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Original Research Article

Analysis of caesarean sections with the Robson's ten group classification system

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ABSTRACT

Background: Caesarean section rates are increasing globally. For feedback and audit of the caesarean section rate and its optimization in clinical setups worldwide, there was a lack of a classification tool that can be used internationally for which WHO recommended the Robson classification as a tool for monitoring and auditing caesarean delivery rates in 2016.
Methods: All women who underwent caesarean section in our institute were included in our study. Exclusion criteria include all mothers who underwent vaginal delivery in our institute and those women with missing records. The study population included 82 women who underwent caesarean in our hospital during the January 2022 to December 2022 period.
Results: History of previous section was seen in 45 (54.88%) women. Distribution of all deliveries performed during the study period in accordance to Robsons criteria showed majority of women (29.7%) belonged to category 5a and category 10, followed 21 (25.61%) women in category 1. Data did not categorize any women in category 3 and 7. The most common indication for caesarean seen in our study was previous LSCS seen in 39 (47.56%) women.
Conclusions: According to Robsons criteria group 5 and group 10 were the groups found to be majorly contributing the most to the caesarean section in our study. There is a need to evaluate existing management protocols and further studies need to be conducted into the indications of CS and outcomes in our setting are needed to design tailored strategies and improve outcomes.

Keywords: Caesarean section/delivery, Robsons

INTRODUCTION

Caesarean section rates are increasing globally. The factors contributing to this increase are complex, and identifying interventions to address them is challenging. Non-clinical interventions are applied independently of a clinical encounter between a health provider and apatient.[1] A significant proportion of healthy women undergo CS unnecessarily despite the increased risk of serious maternal outcomes with the procedure, and counter to the recommendation to perform it only when the benefits anticipated are clear and offset the increased cost and additional risk associated with the operation.[2] The caesarean rate of higher than 10-15%, in the absence of any clinical justification does not reduce infant and maternal mortality rate worldwide.[3]

For feedback and audit of the C/S rate and its optimization in clinical setups worldwide, there was a lack of a classification tool that can be used internationally.[4] Multiple factors account for that increase and the Robson classification is appropriate to compare determinants at the clinical level for caesarean section rates over time.[5] To safely reduce the increasing prevalence of CDs, the World Health Organization (WHO) recommended the Robson classification as a tool for monitoring and auditing CD rates in 2016.[6] The classification uses 6 basic obstetrical variables (parity, previous CD, onset of labour, gestational

age, number of fetuses, fetal lie, and presentation) to classify each woman into 1 of 10 groups.

Moreover, this classification system allows for the comparison of differing geographic settings in a time series. Any differences in the CD outcomes among health facilities or in a time series that are the consequence of poor data quality, diversity of obstetrical populations, and differences in the clinical practice of a particular setting can be deduced from the Robson classification report table.[7]

METHODS

This was a cross sectional study done in the department of obstetrics in Mamata Medical College from January 2022 to December 2022. All women who underwent caesarean section in our institute were included in our study.

Exclusion criteria include all mothers who underwent vaginal delivery in our institute and those women with missing records.

The study population included 82 women who underwent caesarean in our hospital during the above-mentioned study period. Demographic data and relevant history like clinical examination, management outcomes, pregnancy related information and maternal and fetal outcomes were recorded from the women. These women were then categorized into 10 groups according to the Robson classification report table by the WHO.

RESULTS

During the study interval total of 82 women delivered via c-section. Majority of the women were between 20-30 years (89.02%). Out of them 62.20% were multigravida's and 56% were multipara. 57 women were between the gestational age of 37-42 weeks. History of previous section was seen in 45 (54.88%) women out of which 6 women had history of 2 previous sections. 64.64% of women went into spontaneous labour and 32.92% of them underwent pre labour caesarean section. We had one woman who delivered twins. 96.39% of babies delivered by cephalic presentation, 2.44% of babies delivered by breech. Out of which 69 (83.13%) of babies had a 5 minutes APGAR above 7 and only 14 (16.87) babies had a score less than or equal to 7. 57.83% of the babies were average weight between 2.5-3.5 kg (Table 1).

