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CLASSIFICATION OF CAESAREAN SECTION THROUGH ROBSON CRITERIA: AN EMERGING CONCEPT TO AUDIT THE INCREASING CAESAREAN SECTION RATE IN A TERTIARY CARE RURAL TEACHING HOSPITAL

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ABSTRACT

Background: The proportion of caesarean sections at the population level is a measure of the level of access to and use of this intervention. Over the last few years, governments and clinicians have expressed concern about the rise in the numbers of caesarean section births and the potential negative consequences for maternal and infant health. There is a lack of a reliable and internationally accepted classification system to produce standardized data, enabling comparisons across populations and providing a tool to investigate drivers of the upward trend in caesarean section. Among the existing systems used to classify caesarean sections, the 10-group classification (also known as the 'Robson classification') has become widely used in many countries in recent years,thereby allowing a comparison of caesarean section rates with fewer confounding factors. **Methods:** In the present study, all cases delivered by cesarean section during the period of six months were recorded and classified according to Robson's 10 group classification system. **Results:** Overall, CS rate calculated for our hospital in this specified period was 36.6%, There was a trend of increased percentage of cesarean section in group 5 and 8 respectively in present study. **Conclusions:** Even though the overall CS rate in the study is not high as compared to other Indian or International studies, it is important that efforts to reduce the overall CS rate should focus on reducing the primary CS rate. More analytical studies based on Robson's 10-group classification are needed locally, to evaluate the indications of CS within each group.

KEYWORDS : Cesarean section, Robson's classification

INTRODUCTION:

Caesarean section without medical indication increases risk of short-term adverse outcomes for mothers.2004–2008 WHO Global Survey on Maternal and Perinatal Health Caesarean section (CS) rates continue to increase worldwide, particularly in middle- and high-income countries without evidence indicating substantial maternal and perinatal benefits from the increase and some studies showing negative consequences for maternal and neonatal health. The lack of a standardized internationally-accepted classification system to monitor and compare CS rates in a consistent and action oriented manner is one of the factors that has hindered a better understanding of this trend. In 2011, a systematic review of available classifications for CS concluded that the Robson classification (also called the 10-group classification) would be in the best position to fulfil this gap. Proposed in 2001, the Robson classification is a system that classifies women into 10 groups based on their obstetric characteristics (parity, previous CS, gestational age, onset of labour, fetal presentation and the number of fetuses). Since the system can be applied prospectively and its categories are totally inclusive and mutually exclusive, every woman that is admitted for delivery can be immediately classified based on these few basic characteristics which are usually routinely collected worldwide in obstetric wards.

Despite the lack of any official endorsement or formal guidelines, the international use of this classification is increasing rapidly and spontaneously.. Users valued that this classification, which does not use indication for the CS, allows for the creation of subdivisions in each group and can improve analysis of local practices. Subdivisions have been proposed for each of the 10 groups but group 5 (women with previous CS) is the group receiving the largest number of suggestions.

Lack of definitions or consensus on the core variables and the maintaining of high quality data are important challenges encountered by users.

The caesarean section (CS) rate has been rising over last 5 decades. It has risen from 5% in 1940s and 1950s to 15% in 1970s and 1980s. But during last 2 decades there has been a dramatic rise in caesarean section rate worldwide which now exceeds 30% in some regions [1].About thirty years back, World Health Organization issued a statement in a meeting of reproductive health experts held in 1985 at Fortaleza, Brazil that ,"there is no justification for caesarean delivery rate higher than 1015% [2]" But over these last 3 decades, there has been a clear evidence of benefits and risks of Caesarean section and marked improvements in the clinical obstetrics care outcomes have been observed. In view of this, there had been rising demand by the clinicians and health care policy makers to revisit the existing recommended rate proposed in 1985 [3].

To determine an adequate caesarean section rate was a challenge in absence of a reliable and internationally accepted classification to get the standardized data enabling a global comparison and investigation into the reasons for the upward trend of caesarean section rate.

Dr Michael Robson in 2001 proposed the need to adopt standard classification system for easy comparison and improvement of obstetrics care and introduced Robson classification to achieve this.

"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.''Hence the reason behind conducting this study in the Rural set up in this Institute.

AIMS & OBJECTIVES:
1) To classify the cesarean section according to their causes.
2) To identify and audit the rising causes of cesarean section in our scenario.
3) To standardize the indications of cesarean section.

MATERIALS & METHODS:
Study was conducted in a prospective observational method. Informed Consent taken by the Investigator/ Doctor/ Nurse of the patient and the information was entered in a pre-validated proforma as per the 10 group Robson classification [4]. Data collected was entered in MS- Excel sheet and analysed using simple statistical measures like percentage and proportion. Descriptive statistical analysis was done. The study was conducted after taking approval from institutional ethical committee.

Inclusion criteria: Patients delivered by caesarean section during the given period (6 months) was recorded and classified according to Robson's 10 group classification system as given in Table 1.

The parameters considered were according to the classification system

Parity (with/ without previous CS); Gestational age (>37/<36 weeks), Fetal presentation (cephalic/ breech / abnormal lie) Number of fetuses (singleton/ multiple) Onset of labour (spontaneous/ induced / prelabour CS). (Table I)

Exclusion criteria: Term normal or instrumental vaginally delivered patients.

Preterm normal or instrumental vaginally delivered patients.

Sample size: 300 as per prevalence of caesarean section in our hospital and past records.

