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Original Research Article

CAESAREAN AUDIT USING ROBSONS CLASSIFICATION SYSTEM AT A TERTIARY HOSPITAL IN ANDHRA PRADESH

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ABSTRACT

OBJECTIVE

To curb rising trend of cesarean births: Implementing C-section audit at facility level is one of the effective non clinical interventions to curb the rising trend of cesarean births and forms an integral part of LaQshya initiative. Operationalization of C Section audit and implementing corrective & preventive actions for ensuring that C' Sections arc undertaken judiciously in those cases having robust clinical indications forms one of the key process interventions under LaQshya

AIM

To audit cesarean sections using robsons ten group classification system.

Methodology

This retrospective study was conducted for 5months from January to June 2023, in Department of OBG, King George Hospital, Visakhapatnam. Data of patients who delivered by CS during this period were recorded and categorized in the 10 groups of TGCS. The size of each group, CS rate, and contribution of each group toward overall CS were calculated.

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RESULT

Total number of deliveries were 2185 during the study period, of which c section was done in 1350 deliveries with a caesarean rate of 61.78% in our institute. In our study group 5 was the major contributor to the overall caesarean section rate followed by group 2 and 1. Primary CS rate is higher than the repeat CS rate. Increasing trend in caesarean section rate is observed in group 1, 2 and 5. In order to reduce CS rate among group 2 better patient selection for induction of labor based on Bishop Score. To reduce CS rate among group 5 more TOLACs has to be encouraged.

INTRODUCTION

High caesarean birth rate is an issue of international public health concern. The caesarean section (CS) rate has risen from 5% in 1940 -1950s to 15% in 1970 -1980s.[1] But during last 3 decades there has been a dramatic rise in CS rate worldwide which now exceeds 30% in some regions[1]. Although CS is a lifesaving procedure for the fetus, the mother, or both in certain cases, it should be done under ideal conditions with a valid obstetrical indication.[2] Unindicated CS without evidence of concomitant disease increases maternal or neonatal morbidity and mortality and should be avoided to minimize its implications in the index or future pregnancies, as well as to reduce the burden of cost on the healthcare system.[3]

In India, the proportion of cesarean deliveries has dramatically increased to 17% (2015-16) and 21.5% (2019-21) from just 3% in 1992-93.[4,9]

In 2015, with reference to CS rates the WHO issued an official statement and promoting the use of the Robson classification as a tool for optimizing the CS rate at health facilities.[2]

In general, CS is more valuable to healthcare system and is associated with increased risk for both mother and baby.[1] It has the potential to complicate subsequent pregnancies as well as long-term effects that are still being investigated. The complications such as uterine rupture, abnormalities in placental attachment touteruseg. placenta accrete andpercreta, which were strangely rare earlier, are now becoming very common obstetric emergencies.[7]

It has been observed from an ecological study that CS rates higher than around 10% are not associated with substantial decreases in maternal and neonatal mortality rates.[2]

The main objectives of our study are to find the prevalence rate of CS, auditing the data on the basis of modified Robson criteria, factors responsible for the most common group, to know the changing trends of CS and finally put forth the strategies to reduce CS rate in our hospital.

MATERIALS AND METHODS

Study design and participants

The present retrospective observational study has been carried out in the Department of Obstetrics and Gynecology, KingGeorge Hospital, Visakhapatnam. All the women delivered by caesarean section from 1/1/2023 to 31/06/2023 in antenatal ward were included for the study.

The obstetric information such as parity, mode of previous deliveries, previous CS indications, gestational age, onset of labour, spontaneous or induced labour was taken from all the women

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who underwent CS in our hospital. Patients were classified on the basis of indications for CS using modified Robson's criteria.

Indications for each CS were noted in the structured proforma prepared on the basis of modified Robson's criteria.

A total of 2185 cases were distributed according to the modified ROBSONS criteria and data was analysed.

Inclusion and Exclusion Criteria

Patients who delivered by CS during the given period were included in this study. Term and preterm normal or instrumental vaginally delivered patients were excluded from this study.

