

A Study on Primary Caesarean Section in the Multipara: A Detailed Analysis and Its Implication in a Tertiary Care Centre

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Abstract: **Background:** Primary caesarean deliveries in the multipara are an important target for reduction of primary caesarean section, as these women had previous vaginal births so that there may be chances to sort-out the unnecessary need for caesarean delivery. This study is performed to observe and analyse the need of caesarean delivery in the multiparous women, unavoidable indications for surgery, associated complications, morbidity sustained, neonatal outcome and the family planning methods adopted. **Methods:** This is a prospective observational study of the Primary caesarean section done in the multiparous women for a period of one year in The Department of Obstetrics and Gynaecology at Thanjavur Medical College and Hospital, Tamilnadu, India. **Results:** The total number of multiparous women undergone Primary caesarean section was 351. The incidence of primary caesarean section in multiparous women was higher in age group of 27-30 years-49.9% (175/351 cases). The maximum number of the study population were PARA2-89.2 % (313/351 cases).96.9% (340/351 cases) constitutes the women who had previous all labour natural. The most common indication for caesarean section was fetal heart rate abnormalities which constitutes 37% (130/351 cases). The maximum number cases belongs to MRC-3 which constitutes 43.3% (152/351 cases). 81.2% (285/351 cases) undergone permanent sterilisation . 8.5% (30/351 cases) among the study group had postpartum complications. **Conclusion:** This study provides us a clear vision that the multipara-primary caesarean section constitutes only a small population of primary caesarean section and helps us to focus on the other areas to reduce primary caesarean section rate. Here, once again the words of De Lee should be remembered. "Is it the art concerned with effecting the abnormal delivery from below in spite of possible danger to the mother or the infant or with the earlier abdominal delivery in order to safeguard both the mother and infant?"

Keywords: Caesarean section, multipara, multiparous women, primary caesarean section, incidence

1. Introduction

Caesarean delivery is one of the most common surgical intervention in modern obstetrics. Caesarean delivery defines the birth of a fetus via laparotomy and then hysterotomy¹. It is an operative procedure whereby the fetuses after the end of 28th weeks are delivered through an incision on the abdominal and uterine walls². Conventionally caesarean section is defined for delivery of a viable fetus from the intact uterus through a incision in the abdominal wall and the uterus. All these definition excludes delivery of fetus from the abdominal cavity in the case of uterine rupture or with abdominal pregnancy. Primary caesarean section refers to a first performed caesarean section and secondary denotes a uterus with one or more prior hysterotomy incision. The term 'para' refers to the number of past pregnancies that have reached period of viability and have been delivered regardless of the number of children involved (3). The term "Multipara" refers to a woman who has had previous two or more pregnancies that have reached the period of viability³. As we look into the pattern of caesarean section rate over decades, there was a rapid growth of caesarean section rate worldwide from 1970 to 2010 though there are marked differences in the rate of caesarean section in the different countries across the world. This rise in caesarean section rate during the last three decades has been alarmingly high and needs an in depth study. Multiparity is a problem associated with teenage marriages, low literacy rate, low socioeconomic status, high perinatal mortality, preference for male child and ignorance about family planning measures. Primary caesarean deliveries in the multipara are an important target for

reduction of primary caesarean section, as these women had previous vaginal births so that there may be chances to sort-out the unnecessary need for caesarean delivery. This study is performed to observe and analyse the need of caesarean delivery in the multiparous women, unavoidable indications for surgery, associated complications, morbidity sustained, neonatal outcome and family planning methods adopted-inspired form the statement "Overuse and underuse of caesarean section are a current global concern and the focus of debates and research. In many low-and middle-income countries, overuse and underuse coexist making it particularly difficult to increase the provision of caesarean section to those women in need without aggravating the overuse which, in turn, places women at higher risk of complications"-DR ANA PILAR BETRÁN, MEDICAL OFFICER, WORLD HEALTH ORGANIZATION, MARCH 2019

2. Aim and Objective

Aim: The aim of this study is to understand the trend and purpose of Primary caesarean section in the multiparous women so that it will help analyse whether the caesarean section is an ideal decision for maternal and fetal well being in the situation provided, thus help us to avoid unnecessary caesarean section if any, ultimately aiming for reduction in primary caesarean section rate.

