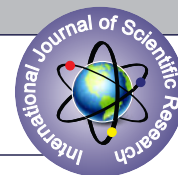


USE OF THE ROBSON CLASSIFICATION TO ASSESS THE TREND IN CESAREAN SECTION IN A RURAL TERTIARY CARE HOSPITAL



Obstetrics & Gynaecology

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ABSTRACT

Background: The increasing trends for cesarean section (CS) is not only in India but also globally have been a cause of concern. The 10 group ROBSON classification of CS has been appreciated by WHO in 2014 and FIGO in 2016 for classification of CS. The ROBSON system classifies all deliveries into one of the ten groups on the basis of five parameters: obstetric history, onset of labour, fetal lie, number of neonates, and gestational age. **Objective:** To assess the existing trend using ROBSON classification for indications of CS and to evaluate the maternal and perinatal outcome in immediate postpartum period. **Method:** This cross sectional prospective study was carried out in department of Obstetrics and Gynecology, Hind Institute of Medical Science, Ataria, Sitapur. After approval from ethical committee of the institute, 220 parturients having gestational age >28 weeks and fetal weight >500gm who delivered during the study period via CS were included in the study. Women were classified into 10 ROBSON's classes and percentages were calculated for the contribution of groups to overall CS and Caesarean percentage in each group. **Results:** In the current study Group-5 and Group-1 were found to be the most contributing among deliveries done and together constituted 62.72% of the overall CS rate. Foetal distress was found to be the most common indication of CS. **Conclusion:** The ROBSON 10-group classification provides a simple method for gathering data on the rate of CS, which gives useful insight into specific birth groups. The contribution of ROBSON's groups to the absolute C-Section rates could be decreased by lowering the rate of primary C-sections, providing adequate counselling and encouraging VBAC, changing the standards for non-reassuring foetal status, training and encouraging obstetricians to perform versions when not contraindicated.

KEYWORDS

CS rate; Indication of labor; Apgar score, ROBSON's Classification

INTRODUCTION

According to WHO CS rate is widely considered an important global indicator for measuring access to obstetric services. In recent years India has witnessed an unprecedented rise in the CS rate with a large disparity across the country^{1,2}. According to NFHS 4(2015-2016), India had 17.2 % CS rate(urban -28.2%, rural-12.8%). In Uttar Pradesh (U.P) birth delivered by CS was 9.4% (urban-18.9%, rural- 6.9%). The worldwide rise in CS is a major public health concern and cause of considerable debate due to potential maternal and perinatal risks, cost issues and inequity in access^{3,4}.

The main determinant is to identify what group of women are undergoing CS and investigate underlying reasons for trends. The reason for the increase in caesarean births are variable including use of electronic foetal monitoring during labour, increasing number of pregnancies following infertility treatment including the multi fetal pregnancy, increasing incidence of elderly gravida, increasing number of women with prior caesarean delivery, along with referral from rural centre to tertiary care centre with prolonged trial of labour, changes in obstetric training regarding the use of instruments and medico legal concern etc.

The rates vary from one healthcare facility to other and from one country to other. Analysing CS rates in different hospitals and resulting potential reasons of these, can provide important insights into this problem. Currently monitoring CS rates in a reliable and comparable manner continues to be an unmet need. The standardization of classification of caesarean section through ROBSON criteria within the health care facilities was proposed by MS ROBSON in the year 2001. The 10 group ROBSON classification of CS has been appreciated by WHO in 2014 and FIGO in 2016⁵. The ROBSON's classification is known as "Ten Group Classification System (TGCS)", classifies CS 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. Full potential of RTGCS will

implicit when it is adopted as a common practice. This present study is an attempt to gather information in a standardised uniform and reproducible way to focus, assess and optimise use of CS, its incidence and trends along with immediate perinatal and maternal outcome in a tertiary care hospital. This will also improve quality care and will help to access the feasibility of RTGCS.