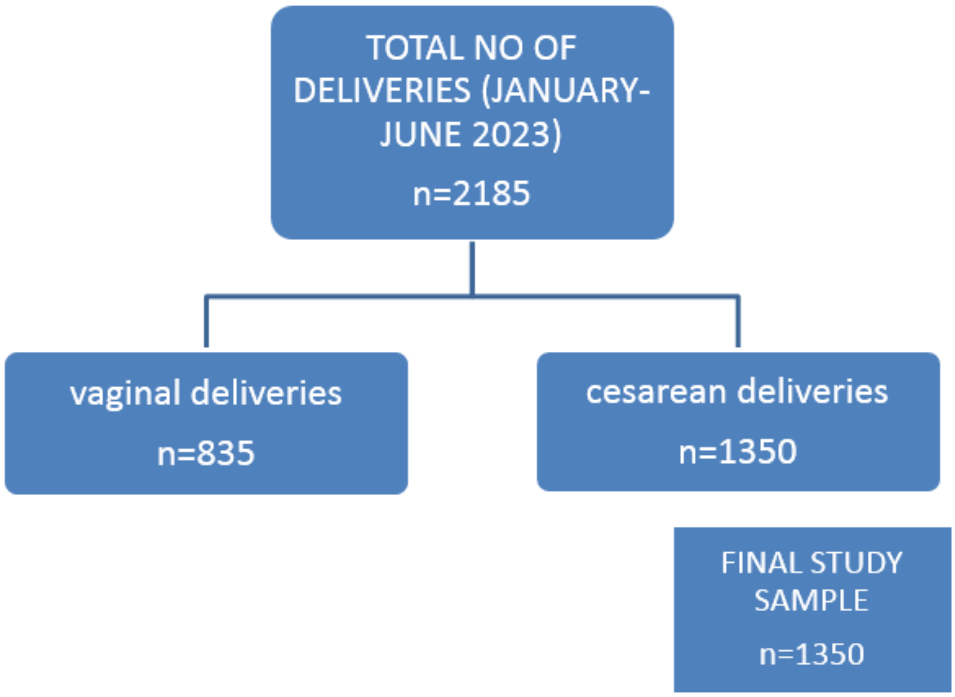

Figure 1 - Sample Selection

Study Setting

King George Hospital, Visakhapatnam is a tertiary care hospital with a superspeciality department and is the main referral center for complicated cases (pregnancy with complicated heart diseases, hepatic and renal diseases, in addition to all other high-risk pregnancies) from private, primary, and secondary health institutions in northern Andhra Pradesh and orissa.

Study Procedure

In this study, 1350 cesarean deliveries during the 6 month study period were categorized in the 10 groups of TGCS, as shown in Table 1. Relevant information regarding each CS case was obtained from the hospital records of the medical record section, and the total number of

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deliveries was matched with the labor room record. A proforma was designed and details of each CS case was entered (age, parity, mode of previous deliveries, gestational age, number of fetuses, fetal presentation, previous CS and its indications, the onset of labor).