Primary objective: To study the incidence of primary caesarean section among multiparous women in a tertiary care centre over a period of one year.

Secondary objectives:

- 1) To know the most common indication for caesarean section rate in multiparous women.
- 2) To know the maternal and perinatal outcome following primary caesarean section in multiparous women.
- 3) To know the Incidence of post-operative morbidity of mother and newborn.

Study design and Study period: PROSPECTIVE OBSERVATIONAL STUDY of the Primary caesarean section done in the multiparous women for a period of one year at Thanjavur Medical College and Hospital, Tamilnadu.

Inclusion Criteria:

All multiparous undergoing **primary caesarean section**. As per modified Robsonscriteria, MRC-3, MRC-4a, MRC-4b, MRC-7, MRC-8, MRC-9, MRC-10 falls under this study.

Exclusion Criteria:

- Previous caesarean section.
- Primigravida.
- Previous hysterotomy.
- Previous uterine scars (myomectomy, septoplasty)

3. Methodology

After obtaining approval of the Institutional ethical committee (IEC), patient’s details and detailed history, intra operative events and delivery outcome of the multiparous women undergoing primary caesarean section at Govt. Raja Mirasudhar Hospital, Thanjavur Medical College was collected from hospital records on daily basis over a period of one year January 2020 to December 2020. After obtaining informed consent, the study population was followed and analysed till the date of discharge for any postoperative morbidity of mother and newborn. A standard proforma was used to collect the data.

4. Results and Analysis

Total number of deliveries over a period of one year (January 2020 to December 2020) was 13662. Among them, Total number of caesarean section over a period of one year was 6453. Total number of primary caesarean section done over a period of one year was 3401. The total number of multiparous women undergone Primary caesarean section was 351. This 351 patients were our study population.

Table 1: Incidence of primary caesarean section in the multipara among total deliveries, total caesarean, total primary caesarean

Parameter	Incidence
Incidence of primary section in multipara among total deliveries	2.5%
Incidence of primary section in multipara among total caesarean section.	5.4%
Incidence of primary section in multipara among total primary caesarean section	10.3%

In a study conducted by Neelam Rajput et al⁴ in the year of 2018, among 8185 deliveries, 3061 i. e., 37.39% were caesarean section, 386 (12.61%) were primary caesarean section in multipara In a study conducted by Grishma P.

Agrawal et al⁵ in 2019, among 8766 deliveries, primary caesarean section in multiparous women was 130 (23.4%). From this comparison, it is understood that incidence primary caesarean section among total caesarean section is less in our study than others.

1) Age Distribution

Table 2: Age distribution

Age of the patients	No. of patients	Percentage
≤/ < 22 years of age	2	0.6%
23-26 years of age	96	27.4%
27-30 years of age	175	49.9%
31-35 years of age	54	15.4%
> 35 years of age	24	6.8%

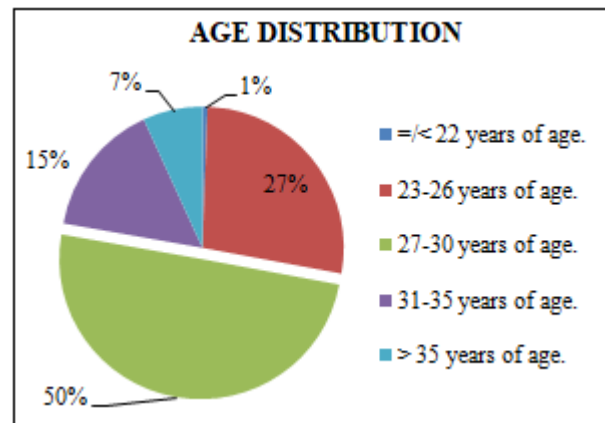


Figure 1: Age distribution

In the study of conducted by Saluja, J. K. et al in 2014⁶, majority of the patients fall in the age group of 25 years. In a study by Neelam Rajput et al⁴ in 2018, 336 cases of primary caesarean section in the mutiparous women among 3061 caesarean section were reported, among which 55.9% belongs to age group between 27-30 years (compared to 49.9% in this study). The trends of early marriage and lack of education in a highly fertile young age group plays a key role here. Health promotion policies and practices that target young women, proper sex education, contraception educational programs for teen mothers will make positive influence towards maternal health and Nation’s economy.