Distribution of all deliveries performed during the study period in accordance to Robsons criteria showed majority of women (29.7%) belonged to category 5a and category 10. This was followed 21 (25.61%) women in category 1. The data collected did not allow us to categorize any women in category 3 and 7. The most common indication for caesarean seen in our study was previous LSCS seen in 39 (47.56%) women followed by fetal distress seen in 11 (13.42%) women (Tables 2 and 3).

Table 1: Characteristics of study participants.

Category		Number	%
Age (years)	<20	2	2.44
	20-30	73	89.02
	> 30	7	8.54
Gravidity	Primigravida	31	37.8
	Multigravida	51	62.2
Parity	Nulliparous	36	43.9
	Multiparous	46	56.1
Gestational age	<37 weeks	25	30.49
	37-42 weeks	57	69.51
History of previous c-section	None	37	45.12
	1	39	47.57
	>1	6	7.31
Onset of labour	Spontaneous	53	64.64
	Induction of labour	2	2.44
	Pre labour cs	27	32.92
Fetal presentation (n=83)	Cephalic	80	96.39
	Breech	2	2.41
	Traverse Lie	1	1.2
APGAR score at 5 minutes (n=83)	≤7	14	16.87
	>7	69	83.13
Birthweight (gm) (n=83)	<2500	32	38.55
	2500-3500	48	57.83
	>3500	3	3.62

Table 2: Distribution of caesarean section in terms of Robsons classification.

Classification	Description of Robson's group classification	No.	(%) Contribution made by each group to overall caesarean section
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	21	25.61
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who had labour induced or were delivered by CS before labour		
2a	Labour induced	1	1.22
2b	Pre-labour CS	3	3.65
3	Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	0	0

Continued.

Classification	Description of Robson's group classification	No.	(%) Contribution made by each group to overall caesarean section
4	Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation who had labour induced or were delivered by CS before labour		
4a	Labour induced	1	1.22
4b	Pre-labour CS	2	2.44
5	All multiparous women with at least one previous CS, with a single cephalic pregnancy, ≥37 weeks gestation		
5.1	With one previous CS	24	29.27
5.2	With two or more previous CSs	2	2.44
6	All nulliparous women with a single breech pregnancy	2	2.44
7	All multiparous women with a single breech pregnancy including women with previous CS(s)	0	0
8	All women with multiple pregnancies including women with previous CS(s)	1	1.22
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous CS(s)	1	1.22
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous CS(s)	24	29.27

*CS- Cesarean section

Table 3: Indications leading to caesarean section in the present study.

Indication	Number (n=82)	%
Non-progression of labour	6	7.32
Previous CS	39	47.56
Failed Induction	2	2.42
Hypertensive disorders of pregnancy	8	9.75
CPD	2	2.44
Breech presentation	2	2.44
Traverse lie	1	1.22
Fetal distress	11	13.42
PROM	4	4.87
Multiple pregnancies	1	1.22
Oligohhydramnios with IUGR	2	2.44
Abrupto placenta	1	1.22
Pacenta previa	1	1.22
MSL	1	1.22
RHD with MS	1	1.22

*CS- Caesarean, *CPD- cephalo pelvic disproportion, *PROM- premature rupture of membranes, *IUGR- Intrauterine growth Restriction, *MSL- meconium stained liquor, *RHD with MS- Rhheumatic heart disease with Mitreal stenosis

DISCUSSION

Cesarean section is a key intervention to decrease maternal and neonatal morbidity and mortality. It is also one of the best indicators of the quality of maternal health service.[8]

In our study majority of the women belonged to 20-30 years of age. This is comparable to the study done by Abubeker et al most of the study group belonged to the age group of 20-34 years.[9]

Multiparous women were more prevalent in our study i.e. 56.10%. This is similar to the study done by Bello et al where 62.6% women were multiparous.[10]

Most of the women (69.51%) in our study were between 37-42 weeks of gestational age similar to Abubeker et al and Bello et al, where the majority of women belonged to the group more than 37 weeks gestational age.[9,10] In contrast in the study done by Parveen et al in 2021 showed majority of women belonging to less than 37 weeks of gestational age.[11]

In the present study 39 (47.57%) women had history of one previous section, 6 (7.31%) had history of two previous sections. 37 (45.12%) women had no previous cesareans. Bello and associates showed 62.4% of women with no previous section and only 37.6 women with history of previous section.[10] Similarly in a study done by Parveen et al in 2021 showed majority of the women (64.7%) had no history of previous section.[11] These studies are in contrast to our study.