MATERIAL AND METHOD

This cross sectional prospective study was carried out in department of Obstetrics and Gynecology, Hind Institute of Medical Science, Mau, Ataria, Sitapur from January 2001 to July 2022. This study included 220 parturients who underwent CS and had gestational age >28 weeks and fetal weight >500gm. For all the women enrolled, maternal history, bio-data, symptomatology, clinical examination, pregnancy-related information (gestational age, fetal presentation, number of fetus and onset of labour) and maternal and fetal outcomes at discharge (complications, APGAR score at one minute) were recorded.

The dependent variable was ROBSON classification group. Data was collected only after decision of caesarean section, by a preformed questionnaire Proforma and than categorized using ROBSON classification. After data compilation data analysis was done using some of the statistical tools like frequencies, percentages, means and SD etc. were used. Data analysis was performed on IBM SPSS 20.0. The mean and standard deviation was calculated for continuous data. The components of RTGCS were derived as Group CS rate (%).

RESULTS

During the study period, data of total 220 CS deliveries was gathered. Overall, mean age was 26.38±3.9 years while majority of the women, 176 (80.0%) were between 21 to 30 years of age. Most of the women, 98(45.54%) had parity between one to two, 107 (48.63%) were induced spontaneously, 186 (84.54%) had gestational age between 37-42 years, 93 (42.27%) had history of

cesarean section and 216 (98.18%) had cephalic fetal presentation as shown in Table-1.

Table 1 : Showing characteristics of 220 parturients

CHARACTERISTICS		NUMBER WITH %
AGE(years)	19-20	12(5.5%)
	21-30	136(80%)
	31-40	72(14.5%)
LEVEL OF EDUCATION	Illiterate	32(14.54%)
	Primary	88(40%)
	Secondary	64(29.09%)
	Graduate	36(16.36%)
PARITY	0	77(35.0%)
	1-2	98(44.54%)
	3-4	45(20.45%)
EMPLOYMENT STATUS	Employed	74(33.63%)
	House wife	146(66.36%)
ADMISSION STATUS	Primary dmission	135(61.4%)
	Referral	85(38.6%)
ONSET OF LABOUR	Spontaneous	107(48.63%)
	Induced	80(36.36%)
	No labor (prelaborces)	33(15.0%)
GESTATIONAL AGE AT DELIVERY	<37 weeks	34(15.45%)
	37-42 weeks	186(84.54%)
PREVIOUS CS	0	127(57.7%)
	1	63(28.6%)
	2	28(12.7%)
	3	2(0.9%)
FOETAL PRESENTATION	Cephalic	199(90.45%)
	Breech	12(5.45%)
	Transverse/oblique/b row/other	09(4.09%)
NUMBER OF FOETUS	Single	216(98.18%)
	Multiple	04(1.81%)

Indications for cesarean section are enlisted in Figure1. Foetal distress 88(40.0%) and CDMR and scar tenderness were found to be next most common indications for CS.

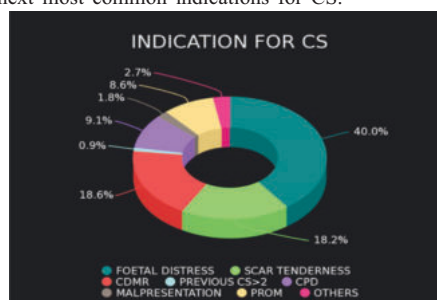


Figure1:Showing indications of Caesarean section

Distribution of all deliveries performed during the study period according to ROBSON's TGCS is shown in Table-2. Most of the patients, 83 (37.72%) turned out to be from Group-5. Group-1 and Group-10 were the next most common group, accounted for 55(25%) and 30 (13.63%) cases respectively.