2) Parity wise distribution

Table 3: Parity wise distribution

Parity	No. of patients	Percentage
Para 2	313	89.2%
Para 3	25	7.1%
Para 4 and above	13	3.7%

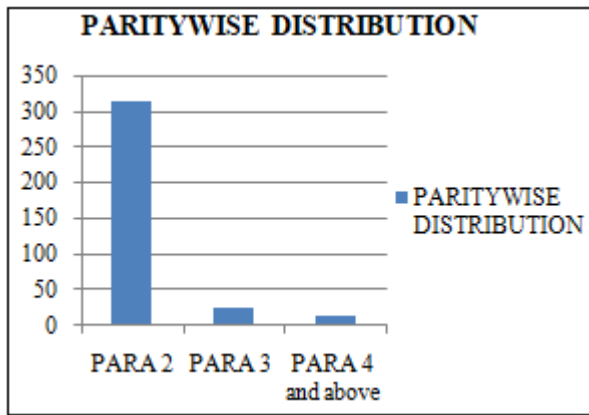


Figure 2: Parity wise distribution

From the above table, it is understood that majority of our study group were para2 -indicating the good prevalence of permanent sterilization among multiparous women in this area. Among the 13 patients who were para 4 and above, 4 caesarean section were done in view of malposition and malpresentation, 3 cases were done in view of placenta previa indicating the strong association of those with parity. In a study by RupalSamal et al ⁷ in 2016, among 1124 caesarean section over a period of 1 year, 86 were primary caesarean section done in mutiparous women. Among them 38 (55.88%) were 2nd para, 20 (29.41%) were 3rd para and 10 (14%) were 4th para and above.

3) Previous pregnancy-Mode of delivery:

Table 4: Previous pregnancy-Mode of delivery

Mode of delivery in previous pregnancies	No. of patients	Percentage
Labour natural	340	96.9%
Instrumental delivery	10	2.8%
Assisted breech delivery	1	0.3%

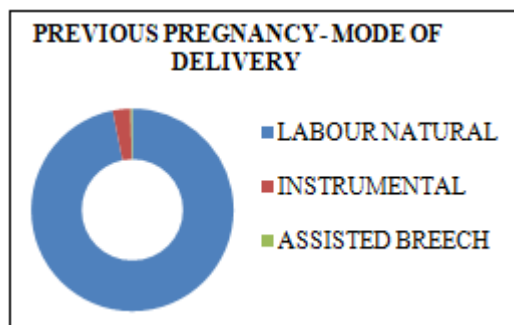


Figure 3: Previous pregnancy-Mode of delivery

Among the 10, who had previous instrumental deliveries, 2 were taken up for caesarean section in view of obstructed labour/ handled outside, 2 were taken up for caesarean section in view of cephalopelvic disproportion, 5 were taken up for caesarean section in view of malpresentation and malposition, 1 was taken up for caesarean section in view of previous complete perineal tear. The one patient who had previous two assisted breech delivery was taken up for caesarean section in view of footling breech in labour.

