Original Research Article

Classification of caesarean section based on Robson ten group classification system in our hospital

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ABSTRACT

Background: Recent data indicate that one in five women undergo caesarean section (CS). In the last decade, there has been a dramatic increase in the caesarean section rate worldwide, which now exceeds 30% in some regions. Thus, the increasing rate of caesarean section became a matter of international public health concern. Our study aimed to classify the CS-based on Robson ten group classification system (RTGCS) criteria which will subsequently enable us to standardise the indication of CS and establish protocols to reduce the number of CS in our set up.
Method: A retrospective study was conducted in ESI Hospital, New Delhi wherein Robson TGCS was used to classify CS for 15 months (January 2019 to April 2020).
Results: Overall CS rate in our hospital over the specified period was 34.5%. All women with one or more previous cesareans (group V) had the maximum number of cesareans, 37%, followed by nulliparous, single, cephalic, term pregnancy (induced) i.e group II, 22.1% and nulliparous women more than 37 weeks in spontaneous labour (group I), 9.5%.
Conclusions: RTGCS is easy to comprehend and reproduce. All deliveries and cesareans should be universally categorized by the Robsons TGCS. An attempt should be made to evaluate the group contributing most to the CS rate and interventions should be made accordingly.

Keywords: Caesarean section, Robson ten group classification system, pregnancy

INTRODUCTION

Recent data indicate that one in five women undergo caesarean section (CS), and in most regions of the world, CS rates continue to rise.[1] In the last decade, there has been a dramatic increase in the Caesarean section rate worldwide, which now exceeds 30% in some regions.[2] Worries over such increases have led the world health organization to advise that caesarean section rates should not be more than 15% as an increase in CS rate is not associated with an additional reduction in maternal and neonatal mortality and morbidity.[3,4] Thus, the increasing rate of caesarean section became a matter of international public health concern.[5]

World health organization (WHO) has recommended classifying all CS in a standard, reliable grouping system. Of the many proposed classification system WHO and the international federation of gynecology and obstetrics (FIGO) have identified robson ten group classification system (TGCS) to be the most appropriate classification system to be used globally for monitoring, comparing and understanding caesarean rates over time and between different institutions.[6-9]

Our study aimed to classify the CS-based on RTGCS criteria and address the factors contributing to increasing CS cases in our scenario which will subsequently enable us to standardise the indication of CS and establish protocols to reduce the number of CS in our set up.

METHODS

This was a retrospective study carried in our hospital from January 2019 to April 2020 in the department of Obstetrics and Gynaecology, ESI Hospital, Okhla, New Delhi. Data was compiled based on robson-10 group classification system in a preformed structured pro forma (Table 1).

Table 1: Robson ten group classification system (TGCS).

Robson group	Characteristics
I	Nulliparous; single cephalic term pregnancy; spontaneous labour
IIA	Nulliparous; single cephalic term pregnancy; induced labour
IIB	Nulliparous; single cephalic term pregnancy; planned caesarean delivery
III	Multiparous without uterine scar; single cephalic term pregnancy; spontaneous labour
IVA	Multiparous without uterine scar; single cephalic term pregnancy; induced labour
IVB	Multiparous without uterine scar; single cephalic term pregnancy; planned caesarean delivery
V	Multiparous with previous caesarean section; single cephalic term pregnancy
VI	Nulliparous; single breech pregnancy
VII	Multiparous; single breech pregnancy
VIII	All women with multiple pregnancy
IX	All women with a single oblique or transverse pregnancy
X	All women with a single cephalic preterm pregnancy

The parameters considered were according to the classification system: Parity (with/without previous CS), Gestational age (>37 weeks/<37 weeks), Fetal presentation (cephalic/breech/abnormal lie), Number of fetuses (single/multiple), Onset of labour (spontaneous/induced/preterm).

For each case, data was collected from the delivery register maintained in our labour room. Details were entered in the Microsoft Excel sheet and analysed. Total of 1013 records was analysed out of which 16 were excluded from the group as they had incomplete information regarding the indication of CS and/or period

of gestation. Thus, a total of 997 cases were included in our study.

RESULTS

The total number of deliveries over this period in the hospital was 2936 out of which the number of cesarean section was 1013 which denotes that overall CS rate in our hospital over the specified period was 34.5%. Total of 1013 records was analysed out of which 16 were excluded from the group as they had incomplete information regarding the indication of CS and/or period of gestation. Thus, a total of 997 cases were included in our study.

On analysis of CS according to Robson's classification, different rate of each group was shown separately (Table 2).

Table 2: Distribution of CS based on Robson criteria (n=997).