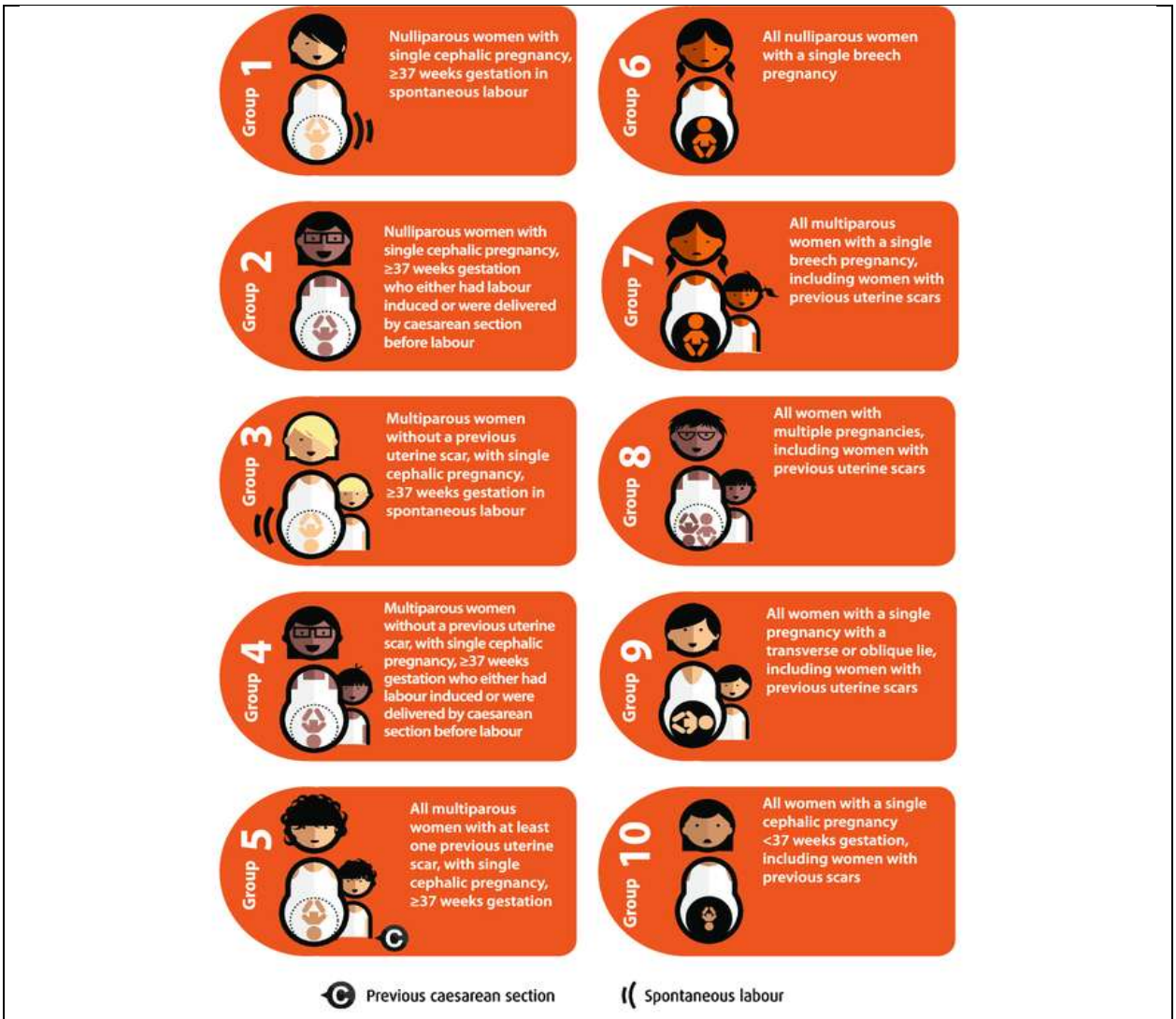

Figure 2 - Robsons Ten Group Classification

Statistical analysis

Data of individual cases were entered in a Microsoft Excel spreadsheet, and the final analysis was done using SPSS software, version 21. Categorical variables were presented as numbers and percentages (%). On the other hand, quantitative data were presented as the means ± standard deviation (SD). The chi-square test was used to analyze the statistical significance of the differences in the numbers of CS between the different Robson groups. The size of each Robson group, CS rate, and the contribution of each group toward overall CS were calculated. Indications of CS in each group were analyzed, and strategies were planned to optimize the use of CS.

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RESULTS

Of the 2,185 deliveries during the study period, the number of CS was 1350, with a CS rate of 61.78% in our institute. Out of these, elective CS was 21.8% and emergency CS was 78.22%.

In our study, group 5 (multiparous with prior CS, singleton, cephalic, ≥37 weeks) were the highest contributors to the overall CS rate, contributing 35.26% of all CS and 21.78% to all deliveries. Group 2 (nulliparous, singleton, cephalic, ≥37 weeks, induced labor or CS before labor) were the second highest contributors, contributing 23% to the overall CS and 14.18% to all deliveries. The third highest contributors were single cephalic nulliparous women at term and in spontaneous labor (group 1) contributing 16.2% to the overall CS rate and 10.02% of all deliveries. The fourth highest contributors were singleton, cephalic, ≤36 weeks, including previous CS (group 10) contributing 8.1% to the overall CS rate and 4.98% of all deliveries. The remaining groups (groups 3, 4, 6, 7, 8, and 9) contributed 17.4% of all CS and 10.64% of total deliveries. The Chi-square test showed that the CS rate was significantly higher in groups 5, 2, and 1 compared to other Robson groups (p-value < 0.0001).

