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Original research article

EVALUATION OF PRIMARY CAESAREAN SECTION TRENDS IN INSTITUTE OF OBSTETRICS AND GYNAECOLOGY USING THE ROBSON CLASSIFICATION

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Abstract

Background: Raising caesarean section rates are of main concern worldwide. This study is aimed at the use Robson's ten group classification system to evaluate the group of women contributing to the higher primary CS rate in a tertiary care hospital in south India.

Introduction: There is increase in caesarean rate still there is no evidence supporting caesarean section would reduce the maternal and perinatal mortality. In this article the Robson 10 group classification system is used to classify and evaluate the trend of primary CS rates in a tertiary care centre in Chennai, India.

Methods: This is a prospective observational study for a period of one year from October 2021 to October 2022 at the Institute of Obstetrics and Gynaecology, a tertiary care centre in Tamil Nadu. Robson's classification technique was used to categorize the women who gave birth during this time, and both the primary and overall CS rates were calculated.

Results: Highest contribution to primary CS rate is group 2 and then group 1. Together these groups contribute to about 50% of the primary CS rate followed by group 8 and group 4. Other groups do not contribute much to primary CS rates.

Conclusions: The rate of primary CS has risen in many countries over time. A uniform standard across hospitals needs to be considered. Robson ten group classification makes the work of collecting and categorising the information about CS much easier. A detailed insight about CS rate and also strategies to curb the primary CS/overall CS rate could be sorted with the use of this classification.

Keywords: Caesarean section, Robson classification, induction of labour

1. Introduction

The raising caesarean section rates are of serious concern and is an important indicator for measuring access to obstetric services [1]. The WHO sine 1985 advises that CS rates

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should not more than 15% [2]. The caesarean section rates have been doubled in India since 2005-2006. Various reasons for increased caesarean section rates over the last 40 years include relatively safer surgical procedure, medico legal litigations, maternal choice, advanced age of women giving birth, obesity and various co-existing medical conditions making pregnancies a high risk one [3]. With such increase in caesarean rate still there is no evidence supporting caesarean section would reduce the maternal and perinatal mortality. A standardisation criterion was proposed by MS Robson in the year 2001. The 10 group Robson classification has been appreciated by WHO and FIGO [4, 5]. WHO proposes the Robson classification system as a global standard for assessing, monitoring and comparing caesarean section rates within healthcare facilities over time, and between facilities [4]. In this article the Robson 10 group classification system is used to classify and evaluate the trend of primary CS rates ina tertiary care centre in Chennai, India.

Objectives

The Objectives of this study are

1. To classify CS according to their causes as per Robson 10 group classification system.
2. Identify the rising cause of primary caesarean section.

2. Methods

This is a prospective observational study conducted for a period of one year from Oct 2020 to Oct 2021 at Institute of Obstetrics and Gynaecology, Egmore, Chennai, a tertiary care hospital in the state of Tamil Nadu in South India. All women who delivered during this period were included in this study. They were classified bases on the Robson 10 group classification system. Percentage were calculated for the overall rate and percentage in each group. We used the modified Robson classification which goes as follows.

Group	Description
1	Nulliparous, single cephalic, ≥37 weeks, spontaneous labour
2A	Nulliparous, single cephalic, ≥37 weeks, induced labour
2B	Nulliparous, single cephalic, ≥37 weeks, caesarean before labour
3	Multiparous (excluding previous caesareans), single cephalic, ≥37 weeks, spontaneous labor
4A	Multiparous (excluding previous caesareans), single cephalic, ≥37 weeks, induced labor
4B	Multiparous (excluding previous caesareans), single cephalic, ≥37 weeks, caesarean before labor
5	Previous caesarean, single cephalic, ≥37 weeks
6	All nulliparous breeches
7	All multiparous breeches (including previous caesareans)
8	All multiple pregnancies (including previous caesareans)
9	All abnormal lies (including previous caesareans)
10	All single cephalic, ≤36 weeks (including previous caesareans)

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3. Results

Over that time, 15082 women delivered babies in total. There were 7853 Caesarean sections performed overall. Total number of primary LSCS were 3580. At our facility, the overall caesarean section rate for this time period was 52.77%. Overall primary section rate for this period was 49.52%.

In decreasing order, Group 2 (Nulliparous, single cephalic, > 37 weeks induced, or CS before labor) is the cause of the rising primary CS rate. The majority of cases in this group 2A (nulliparous, single cephalic >37 weeks induced) were from this group.

The next is group 1 (Nulliparous, single cephalic, > 37 weeks in spontaneous labour) group 8(all multiple pregnancies) group 4 (multiparous either induced or CS before labour excluding previous CS). The other minor contributors are Group 6 and group 7 (all nulliparous breech and all multiparous breeches respectively) followed by group 10(all single cephalic <36 weeks including previous CS), group 3 (multiparous single cephalic >37 weeks in spontaneous labour) and group 9(all abnormal lie including previous CS).