4) Indication for caesarean section

Table 5: Indication

Indications	No. of Patients	Percentage
CPD in labour	20	5.7 %
Obstructed labour	7	2.0 %
Failure to progress.	3	0.9 %
APH (abruption, placenta previa)	50	14.2 %
Failed induction, Unfavorable cervix	25	7.1 %
Maternal complications.	3	0.9 %
Malpresentations other than breech, and Malposition.	50	14.2 %
Brech presentation and associated complications.	39	11.1 %
twins and associated complications	11	3.1 %
Fetal heart rate abnormality	130	37 %
umbilical cord causes	13	3.7 %

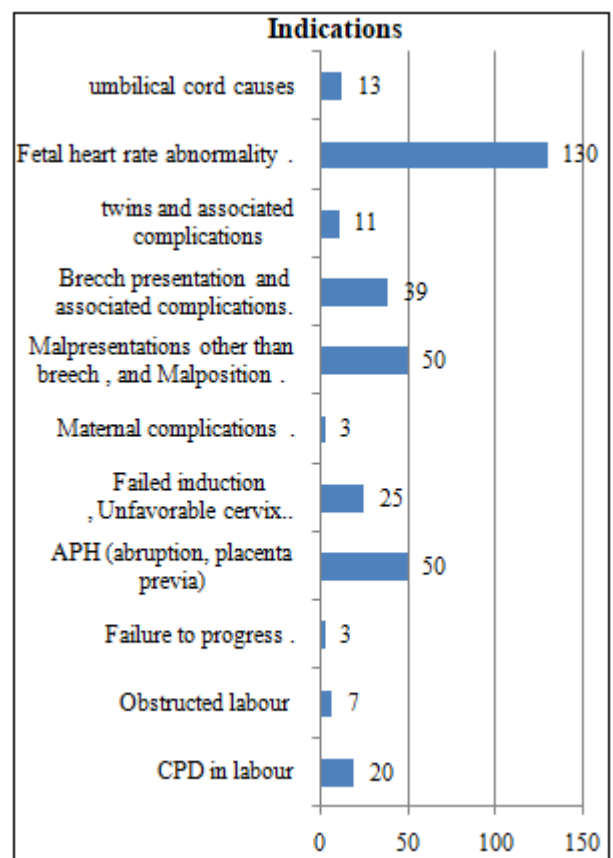


Figure 4: Indication

Among 351 cases of primary caesarean section in the multiparous women, the most common indication for caesarean section was fetal heart rate abnormalities which constitutes 37% (130/351 cases) 62 cases among them were referral in., Among these 130 cases, 46 babies admitted in SNN and 6 perinatal deaths reported. Timely Caesarean section saved those 124 babies. The second most indication for caesarean section were antepartum hemorrhage which includes 50 patients (14.2%) and malposition and malpresentations other than breech presentation which includes 50 patients (14.2%). Among these 50 cases of antepartum hemorrhage, 12 cases were abruption and rest of all were placenta previa. Among 50 cases of malposition and malpresentation, 15 cases were transverse lie, 13 cases were

oblique lie. This strongly supports the association of multiparity with both placenta previa and malpresentations. Among 351 cases of primary caesarean section in multiparous women, 13 had undergone surgery in view of umbilical cord causes. 3 patients had cord prolapsed and the remaining 10 was taken up for LSCS in view of cord presentation in labour. In the study conducted by Shazia Aftab et al⁷, on primary caesarean section in the multiparous women over a period of two years (200 cases), the most common indication for caesarean section was problem in labour pregression-20% (the second most common indication was fetal distress-20%, obstructed Labour 20%, antepartum hemorrhage-21%. In the study conducted by Neelam Rajput et al⁴, among 3061 cases of multiparous women, the most common indication for primary LSCS in multigravida patients was Malpresentation-29.79% followed by Fetal distress-18.39% patients, APH-18.39%, Obstructed labour-8.55%.

