International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Gori MI et al. Int J Reprod Contracept Obstet Gynecol. 2024 Nov;13(11):3130-3134
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20243163

Original Research Article

A study on primary caesarean section at tertiary care hospital

Mahejbin I. Gori*, Riddhi Akhani, Mosam R. Patal, Jalpa K. Bhatt

Department of Obstetrics and Gynecology, Dr. M. K. Shah Medical College, Hospital and Research Centre, Ahmedabad, Gujarat, India

Received: 01 June 2024
Revised: 04 October 2024
Accepted: 05 October 2024

***Correspondence:**
Dr. Mahejbin I. Gori,
E-mail: gori.mahejbin2@gmail.com

ABSTRACT

Background: Caesarean section represents the most significant operative intervention in obstetrics and its development and application has saved the lives of countless mothers and infants. However, there has been a steady increase in the rate of caesarean sections worldwide. In this study, we aim to find the primary caesarean section rates and strategies to cut it down.
Methods: A retrospective study was conducted at SMS Multispecialty Hospital and Dr. M. K. Shah Medical College and Research Centre from November 2022 to April 2023.The study include all the patients for primary caesarean section those patient have previous cesarean section were excluded.
Results: In this study the rate of primary caesarean section was found to be 14.5% and the majority of the study subjects belonged to the age group of 18-27 years (91.4%). With respect to parity, primigravida were high in number (85%), followed by multigravida. The number of emergency caesarean sections were (79%) more than elective (21%). The most common intra-operative complication was post-partum haemorrhage (PPH) in 8.5% and the most common postoperative complication was wound gape in 8.5%.
Conclusions: Maximum efforts should be made to allow progression of vaginal delivery in primigravida which helps us to bring down the primary caesarean rate.

Keywords: Caesarean section, Primigravida, Retrospective study

INTRODUCTION

Cesarean section is a surgery performed for various indications antenatal and intrapartum. The most common indications for primary caesarean delivery include, labor dystocia, abnormal or indeterminate, foetal heart rate tracing, foetal malpresentation, multiple gestation, and suspected foetal macrosomia.[1] Obstetrically indicated caesarean section (CS) definitely helps reduce perinatal morbidity and mortality, but it poses many health risks to the mother. Increased blood loss, injuries, and perioperative infections are a few immediate health risks. There are also life-threatening events like the possibility of scar rupture and placenta accreta spectrum in subsequent pregnancies.[2] Cesarean section rates are increasing all over the world to an extent that in certain centres in Brazil it has reached to 70-80%.[3] WHO declared that the acceptable overall cesarean rate for any region should not be more than 15%. However, in many countries cesarean section rate has increased steadily over one year.[4] According to the NFHS-5 survey, the present cesarean rate was 21.5% in India compared to NFHS-4 study where cesarean rate was 17.2%.[5]

These days cesarean section done on maternal request define as absence of any maternal or fetal indication, performed after 39 completed weeks of gestation or with verification of pulmonary maturity.[6] Unfortunately, such

cases are rising in the Indian subcontinent. It is difficult to compare the caesarean section rates based on particular indications as these should be individualized and it also differs in different hospital setups which provide different level of care. In 2001, WHO adopted Robson's classification as an audit tool to compare cesarean section rates amongst the delivering women who were grouped according to their obstetric characteristics.[7,8]

Various studies are done worldwide using Robson's Ten Group classification system for auditing the cesarean sections and the rates of caesarean section. The Caesarean Section done on primiparous women are the case of abnormal placentation and untoward complications in further pregnancies. phenomenal rise in the Assisted Reproductive Techniques (ART) due to rising rate of infertility and advanced maternal age has also led to increase in caesarean sections.[9]

However, studies have shown an increasing trend in caesarean section globally. Hence, this study was conducted to determine the various indications of primary Caesarean Section in a tertiary care hospital in Ahmedabad, Gujarat, India. The objectives of this study were 1) To study the indications for the primary caesarean sections in both primipara and multipara women's, 2) To study intra operative and post operative complications during and after primary caesarean section, 3) To study incidence of primary caesarean section in women's despite of their parity, 4) To study maternal outcomes after primary caesarean section, 5) To study the fetal outcomes in view of APGAR score, requirement of resuscitation, NICU admission, 6) Compare indications in terms of Robson's 10 criteria.

METHODS

The study was conducted as a Retrospective study at SMS Multispecialty Hospital and Dr. M. K. Shah Medical college and Research centre. It was a time bound study done from November 2022 to April 2023.