Class	N	Percentage
I	95	9.5
IIA	221	22.1
IIB	37	3.7
III	71	7.12
IVA	48	4.8
IVB	19	1.9
V	369	37
VI	44	4.4
VII	35	3.5
VIII	17	1.7
IX	10	1
X	31	3.1
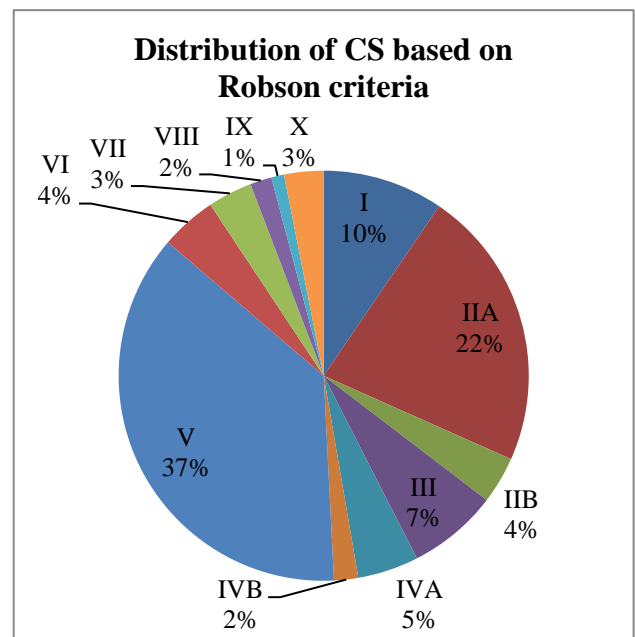
Figure 1: Distribution of CS based on Robson criteria.

All women with one or more previous caesareans (group V) had the maximum number of caesareans, 37%, followed by nulliparous, single, cephalic, term pregnancy (induced) i.e group II, 22.1% and nulliparous women more than 37 weeks in spontaneous labour (group I), 9.5%.

Group V was further analysed for the indication of CS and it was found that out of 369 cases 146 cases were elective (39.5%) and 223 cases were emergency caesarean cases (60.4%) (Figure 1).

Out of 223 cases, 73 cases were due to failed trial of labour after caesarean (TOLAC) i.e 32.7% cases.

DISCUSSION

For the last 30 years, there has been public concern about increasing caesarean rate.[10] Thus, our study was an attempt to standardise and classify the CS for the first time in our department based on Robson criteria. It helped us to analyse which clinical group contributed most to the CS.

In our present study, we observed that the total number of CS in our hospital over 15 months was 34.5% which was quite high compared to WHO cut off of 15%.[3]

In India, the CS rate has increased from 16.4 % (2014) to 18% (2015-16) as per the national family health survey. Average CS rate in Asian countries is 27.3% which is much lower compared to USA (31%).[11-12]

Based on our study, Group V contributed the most to the overall CS rate (37%). This was similar to the study conducted by Vogel et al who concluded that the proportion of women with previous CS has increased along with CS rate in these women.[13] A similar study was conducted in Brazil with a similar outcome that is Group V contributed to 31.3% of the total CS rate.[14]

Other groups that significantly contributed to the increased CS rate in our study was Group I and IIA accounting for 9.5% and 22.1% respectively. A similar study was conducted in Peru from 2000 to 2010 and it was observed that group I and III along with Group V and VII were the major contributor to the increasing rate of CS.[15]

There was another study conducted in Spain in the year 2010 and result was similar to our study with Group I (20.4%) and Group II (29.4%) as a second major contributor to increasing CS rate after group V.[16]

Based on our study and the results of other studies across the world we believe 3 major concerns need to be addressed to limit the increasing CS rate. The first and the most critical is that every hospital should adopt clear guideline regarding induction of labour. Induction of labour should be limited for a specific indication as induction, especially in unfavourable cervix with no other indication, can significantly add up to increase the rate of CS. Also, we need to revise our guideline for induction of labour in post-dated pregnancy and adhere to a policy of induction only after 41 completed weeks.

The second concern is regarding two common indications of CS i.e failure to progress and non-reassuring fetal heart rate. Some recent studies on singleton cephalic, term pregnancy in spontaneous labour concluded that active labour (cervical dilation 1 -1.5 cm/hour) only begins after 6 cm dilation and some women may take longer to reach active phase (6cm). Thus, without a proper guideline, some woman will undergo CS even before reaching the active phase of labour.

The increased use of nonstress test (NST) for fetal heart monitoring has done more harm than benefit. Some randomized controlled trial (RCT) has established that it has a false-positive value of 99.8% and is associated with a high rate of CS.[17]

Thus, each hospital should establish their guideline regarding the use of NST and obstetrician should have a thorough knowledge regarding the interpretation of NST.

The third important issue that needs to be highlighted is incorporating VBAC in our day to day practice and every institution should strictly adhere to the protocols of TOLAC as an increase in CS rate has been associated with an increase in maternal mortality. 18 Thus every attempt should be made to limit the CS even in women with previous CS. It has been found that the number of women opting for VBAC has declined over recent years due to fear of uterine rupture.[19] Thus proper patient counselling and addressing all their queries regarding VBAC should be dealt diligently.

CONCLUSION

Every attempt should be made to decrease the CS rate to decrease maternal mortality across the world. All deliveries and caesareans should be universally categorized by the Robson TGCS. An attempt should be made to evaluate the group contributing most to the CS rate and interventions should be made accordingly. Patient counselling should be done in detail especially in the case of previous CS. Institution protocols should be strictly followed with time to time audit to rationalise the CS rates.

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