5) Modified Robsons Criteria

Table 6: Modified Robsons Criteria

MRC	No. of Patients	Percentage
MRC 3	152	43.3%
MRC 4a	18	5.1%
MRC4b	43	12.3%
MRC 7	40	11.4%
MRC 8	8	2.3%
MRC 8	30	8.5%
MRC 10	60	17.1%

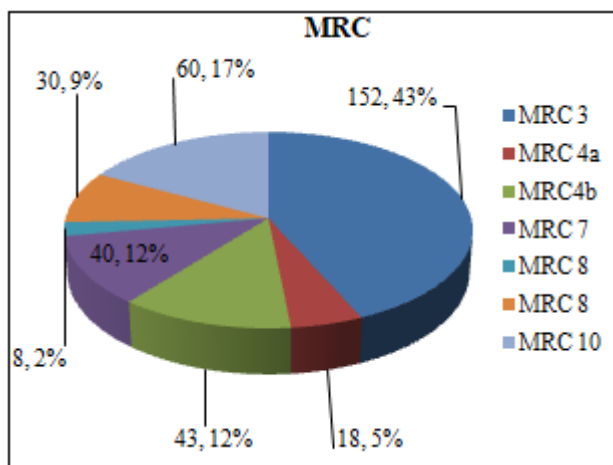


Figure 5: Modified Robsons Criteria

Most of the primary caesarean section in multiparous women was done under Modified robsons criteria 3- Indicating that maternal and fetal complications are high in multiparous women in own progression of labour. Hence a little amount of extra care should be given to all laboring multiparous women irrespective of previous baby birth weight, associated comorbidities, labour induced or not, Continuous electronic fetal heart rate monitoring should be done in needy.

6) Type of Caesarean section

Table 7: Type of caesarean section

Type of LSCS	No. of Patients	Percentage
Emergency LSCS	351	100 %
Elective LSCS	0	0

Among 351 cases of primary caesarean section among multiparous women in this study, all the 351 cases were taken up as emergency caesarean section. As the world faced covid pandemic in the year of 2020, Elective operation theaters in our institute were closed from the month of May 2020 to November 2020 (covid first wave). Hence all the caesarean sections done over a period between May 2020 to November 2020 were emergency caesarean section on the patient who got admitted through maternity casualty services.

7) Gestational Age Distribution

Table 8: Gestational age distribution

Gestational age	No. of patients	Percentage
> 37 weeks	286	81.5 %
28 weeks to 36wks + 6 days	65	18.5 %
<28 weeks	0	0 %

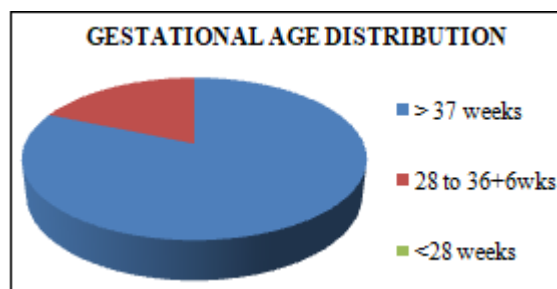


Figure 6: Gestational age distribution

Neelam Rajput et al⁴ reported in his study on primary caesarean section in multigravida in the year 2018 found that most the patients 59.33% (in our study 81.5 %) belong to gestational period of 37-40 weeks followed by (28.76%) period of 32-36 weeks. From this, it is well understood that preterm caesarean sections were strictly done in the situation of imminent fetal / maternal compromise making the caesarean section as unavoidable.

8) Induction and Agumentation

Table 9: Induction and Agumentation

Induction and agumentation	No. of patients	Percentage
No induction	330	94. %
PGE 2 gel induction	4	1.1%
PGE 2 induction and oxytocin agumentation	14	3.9 %
oxytocin induction and agumentation	2	0.5 %
PGE1 induction	1	0.28%

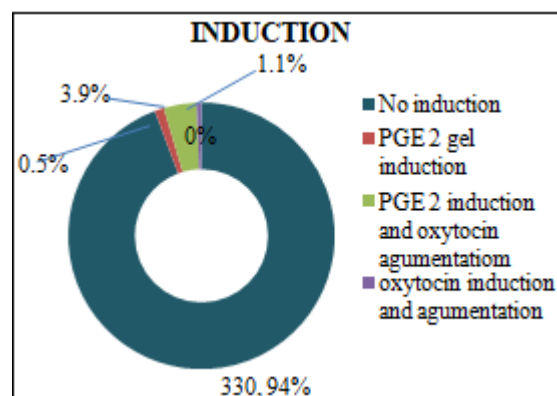


Figure 7: Induction and Agumentation

US Hangarga et al⁸ reported in his study on primary caesarean section in multigravida-6% of caesarean section was done in view of failed induction in multiparous women compared to 7.1 % in this study.