Inclusion criteria

The study includes all the patients for primary caesarean section. A case of primary caesarean section will be defined as a patient, who underwent cesarean section for the first time, in spite of whether she had delivered vaginally in previous pregnancy or her parity status.

Exclusion criteria

Those patients that have undergone previous caesarean section and patient not willing to participate in the study were excluded from the study.

During this study, patients were taken who are in active labour and admitted in labour room. Labour was assessed through partograph. If any abnormalities found in the partograph or by obstetricians advise, patient was planned and taken for primary caesarean section after informed and written consent. All the recruited women explained about the complete treatment procedure in their own language and her willingness to undergo the treatment and to participate in the study was recorded in a consent form dually signed by her and her responsible relative.

Following parameters were studied

Detail history of the patient was recorded with special reference to age, parity, menstrual history, obstetrical history and indication for primary caesarean section will be noted. Gestational age will be calculated from the first day of last menstrual cycle and ultrasonography. Indications of cesarean section noted. Intraoperative and postpartum complications noted. Fetal and maternal outcome noted. Neonatal stay noted.

Sample size and sampling method

As approximately 16-18 patients present every month requiring repeat cesarean section. A sample size of approximately 35 will be studied. Sampling method is by random selection.

Statistics analysis

SPSS (Statistical Package for Social Sciences) version 20.0 [IBM SPASS statistics (IBM corp. Armonk, NY, USA released 2011)] was used to perform the statistical analysis. Data was entered in the excel spread sheet. Descriptive statistics of the explanatory and outcome variables was calculated by mean, standard deviation for quantitative variables, frequency and proportions for qualitative variables.

Chi square test was used to determine any association between variables with significance level at 5% ($p<0.05$ considered to be statistically significant).

RESULTS

In this study the rate of primary caesarean section was found to be 14.5% and the majority of the study subjects belonged to the age group of 18-27 years (91.4%). With respect to parity, primigravida were high in number (85%), followed by multigravida. Majority of the study subjects had gestation age of 37-41 weeks (77%).

Primary caesarean section rate was higher in urban area (65.7%) as compared to rural area.

World Health Organization" has also endorsed Robson's classification as a "global standard" tool for the monitoring of caesarean section. The Robson's classification is known as "Ten Group Classification System (TGCS)", classifies caesarean section in ten groups according to different categories of the pregnancy, past obstetrical record, the course of labour and delivery, and the gestational age of the pregnancy.

Table 1: Characteristics of study participants.

Characteristics		Number (%)
Age (in years)	<20	2 (5.71)
	20-35	29 (82.8)
	>40	4 (11.4)
Area of residence	Urban	23 (65.7)
	Rural	12 (34.2)
Gravidity	Primigravida	23 (65.7)
	Multigravida	12 (34.2)
Parity	Nulliparous	26 (74.2)
	Multiparous	9 (25.7)
Gestational weeks	<37	7 (20)
	37-42	27 (77)
	>42	1 (2.85)
History of previous CS	Non	35 (100)
	1	0
	>1	0
Onset of labour	Spontaneous	21 (60)
	Induction	9 (25.7)
	Pre labour CS	5 (14.2)
Fetal presentation	Cephalic	29 (82.8)
	Breech	5 (14.2)
	Transverse lie	1 (2.85)
APGAR score	</=7	5 (14.28)
	>7	30 (85.71)
Birth weight (gm)	<2500	7 (20)
	2500-4000	27 (77.14)
	>4000	1 (2.85)

Table 2: Distribution of caesarean section in terms of Robson's TGCS.

Classification	Description of Robson's 10-groups classification	Number	Contribution made by each group to overall CS (%)
1	Nulliparous, single cephalic, ≥37 weeks, in spontaneous labour.	11	31.42
2	Nulliparous, single cephalic, ≥37 weeks, induced or caesarean section (CS) before labour.	12	34.28
3	Multiparous (excluding previous CS), single cephalic, ≥37 weeks, in spontaneous labour.	2	5.71
4	Multiparous (excluding previous CS), single cephalic, >37 weeks, induced or CS before labour	1	2.85
5	Previous CS, single cephalic, ≥ 37 weeks.	1	2.85
6	All nulliparous breeches.	3	8.57
7	All multiparous breeches (including previous CS).	2	5.71
8	All multiple pregnancies (including previous CS).	0	0
9	All abnormal lies (including previous CS).	1	2.85
10	All single cephalic, <37 weeks (including previous CS)	2	5.71

Table 3 shows indication of caesarean section, which shows the number of emergency caesarean sections were (79%) more than elective caesarean section (21%). The most common indication was fetal distress in 10 cases, followed by breech presentation in 5 cases, failure of induction in 4 cases, CPD in 3 cases, oligohydramnios, PIH, abruption placenta in 2 cases.