Table2: Showing CS rate per ROBSON's Class

GROUP	DESCRIPTION	NUMBER	%
GROUP1	Nulli-parous, single, cephalic, >37weeks,spontanenoues labor	55	25%

GROUP2	Nulli-parous, single, cephalic, >37 weeks, induced labor or Delivered by caesarean section before labor.	12	5.45%
GROUP3	Multi-parous women, no previous uterine scar, single, cephalic>37 weeks, spontaneous labor.	15	6.81%
GROUP4	Multi-parous women, no previous uterine scar,>37 weeks,either had induced labor or are delivered by elective caesarean section.	09	4.09%
GROUP5	All multi-parous women, at least one previous uterine scar, single, cephalic,>37 weeks gestation	83	37.72%
GROUP6	All nulli-parous women, single, breechpregnancy (all nulli-parous women with breechpresentation)	04	1.81%
GROUP7	Multi-parous women, single, breech, Including women with previous uterine scars.(all multi-parous women with breech presentation)	04	1.81%
GROUP8	All women with multiple pregnancies ,including women with previous uterine scars (all multiple pregnancies)	04	1.81%
GROUP9	All women with a single pregnancy, transverse, oblique, including women with previous uterine scars. (all abnormal lies)	04	1.81%
GROUP10	All women with single, cephalic, <37 weeks, including women with previous scars.	30	13.63%

Maternal mortality rate was zero in our study population among all the ten ROBSON groups. No secondary PPH was observed in this study., 79(35.9%) had blood loss <500ml, 132(60%) had blood loss ranging from 500 to 1000 ml and rest 9(4.09%) had blood loss between 1000 to 1500ml as shown in Figure2.

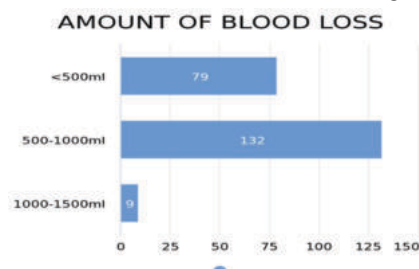


Figure2:Showing amount of maternal blood loss

In the study 99.45% of the babies were delivered alive. A stillbirth was reported in ROBSON Group 10. The APGAR score for 95.45% of the babies was above five at minute one while 4.54% scored five and below. Babies from each group were classified according to their Apgar score as shown in Figure3.

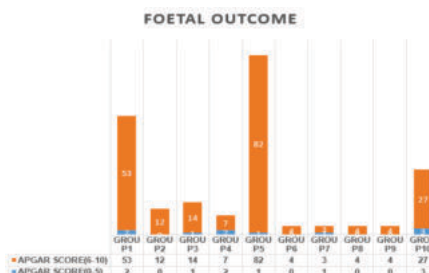


Figure3: Showing classification of babies in each group according to Apgar score at minute 1

DISCUSSION

Caesarean section (CS) rates have been raising globally and have caused concerns. For meaningful comparisons to be made, WHO recommends the use of the Ten-Group ROBSON classification as the global standard for assessing CS rates. In this study 220 women who birthed over a period of 1.5 year were analyzed using this classification.

Alike various Indian and international studies, in the present study, the major contributor to overall CS is group 5 (women with previous CS) followed by group 1. Group 5 contributed 37.72% to the overall CS in our study and relatable findings are seen in multiple international researches ranging from 15.4 to as high as 67.7%⁶⁻⁸.

The CS is the most widely used obstetric surgical procedure that has significantly added to the betterment of obstetric care⁹. Nowadays, CS are not performed according to the recommendations, but they are perceived as an escape from labor pain by the general population⁹. An author has also shown that women with previous CS contributes maximum to overall CS rates followed by term nulliparous who are induced or underwent CS before labour (group 2 of ROBSON's classification)⁸. Similar findings are noted by other studies¹⁰⁻¹². Rise in CS in other groups eventually drives an increase in Group 5. Control of CS rates in this group is quiet tough as a history of CS is an independent determining factor of CS in subsequent pregnancies. This observation is in conformity with the global evidence: both in the developed and developing countries: women with a history of CS prefer to avoid vaginal delivery in their later deliveries as the risk of uterine rupture and other maternal morbidities in vaginal delivery following CS is higher¹³. The most common indication in this study for CS in group 5 is refusal for VBAC followed by scar tenderness.

