

Analysis of Caesarean Section Rate According to Robson Classification in a Tertiary Care HospitalAkhila Raj¹, Nagaraja N², Md Rasheed³, Charu Jain⁴, Tania Singh⁵^{1,2,3,4,5}Department of Obstetrics & Gynaecology, Command Hospital Air force, Bangalore

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Conflict of interest: Nil

Abstract**Background:** The Robson classification also known as the 10 groups classification (TGCS) system is a global standard for assessing, monitoring and comparing caesarean section rates.**Aim:** The aim of the present study was to calculate the overall caesarean section rate and to identify group that contributed most to the overall caesarean section rate and to analyse caesarean rate within groups in our institute.**Methods:** A retrospective observational study conducted for a period of 1 year from June 2022 to Dec 2023. All pregnant women with gestational age of more than 28 weeks were classified according to Robson's classification.**Results:** The overall caesarean section rate was 42.6 %. Group 5, all multiparous women with at least one previous uterine scar, with a single cephalic pregnancy, > 37 weeks gestation was the largest contributor to overall caesarean section rate (19.74%)**Conclusion:** Women with previous caesarean contribute to majority of cesarean section rates. Proper and strictly adherent labor protocols can reduce cesarean section rates among nullipara thereby reducing numbers in group 5 in future.**Keywords:** Robson Classification, Caesarean Section.

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Introduction

Rising caesarean section rates have been observed worldwide in recent decades. World Health Organization advises that Caesarean Section (CS) rates should not be more than 15%, with some evidence that CS rates above 15% are not associated with additional reduction in maternal and neonatal mortality and morbidity. [1] Caesarean delivery has higher maternal risks for the current and subsequent pregnancies compared with spontaneous vaginal birth. [2]. For the neonate, it offers lower rates of birth trauma and still birth but greater rates of initial respiratory difficulties. [1] Several reasons can explain variations in institutional rates of CS. These include the inherent differences in patient characteristics, type of institution and available resources. In addition, institutional differences in obstetric practice and pregnancy and labor management protocols can account for this variation [3] The WHO statement (Geneva 2014) proposes the use of "Robson's ten group classification system" as the global standard for assessing, monitoring and comparing caesarean section rates within health care facilities. Main strengths of the Robson classification are the simplicity of its design, the validity of its purpose,

its ease of implementation and directness of initial interpretation [5] The aim of the present study was to calculate the overall caesarean section rate and to identify group that contributed most to the overall caesarean section rate and to analyse caesarean rate within groups in our institute.

Materials and methods

This study was performed in Command Hospital Airforce, Bangalore from a period of one year from June 2022 to Dec 2023. All pregnant women with gestational age of more than 28 weeks who delivered within this period were included.

Women were classified in 10 groups according to Robson's classification. For each group, we calculated its relative size and its contribution to overall caesarean rate. [6] All women were classified according to "Robson's ten group classification system" as follows

1. Nulliparous women with a single cephalic pregnancy, > 37 weeks gestation in spontaneous labour.
2. Nulliparous women with a single cephalic pregnancy, > 37 weeks gestation who either

- had labor induced or were delivered by cesarean section before labour.
- Multiparous women without a previous uterine scar, with a single cephalic pregnancy, > 37 weeks gestation in spontaneous labour.
 - Multiparous women without a previous uterine scar, with a single cephalic pregnancy, > 37 weeks gestation who either had labor induced or were delivered by cesarean section before labour.
 - All multiparous women with at least one previous uterine scar, with a single cephalic pregnancy, > 37 weeks gestation
 - All nulliparous women with a single breech pregnancy.
 - All multiparous women with a single breech pregnancy, including women with previous uterine scars.
 - All women with multiple pregnancies, including women with previous uterine scars.
 - All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars.
 - All women with a single cephalic pregnancy, < 37 weeks gestation including women with previous uterine scars.

Results

Table 1:

Group Definition	Number Of Cs/Total Women 591/1387(42.6%)	Size Of Each Group (%)	Cs Rate In Each Group (%)	Absolute Contribution Of Group (%)
1	32/215 14.88%	215/1387 15.50	14.88	32/1387 2.3
2	91/261 28.24	261/1387 18.8	28.24	91/1387 6.56
3	7/230 3.04	230/1387 16.5	3.04	7/1387 0.50
4	12/174 6.89	174/1387 12.5	6.89	12/1387 0.86
5	274/279 98.2	279/1387 20.1	98.2	274/1387 19.74
6	17/17 100	17/1387 1.22	100	17/1387 1.22
7	9/11 81.81	9/1387 0.64	81.81	9/1387 0.64
8	44/50 88	50/1387 3.60	88	44/1387 3.17
9	10/10 100	10/1387 0.72	100	10/1387 0.72
10	83/130 63.84	130/1387 9.37	63.84	83/1387 5.9

The total number of deliveries during this period was 1387 .Out of that CS deliveries were 591 ie 42.6%.

Robson classification report table shows that most of the obstetric population was represented by multiparous women with at least one previous section and single pregnancy in cephalic presentation, > 37 weeks gestation i.e. group 5(19.74%) and the size of the group was 20.1%

It can be appreciated from the table group 5, which consists of multiparous women, with at least one previous section and single pregnancy in cephalic presentation at term, was the largest contributor to overall caesarean section rate followed by group 2 and 10

Discussion

According to present study the caesarean section rate in our hospital was 42.6%; which is higher than reported by RC Prameela et al (29.33%) and by Sidara Gilani et al (33.3%) in their studies conducted in a tertiary hospital Mysuru, Karnataka, India and in Pakistan respectively [7,8] Latin America and the Caribbean, rates are as high as 4 in 10 (43%) of all births. In five countries (Dominican Republic, Brazil, Cyprus, Egypt and Turkey), caesarean sections now outnumber vaginal deliveries. [9]

Command Hospital Airforce is a tertiary care hospital in South India with well-equipped OT facilities, trained obstetricians and NICU facility. We receive many unbooked cases, high risk pregnancies and referrals from peripheral hospitals which explains the high caesarean rate.

The caesarean rate of Group 1,2,3 and 4 was 14.88%,28.24%,3.04%, and 6.89% respectively. The most common reasons were foetal distress, secondary arrest of descent of head, severe preeclampsia with imminent eclampsia, stage 2 and stage 3 FGR and other complications like placenta previa and Abruptio placenta.

The rate of caesarean section for group 5 was 98.2%.Being a tertiary care hospital, all patients in Group 5 ie multiparous women with at least one previous uterine scar with a single cephalic pregnancy > 37 weeks TOLAC were assessed with TOLAC checklist [10].Those who fulfilled the criterias were given TOLAC after obtaining the consent and there were 5 successful VBAC during the period of the study.

The caesarean section rate for multiparous breech was 81%.ECV was tried after explaining the risks to patients and they were planned for vaginal delivery or taken up for CS depending upon ECV status. We follow trial of instrumental deliveries whenever possible and strictly follow WHO labour care guide for the progression of labour to reduce Primi caesarean rate.

Conclusion

Robson's ten group classification system helps us to identify the main groups of subjects who contribute most to the overall CS rate.

In our study women with previous caesarean contribute to majority of cesarean section rates Young obstetricians should be trained enough to conduct operative vaginal deliveries, VBAC and breech. Improved case selection for induction and prelabour caesarean section could also reduce caesarean section rates.

Proper and strictly adherent labor protocols can reduce cesarean section rates among nullipara thereby reducing numbers in group 5 in future.

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