53 of 82 patients went into spontaneous labour in our study which is similar to the study done by Abubeker et al where majority of the patients went into spontaneous labour also.[9]

In our study cephalic presentation was seen in 96.34% and 57.83% of babies were average weight, i.e, between 2.5-3.5 kg similar to study done by Parveen et al in 2021.[11]

In accordance to Robsons criteria majority of our study group belonged to group 5, group 10 and group 1 with 31.71%, 29.27% and 25.61% respectively. In group 5, 24 (29.27%) women belonged to the subdivision of 5.1 and 2 (2.44%) women belonged to 5.2 subdivision. This is like a "domino effect", considering the rise in caesarean rates in

nulliparous women subsequently increases the number of patients with a previous c-section and the probability of undergoing the same surgery. 24 women belonged to group 10 where women had history of previous cesarean with other complications like hypertensive disorders IUGR etc. 21 women belonged to group 1 out of which majority women were taken up for cesarean due to non-progression of labour and fetal distress. Our study is slightly comparable to the study done by Pravina et al who found the predominant group to be group 5 (34.97%) followed by group 2 (26.35%) and Pourshirazi et al found group 5 as the predominant group contributing to the section rate in their study followed by group 2 and 1 respectively.[12,13] Khan et al in their research observed group-5 and group-2 to be the most common.[15] The above studies though showing a difference in the 2nd most predominant group, being group 2 for sections, they share the most common predominant group (group 5) which includes all multiparous women with previous caesarean with single cephalic pregnancy ≥37 weeks with our study.

Our study is in contrast to the study done by Parveen et al in 2021 where the most prevalent groups were 10, 5 and 1 with 50.9%, 14.4%, 11.4% respectively.[11] The slight difference is probably due the increased sample size. Dhodapkar et al from India was found to have group-1, group-5 and group-2 as the most prevalent groups accounting for 33.3%, 19.7% and 14.6% cases respectively.[15] This contrast is probably because all of the above-mentioned studies are highlighting the trends in accordance to their own institutional practices regarding handling of delivery cases and the increased sample size.

The most common indication for cesarean in our study group was that of previous LSCS (39 women- 47.56%) this included women with 2 previous LSCS, women with scar tenderness with previous LSCS and women with previous LSCS who preferred to opt for a repeat cesarean rather than take a gamble with VBAC. Fetal distress was the 2nd most common indication seen in 11 (13.42%) women followed by hypertensive disorders of pregnancy seen in 8 women (9.75%). This is comparable the study done by Parveen et al in 2021 where they say similar results with previous cesarean being the most common seen in 34 women (20.4%), followed by fetal distress and hypertensives disorders of pregnancy seen in 33 women (19.8%) and 10 women (6.0%) respectively.[11]

CONCLUSION

According to Robsons criteria group 5 and group 10 were the majority groups found to be contributing the most to the cesarean section in our study. The above results are representative of the fact that our hospital being a leading tertiary care hospital of the region, most cases might be referred to our facility as high-risk cases. Some measures can be taken in identifying the high-risk factors sooner in pregnancy and the appropriate treatment to prevent undue complications that will ultimately lead to cesarean. This study also showed a high rate of CS among low-risk groups. These target groups require more in- depth analysis to identify possible modifiable factors and to make available and apply specific interventions to reduce the CS rate. There is a need to evaluate existing management protocols and further studies need to be conducted into the indications of CS and outcomes in our setting are needed to design tailored strategies and improve outcomes.

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