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ORIGINAL RESEARCH

An audit of cesarean sections in Pt. J.N.M. Medical College & Dr. B.R.A.M. Hospital, Raipur

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ABSTRACT

Background: Over the past decades, there has been a steady rise in the rate of caesarean delivery. Although liberal decisions were taken for primary CS, lack of proper intrapartum monitoring of others, and multiple factors have contributed to this uptrend. The goal of cesarean delivery is to avoid the complications that might develop after vaginal delivery. However, this major surgery is not without significant impact on maternal and fetal outcomes. Maternal complications include the increased risk of postpartum hemorrhage, risk of hysterectomy, infection, and deep venous thrombosis, besides a longer hospital stay. **Methods:** This was a prospective observational study done in the department of obstetrics and gynecology at This study was conducted prospectively for a period of twelve months from May 2018 to April 2019 in the gynecology and obstetrics department of Pt. JNM Medical College associated with Dr. BRAM Hospital, Raipur (C.G.). It included all patients who underwent caesarean section. **Results:** In our study, the maximum number of patients were in group 1 (32.67%) according to Robson's classification, followed by group 5 (27.47%). **Conclusions:** In conclusion, the rate of caesarean delivery is trending up, and this has contributed to significant medical, social, and financial impacts on the involved families. The most common indication for CS is Robson's Group 1, followed by Robson's Group 5 (27.47%) CS. Therefore, the rate of CS can be controlled if CS is done in primigravidae with the genuine indication.

Keywords: Caesarean section, Robson classification, Maternal characteristics

INTRODUCTION

When we see the trends in cesarean sections, we can easily make out the fact that from ancient times until now, rates of cesarean sections keep on increasing. [1] Globally, the highest cesarean section rates are in Turkey (50.4%), followed by Mexico (45.2%) and Italy (36.1%), while the lowest rates are in the Netherlands (15.6%). [3] In an overall view, Latin America and Caribbean countries have the maximum rates (40.5%), northern America as well as Australia and New Zealand (32.3%) followed by Europe (25%) and the least rates in Africa (7.3%). In Asia (19.2%), it is the maximum in eastern Asia (34.8%), followed by western Asia (24.5%), in southeastern and south-central (14.8 and 11.4%), respectively. [2] In India, a rising trend in cesarean sections is observed from 2.9 in 1992-93 to 7.1 in 1998-99, 10.6 in 2005-06, and 17.2 in 2015-16. While maximum rates are from Telangana (55%), J&K (46%), and Goa (45.61%), the minimum is from Bihar (5.96%) and Jharkhand (8.18%). [3] With this much increase in rates of cesarean sections globally, there is an increase in maternal morbidity as well as mortality also. As cesarean sections pose women to infections and multiple blood transfusions and their associated complications, bedridden conditions, risk of deep vein thrombosis, anesthesia-related complications, and many more. WHO (1985) recommends an optimum cesarean section rate to be 10-15% globally, with no justification in any region of the world to have higher rates than this. [4] In order to reduce the rates and to address these issues, it is necessary to first carry out an audit to know the indications and reasons to know

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the causes for the increase in rates of cesarean sections. [5]

ROBSONS 10 group classification system

The proposal in 2001 classifies women delivered by cesarean section into ten groups based on their obstetric characteristics (parity, previous CS, gestational age, onset of labor, fetal presentation, and the number of fetuses). In 2011, WHO did a systematic review of all the available classification systems of cesarean sections and concluded that the Robson classification is best to standardize the cesarean section classification all over to study, compare, and monitor trends of CS in a consistent and action-oriented manner in the same setting over time as well as in different settings at one time. [6]

Since 2015, this has been well accepted and endorsed by WHO, although it hasn't been used very widely till now, but the CS rate is increasing rapidly and spontaneously worldwide. [7] The present study has been conducted to audit the indications of cesarean sections according to Robson's Ten Group Classification System. The objective of this audit study is to know the indications for rising trends of cesarean section in our institute so that it would enable us to reduce the cesarean section rates if appropriate and possible.

