaesthesia Related Complications: Yes=1, No=2

- **Preoperative**
  - Difficult IV access ☐
  - Central venous access ☐
  - Difficult Airway ☐
  - Others ☐

    If any, specify: _____
- **Intraoperative**
  - Endotracheal tube used ☐

    If yes, specify diameter in mm: _____
  - Difficult intubation ☐
  - Failed Intubation ☐
  - Any Desaturation ☐
  - Bronchospasm ☐
  - Laryngospasm ☐
  - Failure of Spinal anaesthesia ☐
  - Hypotension ☐

- Bradycardia ☐
- Any Ionotropes used ☐

  If yes, Specify with dose: _____
- Others ☐

  If yes, specify: _____

- **Postoperative**
  - Desaturation ☐
  - Reintubation ☐
  - Tachycardia ☐
  - Hypotension ☐
  - Hypertesion ☐
  - Post Dural Puncture Headache ☐
  - Others ☐

    If any, specify : _____

Baby's Details proforma (Yes=1, No=2) ☐

- Live birth :
- Stillbirth: Fresh ☐ Macerated ☐
- Cried immediately after birth ☐
- APGAR Score: At Birth ☐☐

  At 5 minutes ☐☐
- Baby's Weight at birth:1.<2.5 kgs ☐

  2. 2.5-3 kgs ☐

  3.>3kgs ☐
- Gender : Male ☐ Female ☐
- Did Baby Have Any Congenital Anomaly: ☐

  If yes, Specify: _____
- Did Baby Have any Birth Injury: ☐

  If yes, Specify: _____
- Was there any Early Neonatal Complication:
  - Low Birth Weight ☐
  - Preterm ☐
  - Asphyxia ☐
  - Respiratory distress syndrome ☐

- Convulsions ☐
- Others ☐

If others, Specify: _____

- Was the Baby Admitted to NICU for any Complications: ☐

  If yes, Specify the cause: _____
- Was the baby on any treatment ☐

  If yes, Specify: _____
- When was the baby given to mother side: _____
- Was there any feeding problem ☐

  If yes, Specify:
  - Because of caesarean section ☐
  - Not enough milk ☐
  - Breast problems ☐
  - Baby not taking feeds ☐
- Was there any Late Neonatal Complication:
  - Infection/Sepsis ☐
  - Jaundice ☐
  - Others ☐

    If any, Specify: _____
- Was the Baby Admitted to NICU for any Complications: ☐

  If yes, Specify the cause: _____

  When was the baby shifted: Day _____
- Was the baby on any treatment ☐

  If yes, Specify: _____
- When was the baby given to mother side: _____
- **Condition of Baby at Discharge:** ☐

  1. Good
  2. Fair
  3. Poor