9) Induction Delivery Interval

Table 10: Induction-delivery interval

Induction-delivery interval	No. of patients	Percentage
6 to 8 hours	7	33.3%
8 to 12 hours	1	4.76%
>12 hours	13	61.9%

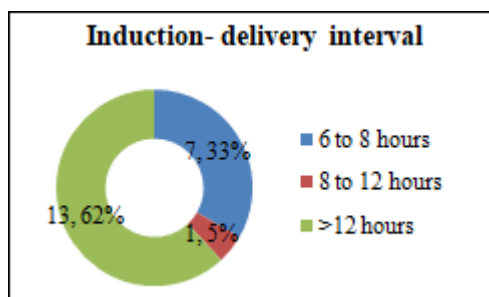


Figure 8: Induction-delivery interval

Among the 21 cases of primary caesarean section in multiparous women in whom labour was induced, the induction-delivery interval was between 6 to 8 hours in 7 cases, 8 to 12 hours in 1 case, >12 hours in 13 cases (taken for caesarean section in view of failed induction.)

10) Maternal Comorbidities

Table 11: Maternal comorbidities

Maternal comorbidities	No. of patients	Percentage
No associated comorbidities	183	52.1 %
Anemia	25	7.1 %
Hypertension	57	16.2 %
Diabetes mellitus	52	14.8 %
Heart disease	3	0.9%
Others-thyroid disorders, Intrahepatic cholestasis of pregnancy	31	8.8 %

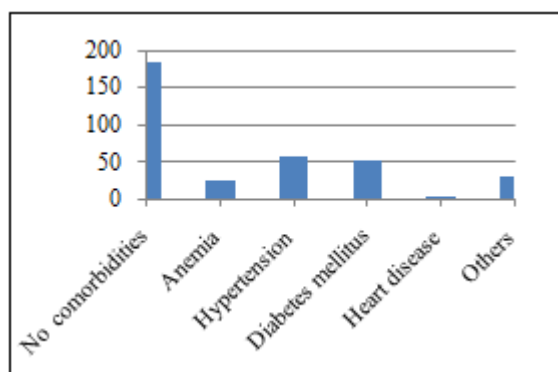


Figure 9: Maternal comorbidities

In a study conducted by Grishma P. Agrawal et al⁹, among 8766 deliveries, 18.5% had hypertensive disorders of pregnancy, 3.8% had diabetes mellitus (in this study-14.8 %), 2.3% had anemia.

11) Contraception

Table 12: Contraception

Contraception provided	No. of patients	Percentage
Permanent sterilization.	285	81.2%
PPIUCD	27	7.7 %
Other methods (CHHAYA tablets)	37	10.5%
Caesarean hysterectomy	2	0.6%

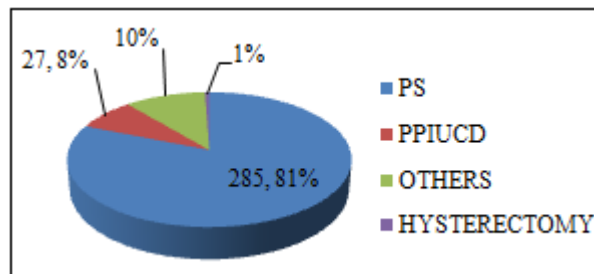


Figure 10: Contraception

Among 27 cases in whom post placental IUCD kept, 2 were taken up for LSCS in view of IUD, 5 were taken up for emergency LSCS before term in view of bleeding placenta previa. The rest 20 cases were kept IUCD as the babies got admitted in NICU. Among the 37 cases in whom neither permanent sterilization not PPIUC kept, 13 cases were taken up for LSCS in view of bleeding placenta previa, 1 case was obstructed labour, 9 cases were abruption with DIVC features, 2 cases were PPROM > 24 hours, 4 cases were IUD. In the rest 8 cases, babies admitted in SNN. All these patients were provided with oral contraceptives T. CHAYYA at the time of discharge and advised interval sterilization.