Some authors have cited fear of litigation, intolerance of adverse outcomes related to vaginal deliveries, and popularity of CS in women as reasons under pinning these trends^{14,15}. Reasons for refusal of VBAC included the fear that prior stitches might open up, unable to tolerate labor pain, unwilling to accept prolonged induction in case of poor Bishop's score, and believing elective repeat cesarean delivery (ERCD) to be a safer mode of delivery, especially in patients with a previous bad obstetrical history and the various reasons for unsuitable candidates for VBAC are patients with an ultrasound-documented thin scar, scar tenderness, short inter-conceptional period, cephalo-pelvic disproportion, severe pre-eclampsia and eclampsia, and cardiac disorders NYHA 3/4. However, vaginal birth following a previous cesarean section (VBAC) is associated with maternal health benefits and limited risks compared to a having another delivery by CS¹. The establishment of a dedicated clinic to counsel pregnant women during their antenatal checkup has been found to be successful at promoting VBAC rates¹⁷.

Typically, Group 1 and 2 represent one of the population groups with the least risk of CS, assuming a low prevalence of medical conditions that needs CS. Our observations of a high CS rate in these groups provide valuable insight into the population segments to target for achieving control of unnecessary CS rates. An author report that for the control of CS, the focus should be on Group 1 and 2 if they bear a high rate of CS¹⁸. Further research is needed to understand whether or not the high CS rates in Groups 1 and 2 is due to women's preferences and what can be done to address it. In our study, group 1 has the second highest CS rate followed by group 10 and then the group3 unlikely to our study, in a study conducted in 2018, group 2 was the leading contributor followed by groups 1, 3, and 10. In other studies^{19,20} group 10 was the major contributor, followed by groups 1, 3, and 8. The rate of CS in Group1 and Group 2 was 25% and 5.45% respectively. In our study high CS rate in group 1 also distinctly demonstrates the so-called domino effect of CS use: as CS rate rises, more women in the obstetric population are in need of repeat CS, as indicated by the escalating contribution of group 5 to overall CS rates over time. To deal with this problem, evidence-based interventions and programme to trim down both primary and repeat CS are needed. Most common indication for CS in group 1 was fetal distress followed by CDMR. Proper training of postgraduates and senior residents for interpreting CTG trace using one of the standard guidelines, raising the threshold for Doppler changes in IUGR foetuses, and practice of vibro acoustic stimulation test is needed to cut down the CS rate for fetal distress.

Group 10 constituted 13.63 % of overall CS rate. We can also tell that the prevalence of preterm deliveries in the study was nearly 15.45 %. Actually this rate was high and it could be

because our hospital is a tertiary care hospital with a super-speciality department where most of the cases are complicated and referred from various primary care centers and other centers.

In the present study group6 to group9 together constituted to only 08% of the total CS rate which is in accordance with most of the studies. Women with particular obstetric risk factors (groups 6–9; such as breech presentation, multiple pregnancy, or transverse lie) insignificantly add to the overall CS rate in individual hospitals or on the whole since the relative sizes of these groups are consistently small. The rise in CS, therefore, is driven not by high-risk pregnancies but mainly by complicated low-risk pregnancies¹⁰.

Evidence from some settings suggests that increased use of obstetric interventions in labour and delivery have not improved outcomes for mothers or neonates²¹. Within our study population no maternal death was recorded within the first 24 hours after delivery. The lowest amount of blood lost recorded was 425mls while the highest was 1,500mls and our results are quiet similar to the study conducted in Nairobi 2019².

Even though in our study we had high pre- term deliveries (15.45%), the initial assessment of neonatal status is well reflected by the good APGAR score in our study. We observed APGAR score at 5 minute of life was more than five for 95.90% of the newborn and 99.45% of the babies are delivered alive. Our results are similar to the South African study²² where 98% of the babies are born alive .This was in keeping with the high C-section rate of the ROBSON Group-10 which comprises of preterm deliveries which was reported as 23.4%²².

CONCLUSION

As per ROBSON's Ten-Group Classification, Group-5 and Group-1 were found to be the most contributing among deliveries done. Foetal distress and CDMR were the most common indications of cesarean section. This study concluded that the use of elective cesarean section surgery has risen. All deliveries and caesareans should be universally categorized by the ROBSON's classification system. Groups contributing most to caesarean section should be analyzed regularly and interventions initiated.

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