The following is the contribution to total cesarean sections, listed in descending order:

Group 5 (Previous CS, single cephalic >37 weeks), Group 2 (Nulliparous, single cephalic, > 37 weeks induced or CS before labour), group 1 (Nulliparous, single cephalic, > 37 weeks in spontaneous labour) group 4(multiparous excluding previous CS) The other minor contributors are Group 6 and group 7 (all nulliparous breech and all multiparous breeches respectively) followed by group 10 (all single cephalic <36 weeks including previous CS), group 3 (multiparous single cephalic >37 weeks in spontaneous labour)and group 9(all abnormal lie including previous CS

Table 1: Caesarean section rate and contribution made by each group

Classification group	No. of Deliveries[B]	No. of LSCS[A]	A/B*100	B/TND*100	A/TND*100
1	3515	1516	43.12	23.3	10.05
2	2644	1807	68.34	17.5	11.98
2A		1551			
2b		256			
3	2135	98	4.2	15.34	0.64
4	2227	133	5.97	14.7	0.88
4A		115			
4B		18			
5	3807	3798	99.7	25.24	25.18
6	118	113	95.7	0.78	0.74
7	104	102	98.07	0.68	0.67
8	180	142	78.8	1.19	0.94
9	46	46	100	0.3	0.3
10	306	98	32.02	2.02	0.65
Total= 15082	Total =7853				

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Table 2: Ranking Robson group according to section rate in each group

Rank	Classification Group	Relative Size in Each Group (B/Total No. of Deliveries*100)
1.	5	25.24%
2.	1	23.3%
3.	2	17.5%
4.	3	15.34%
5.	4	14.7%
6.	10	2.02%
7.	8	1.19%
8.	6	0.78%
9.	7	0.68%
10.	9	0.3%

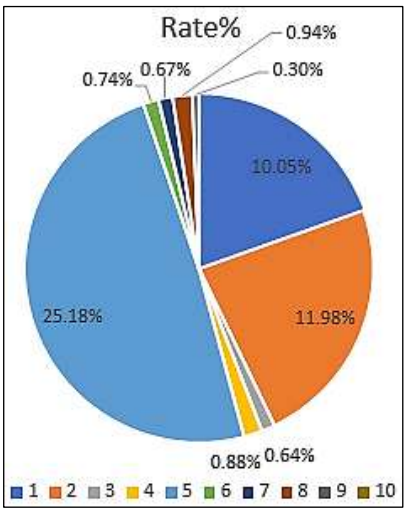

Chart 1: Contribution of each group to overall CS rate

4. Discussion

The prevalence of cesarean sections is rising everywhere. The classification of caesarean sections depends on why they were performed. Our facility provides tertiary treatment and has an obstetric critical care unit. The Robson classification system uses basic obstetric characteristics to categorise all women admitted for delivery into one of ten mutually exclusive and totally inclusive groups [6]. The Robson classification has received wide acceptability in a variety of settings, in contrast to other CS categorization methods (based, for example, based on signs for CS) [7].

At our facility, the overall caesarean section rate for this time period was 52.77%. For this time frame, the overall primary section rate was 49.52%. This rate is much higher than WHO proposed rate of about 15%. The higher last-minute referrals, lack of theatre and transfusion facilities at the major booking center and higher section rates may all be contributing factors. The group 5 makes the most absolute contribution to the section rates as a whole.

With regard to primary section the highest rate was contributed by group 2 followed by

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group 1 group 8 and group 4. Overall group 5, 2 and 1 contributed to more than 60% of the CS rates.

With these results it is inferred that obstetric units should focus on two issues. First, unsuccessful/failed induction plays a major role in increasing CS rate. Unless a clear-cut indication is noted induction of labour needs to be restricted. Limiting the IOL for which there is no strong reason would significantly affect the CS rate, especially in individuals with unfavorable cervix [8]. Clinical practice was changed and caesarean section rates were decreased with the help of audit and feedback, quality improvement, and multidimensional initiatives [9].

The second concern is to address failure to advance and fetal heart rate concern, two of the fundamental LSCS's most prevalent symptoms. With increasing maternal age, maternal obesity, conception after ART and maternal medical complications interventions like induction and use of Oxytocin may have altered the normal progress of labour. Some women end up in CS for failure of progress of labour even before active labour has begun [10]. Therefore, it is strongly advised that tertiary care facilities conduct stringent daily reviews of all Emergency CS from the previous day in order to lower the primary CS rates.

By attempting external cephalic version on all eligible women, the rising CS rate among multiple pregnancies and breech presentation can be decreased.

5. Limitaions of the study

Our hospital being a tertiary care centre with obstetrics ICU. High referral in of high-risk antenatal mothers from other centres is noted. Thus, a referral bias was reflecting in the results.

6. Conclusion

The raising primary CS rate globally is to be addressed on a serious note. Standardization of indication of CS, daily strict auditing of emergency CS and a definite protocol will help in restraining the CS rate in the hospital.

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