12) Baby Birth Weight Distribution

Table 13: Birth weight distribution

Birth weight	No. of babies	Percentage
less than /= 2 kg	38	10.8%
2.1 to 2.5 kg	78	22.2%
2.6 to 3 kg	119	33.9%
3.1 to 3.5 kg	79	22.5%
> 3.5 kg	37	10.5%

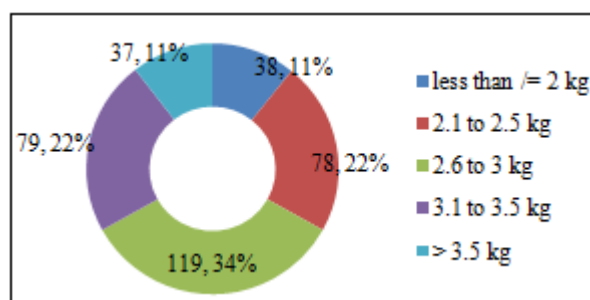


Figure 11: Birth weight distribution

In a study conducted by Grishma P et al⁹, among 130 cases of primary caesarean section in the multiparous women, 33 babies-25.4% weighed between 2.5 kg to 3 kg, 57 babies-43.8% were weighed below 2.5 kg, 31.8% weighed more than 3 kg.

13) Post- Operative Complications

Table 14: Postoperative complications

Outcome	No of patients	Percentage
No postoperative complications	321	91.5 %
Postoperative morbidity	30	8.5 %
Postoperative mortality	0	0 %

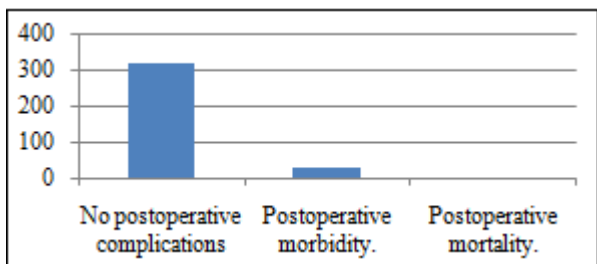


Figure 12: Postoperative complications

Among the 351 cases of primary caesarean section in multiparous women in this study, 321cases (91.5%) were discharged without any postnatal complications, 30 cases (8.5%) had postpartum complications-Abdominal distension-6 (1.7 %), Postpartum pyrexia-4 (1.1 %), Urinary tract infection-1 (0.28 %), Wound discharge-19 (5.41 %), Caesarean Hysterectomy-2. No maternal death was reported among these 351 cases. In the study conducted by SudeepaChaparala et al ¹⁰, among 450 cases, 91 (23.5%) cases had postpartum complications. Among these complications, postpartum pyrexia was reported in 10% of cases (in this study-1.1%), wound infection was reported in 3.33% abdominal distension was reported in 1.5%.

14) Neonatal Outcome

Table 15: Neonatal outcome

Neonatal outcome	No. of babies	No. of babies
Healthy newborn	216	61.5 %
SNN admission	104	29.6%
Perinatal mortality	18	5.1%
UD	13	3.7%

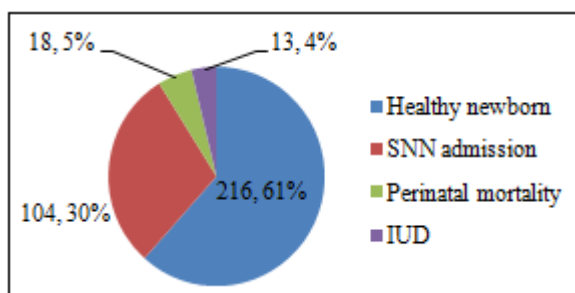


Figure 13: Neonatal outcome

Among 351 cases of primary caesarean section in multiparous women, 13 delivered babies (3.7%) were IUD.216 out of 351 babies were healthy babies (61.5%), cried soon after birth were breastfed within 1 to 1 ½ hour of delivery, and was on motherside till discharge.104 babies out of 351 cases were admitted in SNN. Among 351 babies, 18 perinatal deaths reported.