Distribution of CSby Different Subgroups of Ten Group Classification System

N = total number of CS in each group of TGCS;
N1 = contribution of each group to total CS (%) = N/total CS×100;
N2 = contribution of each group to total birth (%) =N/total deliveries×100.

Robson's Group	N	N1	N2
5	476	35.26%	21.78%
2	310	23%	14.18%
1	219	16.2%	10.02%
10	109	8.1%	4.98%
3	93	6.9%	4.2%
7	42	3.1%	1.9%
6	34	2.5%	1.5%
8	32	2.3%	1.46%
4	26	1.9%	1.18%
9	9	0.7%	0.4%

Table 1: distribution of CS by different subgroups of TGCS

Indications for CS in Various Groups

Group 5	Previous 1 CS not suitable for VBAC Not willing for VBAC With failed VBAC Previous 2 or more CS
Group 2	Fetal distress

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	Arrest of labor Failed induction
Group 1	Fetal distress Arrest of labor CPD APH
Group 10	Fetal distress Transverse/oblique lie Heart disease complicating pregnancy Previous CS Severe preeclampsia/eclampsia APH
Group 3	Fetal distress Arrest of labour CPD Transverse / oblique lie
Group 7	Multiparous breech Fetal distress
Group 6	Nulliparous breech
Group 8	Malpresentation Previous CS
Group 4	Fetal distress Failed induction CPD
Group 9	Transverse lie/ oblique lie

Table 2: Indications for CS in Various Groups

DISCUSSION

The Robson's classification, designed in 2001, is often referred to as the 'Ten Group Classification System (TGCS)', as it divides Caesarean Sections into ten groups based on the gestational age of the pregnancy, several pregnancy-related characteristics (parity, position, presentation, etc.), prior obstetrical history, and labour and delivery procedures and allows identification of the groups that contributed the most to the overall CS.[5] It was officially endorsed by WHO in 2015 as the gold standard to monitor Caesarean Sections.[2]

Analyzing the Cesarean Section (CS) rate is crucial in determining the quality of maternal healthcare and ensuring the safety of both the mother and the child during childbirth.[1] The objective of this study is to determine the CS rate and investigate the factors contributing to it in the tertiary care hospital and compare it with hospitals in similar setting, with the aim of identifying strategies to improve the quality and safety of maternal healthcare.increase in

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institutional births and other factors like increasing trend of women opting for c section are one of the main reasons for growing c section rates.[11,12]

Although WHO has proposed that at population level c-section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates, rate of c-section in our hospital is 62%.[4]But our higher rates reflect hospital section rate and not the population section rate. The reason for this high rate was because ours is a referral center which receives complicated pregnancies from peripheries.

The highest contributor was group 5, which consisted of women with previous cesarean section, singleton, cephalic, ≥37 weeks' gestation. Previous history of CS being the major indication for CS highlights the importance of promoting vaginal birth after cesarean (VBAC) in eligible women to reduce the rate of repeat CS.[6] The American College of Obstetricians and Gynecologists recommends VBAC as a safe and appropriate option for most women with a previous CS.

The second highest contributor was group 2, which consisted of nulliparous, single cephalic, ≥37 weeks who were either induced or had CS before labourfollowed by groups 1, 10, and 3. The incidence of primary CS was more than repeat CS in our institute. The main indications of CS among the primary group were fetal distress, failed induction, arrest of labor, and mal-presentation.

Reduction in the rate of primary CS will further reduce the incidence of previous CS and the overall CS rate. The rate of primary CS and CS among other major contributors (groups 2, 1, and 10) can be reduced by adopting different approaches for each indication.

CONCLUSION

ROBSONS 10 group classification system is easy to use and helps us to identify the target groups responsible for rising trends of c-section. This helps to reanalyse our protocols and to plan new strategies to reduce c-section rates.

"Caesarean section rates should no longer be thought of as being too high or too low, but rather whether they are appropriate or not, after taking into consideration all the relevant information." Dr. Michael Robson.

Hence every effort should be made to provide c-section to women in need, rather than striving to achieve a specific rate.

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