MATERIAL AND METHOD

This study was conducted prospectively for a period of eighteen months from December 2018 to May 2019 in the gynecology and obstetrics department of Pt. JNM Medical College associated with Dr. BRAM Hospital, Raipur (C.G.). It included all patients who underwent CS for one of the indications. A total of 3651 patients were included in the study. These patients were divided into ten groups according to the ROBSONS classification system by WHO. The data was collected from the hospital database. Data included maternal characteristics like age, parity, diseases associated with pregnancy like preeclampsia, indication of caesarean section, antenatal steroid cover, elective or emergency caesarean, and type of anesthesia under which the caesarean section was done. In our study, a total of 3651 L CSs were done. The data were analyzed by Statistical Package for Social Sciences (SPSS) version 25.0 software and described in terms of frequencies and percentages.

Table 1: Description of groupas per Robson classification

Group	Clinical characteristics
1	Nulliparous, single cephalic, ≥37 weeks, in spontaneous labor
2	Nulliparous, single cephalic, ≥37 weeks, induced or CS before labor
3	Multiparous (excluding previous CS), Single cephalic, ≥37 weeks, in spontaneous Labour
4	Multiparous (excluding previous CS), Single cephalic, ≥37 weeks, induced or CS before labour.
5	Previous CS, single cephalic, ≥37 weeks
6	All nulliparous breeches
7	All multiparous breeches
8	All multiple pregnancies (including previous
9	All abnormal lies (including previous CS)
10	All singe cephalic, ≤36 weeks (including previous CS)

RESULTS

In our study majority that is 1775 patients (48.62%) were in the age group 26 to 30 year as shown in (Table 2)

Table 2: Maternal characteristics.

Parameters		Number of LSCS (N=3651)	%
Age (years)	**<20**	**100**	**2.74**
	21-25	**1764**	**48.32**
	26-30	**1775**	**48.62**
	31-35	**8**	**0.22**
	>35	**4**	**0.11**
Parity	**P0**	1810	**49.6**
	P1	1522	**41.7**
	P2	**303**	**8.3**
	P3	**14**	**0.4**
	P4	**2**	**0.1**
Pre-eclampsia	**Yes**	**181**	**4.96**
	no	**3470**	**95.04**

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GDM		**3**	**0.1**
Previous caesarean	**Yes**	**1622**	**44.43**
	No	**2029**	**55.57**
Elective	**Yes**	**1412**	**38.68**
	No	**2239**	**61.32**
Anaesthesia	Spinal anaesthesia	**3523**	**96.5**
	General anaesthesia	**125**	**3.4**
	Mixed	**3**	**0.1**

In our study majority of the women were P0, 1810 (49.6%) followed by P1,1522 (41.7%) as shown in (Table 2). 181 (4.96%) women had pre-eclampsia as shown in (Table 2). About 3 (0.08%) patients who underwent caesarean had gestational diabetes in our study as shown in (Table 2). In our study 1622 women (44.43%) had history of previous caesarean and 2029 women (55.57) had no history of previous caesarean. In our study 1412 (38.68%) women underwent elective caesarean and 2029 (61.32%) women underwent emergency caesarean as shown in (Table 2). As shown in (Table 2), 3523 (96.5%) underwent caesarean under spinal anaesthesia while only 125 patients (3.4%) underwent caesarean under General anaesthesia and mixed anesthesia 3(0.15%)

Table 3: Distribution of patients in groups as per Robson classification.

Groups	N	%
1	**1193**	**32.67**
2	**47**	**1.25**
3	**588**	**16.1**
4	**31**	**0.84**
5	**1003**	**27.47**
6	**111**	**3.04**
7	**58**	**1.59**
8	**43**	**1.2**
9	**34**	**0.93**
10	**543**	**14.9**

In our study we got 1193 patients in group1, 47 patients in group 2,588 patients in group 3, 31 in group 4, 1003 in group 5, 111 in group 6, 58 in group 7, 43 in group 8, 34 in group 9 and 34 in group 10 as shown in (Table 3). So, the most common indication for CS was group 1 accounting for 1193 (32.67%) patients.

DISCUSSION

The study **"An audit of cesarean sections in Pt. J.N.M. Medical College & Dr. B.R.A.M. Hospital, Raipur"** was a prospective study conducted from May 2018 to April 2019 with the aim to assess the various indications for cesarean sections and their justification. During the study period, all the patients who underwent CS were included in our study, and data were collected. In the present study, we have tried to classify all CS according to Robson's Ten Group Classification System, which will be discussed along with all other variabilities studied.