SNN Admission-Detailed Analysis: Among 13 LSCS done in view of cord presentation and cord prolapsed-9 cases

were admitted in SNN-7 babies discharged, 2 perinatal deaths reported. Among 130 LSCS done in view of fetal distress, 46 babies admitted in SNN, 40 babies discharged and 6 perinatal deaths reported. Among 7 LSCS in view of obstructed labour, 3 babies admitted in SNN and all the three babies discharged. Among 2 LSCS in view of PPRM/PROM > 24 hours, both the babies admitted in SNN and discharged. Among 12 LSCS done in view of abruptions, 9 IUDs-before surgery, 3 babies admitted in SNN and discharged. Among 38 LSCS done in view of placenta previa, 15 babies admitted in SNN, 11 babies discharged and 4 perinatal deaths reported. Among 351 babies, 18 perinatal deaths reported. In the study conducted by Madhva Prasad et al (31), in 2017, among 61 cases of primary caesarean section in multiparous women, NICU admission rate was 11.4% (in this study-29.3%), perinatal mortality was 2.8% (in this study-5.1%)

5. Conclusion

Prevention is better than cure

As mentioned above, all these 351 sections were done under unavoidable circumstances, to reduce primary Caesarean section in mutipara, it is better to concentrate on the multiparous women in the society pre conceptionally - educating the importance of family planning and during antenatal period-so as to prevent intrapartum complications. In developing countries, Multiparity is a problem associated with poor socioeconomic status, illiteracy, ignorance and lack of adequate knowledge about the family planning services, antenatal programs and policies. They are often neglected women having low attention of the family. As these multiparaoous women had two or more prior normal vaginal deliveries, their family as well as the patient herself are reluctant and less attentive to regular antenatal checkup. These leads to various complications such as anaemia, malnourishment underweight, small for gestation babies, malpresentations, placenta previa which are identified near third trimester as they seek medical services when these complications become obvious. This is the matter of concern. The solutions for these problems is to provide better education, educating the importance of family planning to improve the socioeconomic status, to create awareness on possible complications during pregnancy in all women especially high risk group, motivating the mother for routine antenatal checkups thus making early identification of high risks and to initiate management of these complications as early as possible, and targeting 100% institutional deliveries. Previous history of vaginal deliveries gives a false sense of security to the patients, attenders and even to the obstetricians. Multigravida who had previous successful deliveries may need caesarean section in the future pregnancy in view of maternal or fetal demand. Hence routine antenatal checkups and proper monitoring during intrapartum period improves both the maternal and fetal outcome with low caesarean section rates. Here, once again the words of De Lee should be remembered. **“Is it the art concerned with effecting the abnormal delivery from below in spite of possible danger to the mother or the infant or with the earlier abdominal delivery in order to safeguard both the mother and infant?”**

Gray areas to concentrate for better outcome:

Though Robsons ten group classification is accepted as a standard method, there are some practical difficulties and it stands as only a starting point in classifying women into groups which in turn needs further evaluation and audit. Periodic academic updates and improvising the institutional protocols based on new guidelines, primary caesarean section audit results, perinatal audit analysis results, maternal death audit analysis results and near miss audit analysis results-will help in the reduction of unwanted caesarean section and timely caesarean section in the needy. Defensive obstetrics is another new cause of raising primary caesarean section rates. Here caesarean sections are performed to avoid negligence claims. Though continuous electronic fetal heart rate monitoring in high risk mother is of significance, not all the babies whom had abnormal CTG are admitted at SNN. Clear interpretation of cardiocograph thus plays an important role. These two areas needs to be concentrated more to reduce the primary caesarean section rate.

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