Table 4 shows the majority of the study subjects belonged to the age group of 18-27 years (91.4%).

Table 3: The indication of caesarean section.

Indication of CS	No. of patient	Percentage
Fetal distress	10	28.57
CPD	3	8.5
Breech presentation	5	14.28
Non progress of labour	1	2.8
Oligohydramnios	2	5.7
Precious pregnancy	1	2.8
Placenta previa	1	2.8
FOI	4	11.4
Pre elampsia/ PIH	2	5.7
Cord prolapse	1	2.8
Transverse lie	1	2.8
IUGR	1	2.8
Twin	1	2.8
Abruptio placenta	2	5.7

Table 4: Age distribution of the study participants.

Age	No. of patient	Percentage
20	2	5.6
21	9	25
22	2	5.6
23	9	25
24	5	14
25	3	8.4
26	2	5.6
27	2	5.6
36	2	5.6

Table 5: Incidence of caesarean section as per BMI.

BMI	No. of patient	Percentage
20	2	7.7
21	14	53.8
22	2	7.7
26	1	3.8
27	1	3.8
31	2	7.7
33	2	7.7
34	1	3.8
62	1	3.8

Tablet 6: Maternal complications.

Maternal complications	No. of patients	Percentage
PPH	3	8.5
Urinary tract and bladder trauma	1	2.8
Uterine injuries	1	2.8
Anemia requiring transfusion	2	5.7
Wound induration	1	2.8
Wound gap	3	8.5

Table 5 shows incidence of caesarean as per BMI, it shows higher incidence of caesarean section at extreme of BMI levels (very low as well as very high values).

The most common intra-operative complications were post-partum haemorrhage (PPH) in 8.5 % and the most common postoperative complication was wound gape in 8.5% (Table 6).

DISCUSSION

The CS rates have risen worldwide. As per the latest data of National Family Health Survey 2019-21 (NFHS-5), the CS rates at population level in India is 21.5% while according to NFHS 4 (2015-16) it was 17.2%.[10] In our study cesarean rate was found to be 14.5%. Among 91.4% of them were age between 18-27 years, while Samal et al reports 83.8% in same age group.[11] National family health survey found that cesarean section rate is higher in urban private hospitals (45%) than rural private hospital (38%). In this study, cesarean section rate in urban area (65.7%).

In this study, 79% of emergency cesarean section rate was performed which 21% were taken elective. Similar incidence was reported in Onankpa et al (80.6 and 19.4%).[12] The rate of cesarean section has increased. There are indication where performing cesarean section to prevent maternal and fetal morbidity and mortality like transverse lie in labour, placenta previa, DTA, brow presentation, cord prolapse, severe IUGR, severe PE, severe oligohydramnios with fetal compromise.

Foetal distress (28.57%) was the most common indication of primary cesarean section in our study. Similarly, Nair et al, Fahad et al, Bablad et al and Bamon et al, 2021 reported foetal distress to be most common indication of PCS (52%, 32%, 22% and 42.48% respectively).[13-16] Foetal distress is one of the very frequent indications of cesarean section in most studies. Labour is mostly monitored with the help of continuous electronic fetal monitoring. Thus more intensive monitoring by continuous electronic fetal monitoring and/or fetal scalp blood pH analysis led to immediate intervention and expedited birth. The wide spread use of continuous cardiotocography has caused an increase in the number of obstetric interventions, especially cesarean section. The rate of cesarean section also was seen to increase when cardiotocography was performed for low risk pregnancies. National Institute of Clinical Excellence (NICE), in its guidelines for cardiotocography monitoring, recommends intermittent monitoring for low risk labor and continuous cardiotocography monitoring for high risk labor.