The Robson ten-group classification system- Table 1:
1 Nulliparous, singleton, cephalic, ≥37 weeks' gestation, in spontaneous labour
2 Nulliparous, singleton, cephalic, ≥37 weeks' gestation, induced labour or caesarean section before labour
    2a- Nulliparous, singleton, cephalic, ≥37 weeks' gestation, induced labour
    2b- Nulliparous, singleton, cephalic, ≥37 weeks' gestation, caesarean section before labour
3 Multiparous (excluding previous caesarean section), singleton, cephalic, ≥37 weeks' gestation, in spontaneous labour
4 Multiparous without a previous uterine scar, with singleton, cephalic pregnancy, ≥37 weeks' gestation, induced or caesarean section before labour
    4a- Multiparous without a previous uterine scar, with singleton, cephalic pregnancy, ≥37 weeks' gestation, induced labour
    4b- Multiparous without a previous uterine scar, with singleton, cephalic pregnancy, ≥37 weeks' gestation, caesarean section before labour
5 Previous caesarean section, singleton, cephalic, ≥37 weeks' gestation
6 All nulliparous with a single breech
7 All multiparous with a single breech (including previous caesarean section)
8 All multiple pregnancies (including previous caesarean section)
9 All women with a single pregnancy in transverse or oblique lie (including those with previous caesarean section)
10 All singleton, cephalic, <37 weeks' gestation pregnancies

(including previous caesarean section

RESULTS:
The total number of women delivered for the period of 6 months was 300, out of which CS deliveries were 110. Overall, CS rate calculated for our hospital in this specified period was 36.6%, (Table 2). On analysis of CS according to Robson's classification, different rate of each group was shown separately. Group 5 (previous CS group) made the greatest contribution to the total CS rate. Group 8 (Multiparas including previous LSCS) had the second highest contribution to the CS rate and then group 7 (multiparous with a single breech (including previous caesarean section) placed third.

CS rate was calculated in each group separately to determine their contribution to the overall CS rate. Successful Vaginal birth after Caeserean (VBAC) gave a percentage of 63.45% in our study.

Table 2:

Caesarean section rate and contribution made by each group					
Robson's criteria	Total no. of deliveries in each group	Total no of caesarean in each group	Relative size of group (%)	Caesarean section rate percent	Contribution made by each group to total caesarean section rate (%)
1	30	0	10.0	0.00	0.00
2a	28	0	9.3	0.00	0.00
2b	52	1	17.3	1.92	0.91
3	11	0	3.7	0.00	0.00
4a	14	0	4.7	0.00	0.00
4b	6	0	2.0	0.00	0.00
5	78	78	26.0	100.00	70.91
6	13	0	4.3	0.00	0.00
7	11	4	3.7	36.36	3.64
8	36	25	12.0	69.44	22.73
9	2	2	.7	100.00	1.82
10	19	0	6.3	0.00	0.00
	300	110	100.0	36.67	100.00

DISCUSSION:
For the last 30 years, there has been a public concern about increasing CS rates. The increase has been a global phenomenon, the timing and rate of the increase has differed from one country to another, and marked differences in rates persist [5].

The total number of women delivered for the period of 6 months in our study was 300, out of which CS deliveries were 110. Overall, CS rate calculated for our hospital in this specified period was 36.6%. This was a higher rate noted in our study as compared to most Asian countries which reported CS rate of 27.3% [7] but close to Iran study [8] which reported around 30%. Contrary to our study, An Indian study from Haryana by Kant et al reported a very high CS rate of 53.86% [9]. All these variable CS rates imply that there is no fixed audit for the CS indications worldwide and there has to be standardization of indication of cesarean deliveries, regular audits and definite protocols in hospital will aid in curbing the cesarean section rate in hospital. This will definitely aid in decreased maternal morbidity associated with caesarean delivery rates, reduce the hospital stay and in turn improve the economy.

When our data was analyzed as shown in Table 2, group 5 (previous CS group) made the greatest contribution to the total CS rate70.91%. Group8 (Multiparas including previous LSCS) had the second highest contribution to the CS rate 22.73%and then group7 (multiparous with a single breech (including previous caesarean section) placed third with 3.64 %.

Similar findings were seen in the Haryana study with group 5 the second highest rate and the highest with group 2. Vogel et al analysed the contributions of specific groups through Robson's 10 group classification system in 2 WHO multi-country surveys and concluded the proportion of women with previous caesarean section has increased along with the caesarean section rate in these women as we see in present study [10] Similarly, the use of induction and pre- labour caesarean section and caesarean section after induction in multiparous has also increased according to them. In present study also group 8 has higher rate of CS.

ACOG recently recommended clinical guidelines to restrict the number of cesarean deliveries which are non-medically indicated and induction of labour before 39 weeks of gestation [11].Efforts to reduce such births should include awareness to public, reducing unindicated induction before 39 weeks certain changes and standardization in the departmental policies. Increasingly sedentary lifestyle and poor tolerance to pain are adding to CSMR ratio.

Successful Vaginal birth after Caeserean (VBAC) gave a percentage of 63.45 in our rural based study which was comparable to international standards [12] with a rate of 67%.

CONCLUSION:

Even though the overall CS rate in the study is not high as compared to other Indian or International studies, it is important that efforts to reduce the overall CS rate should focus on reducing the primary CS rate. Robson classification is easily implementable and a robust tool for ongoing surveillance. The results can be compared between institutions, countries and regions. All hospitals and health authorities can use the Robson classification system as part of a quality improvement initiative to monitor Caesarean Section rates. It is suggested that this classification can be introduced as a routine tool to report the Caesarean delivery trends.

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