In our study, the majority of the women were nearly half. 49.6% (1810/3651) cesarean sections were performed in parity 0, followed by 41.7% (1522/3651) parity 1 and 8.3% (303/3651) in parity 2. As the parity increases, the c-section rate reduces. Only 0.4% (14/3651) were para-3 and 0.1% (2/3651) were para-4. In a study conducted by Badge VL et al., 36 (40%) women were primipara and 54 (60%) women were multipara. [8]

In our study, 181 (4.96%) women had preeclampsia, and 160 (93.1%) did not have preeclampsia, as shown in Table 2. Preeclampsia accounted for 15.4% of all CS in a study done by Kritpol et al. [9-10] About 3 (0.1%) patients who underwent cesarean had gestational diabetes in our study, as shown in Table 2. In our study, 1622 women (44.43%) had a history of previous cesarean, and 2029 women (55.57%) had no history of previous cesarean. The main indication for CS delivery was previous CS delivery (43%) in a study conducted by Khasawneh et al. [11]

As our institute is a referral center, it receives many referred cases from the periphery who present with obstetric complications that require immediate intervention. So there are more cases from rural areas as compared to cases from urban areas. It was observed that the CS rate was higher in patients who had not received antenatal care and presented with complications that required immediate intervention for delivery. Proper antenatal care throughout the pregnancy can prevent or treat the maternal and fetal

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complications, and timely management can help in reducing the operative delivery.

Literacy can help in reducing the cesarean section rate or help in improving the maternal outcome. The education of patients plays an important role in improving the health care of 112 women, especially in pregnancy, as it changes the health care-seeking behavior. The reason for the maximum number of cases being operated on in the latent phase of labour is that these cases developed complications in the latent phase only, as previous uterine scar cases had scar tenderness, severe oligohydramnios due to PROM, fetal distress with meconium-stained liquor, nonassuring NST, hypertensive disorder of pregnancy, and loop of cord around neck, and were willing for cesarean delivery, etc.

In our study, 1412 (38.68%) women underwent elective cesarean, and 2029 (61.32%) women underwent emergency cesarean, as shown in Table 2. In a study done by Sharma et al., the total number of elective caesarean sections was 112 (33.9%), and emergency caesarean sections were 218 (66.1%). [9]

In our study, 3523 (96.5%) underwent cesarean under spinal anesthesia, while only 125 patients (3.4%) underwent cesarean under general anesthesia and mixed anesthesia (3% or 0.15%). The Royal College of Anaesthetists audit book suggests that fewer than 15% of emergency and fewer than 5% of elective Caesarean sections should be performed under general anaesthesia. However, published departmental audits have reported rates of 9-23%. [12] In our study, we got 1193 patients in group 1, 47 patients in group 2, 588 patients in group 3, 31 in group 4, 1003 in group 5, 111 in group 6, 58 in group 7, 43 in group 8, 34 in group 9, and 34 in group 10, as shown in Table 3. So, the most common indication for CS was group 1, accounting for 1193 (32.67%) patients. In a study done by Wahane et al., Robson Group 1 (24.5%) had the greatest representation, followed by Group 5 (21.27%) and Group 3 (14.18%). While Groups 6 (10.13%) and 9 (0.63%) had the least representation. [10] **Prabhavati V. et al. (2018) [13]** found that the major contributor to CS group 5 (41.3%) was followed by group 2 (27.64%), then group 1 (20.6%), group 3 (4.34%), group 4 (3.31%), and groups 6 & 7 (1.08% each).

CONCLUSION

In our study, an audit was done according to Robson's Ten Group Classification System, and we found that the major contributor was group 1 (nullipara, singleton, cephalic, >37 weeks, spontaneous labor), i.e., 32.67%, followed by group 5 (multipara with one previous uterine scar, single cephalic pregnancy) 25.77%, which signifies the value of evidence-based decisions for primary cesarean as well as promoting vaginal birth after cesarean in women with previous uterine scar. To lower the rate of cesarean sections, it is recommended to make careful and judicious decisions about primary cesarean deliveries, as the majority of women who underwent cesarean sections had a history of previous uterine scars. Primary cesarean section determines the future obstetric course of a woman in consecutive pregnancies, so its decision and surgery should be done by an experienced surgeon following proper surgical techniques to give a good uterine scar and to avoid the need for repeat cesarean sections for the women in future pregnancies. Regular auditing will help with the same.

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