In this study, PPH was found to be the most common maternal complication, which was similar to the findings observed in a study done by Datta et al, where PPH was seen in 5.2% of the study population.[9]

CONCLUSION

Maximum efforts should be made to allow progression of vaginal delivery in primigravida which helps us to bring down the primary caesarean rate born. The number of emergency caesarean were more than elective caesarean. Following evidence-based labour protocols, auditing all the caesarean, regular antenatal check-ups, appropriate use of cardiotocography and patient education will also contribute in reducing cesarean section.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Caughey AB, Cahill AG, Guise JM, Rouse DJ, American College of Obstetricians and Gynecologists. Safe prevention of the primary cesarean delivery. Ame J Obstetr Gynecol. 2014;210(3):179-93.
2. World Health Organization. Monitoring emergency obstetric care: a handbook. Geneva, Switzerland; 2009. Available at: https://www.who.int/publications/i/item/9789241547734. Accessed 01 May 2024.
3. Barros FC, Victora CE, Vaughan JP, Huttly SR. Epidemic of caesarean sections in Brazil. The Lancet. 1991;338(8760):167-9.
4. World Health Organization. Appropriate technology for birth. Lancet. 1985;2:436-43.
5. National family health survey (NFHS-4) 2012-14. Mumbai: International institute for population sciences (IIPS) and Macro International; 2009. Available at: http://www.rchiips.org/nfhs/nfhs4.shtml. Accessed 01 May 2024.
6. American College of Obstetricians and Gynecologists. ACOG committee opinion no 761: caesarean delivery on maternal request. Obstet Gynecol. 2019;133(1):e73-7.
7. Robson MS. Can we reduce the caesarean section rate?. Best Pract Res Clin Obstet Gynaecol. 2001;15(1):179-94.
8. In FW, Labour ID. Best practice advice on the 10-Group Classification System for cesarean deliveries. Int J Gynaecol Obstet. 2016;135(2):232-3.
9. Datta K, Singh P, Chopra N. Retrospective analysis of indications of primary caesarean sections done at a tertiary care hospital. Int J Reprod Contracept Obstet Gynecol.2019;8(8):3161-7.
10. Betran AP, Ye J, Moller AB, Souza JP, Zhang J. Trends and projections of caesarean section rates: global and regional estimates. BMJ Glob Heal. 2021;6(6):e005671.
11. Samal R, Palai P, Ghose S. Clinical study of primary caesarean section in multiparous women in a tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. 2016;5(5):1506-9.
12. Onankpa B, Ekele B. Fetal outcome following cesarean section in a university teaching hospital. J Nat Medi Associa. 2009;101(6):578-81.
13. Nair RV, Sowbharnika CP, Seetha PM. A clinical study on indication for cesarean section among primigravida in a tertiary care centre. Obstet Gynecol Rev. 2019;5(2):119-24.
14. Fahad A, Makhdoom T. The rate and indications of primary cesarean section at dubai Hospital, Dubai Health Authority, Dubai, UAE. Open J Obstet Gynecol. 2020;10(5):626-33.
15. Bablad A. Cesarean section in primiparous women: a retrospective study. J South Asian Fed Obstet Gynaecol. 2021;13(1):16.
16. Bamon W, Goswami SN, Roy I, Saikia N. A comparative study of primary caesarean section in primigravida and multigravida in a tertiary care hospital in Shillong. Meghalaya Sch Int J Obstet Gyn. 2021;4(6):225-40.
17. American College of Obstetricians and Gynecologists. Safe prevention of the primary cesarean delivery. Obstetric Care Consensus No. 1. Obstet Gynecol. 2014;123(3):693-711.
18. Kacerauskiene J, Bartuseviciene E, Railaite DR, Minkauskiene M, Bartusevicius A, Kliucinskas M, et al. Implementation of the Robson classification in clinical practice: Lithuania's experience. BMC Pregn Childb. 2017;17:1-5.
19. Martin JA, Hamilton BE, Osterman MJK, Curtin SC, Mathews TJ. Births: Final Data for 2012. Nat Vital Stat Rep. 2013;62(9):1-67.
20. Singh P, Hashmi G, Swain PK. High prevalence of caesarean section births in private sector health facilities- analysis of district level household survey-4 (DLHS-4) of India. BMC Publ Heal. 2018;18(613):2-10.
21. US Department of Health and Human Services, National Institute of Health. Caesarean child birth. Publication no. 82-2067;1981. 10.1097/AOG.0b013e3182952242.
22. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dasha JS. William obstetrics, "Cesarean Delivery." 24th ed. McGraw Hill Education; 2014:588.
23. Caesarean section, 7th edition;571, Renu Mishra, Nupur Guptha, Ian Donald.
24. Prameela RC, Farha A, Bhanumathi PM, Prajwal S. Analysis of caesarean section rate in a tertiary hospital according to Robson's ten group classification system. IOSR J Dent Med Sci. 2015;14(2):46-9.

Cite this article as: Gori MI, Akhani R, Patal MR, Bhatt K. A study on primary caesarean section at tertiary care hospital. Int J Reprod Contracept Obstet Gynecol 2024;13:3130-4.