

**ANALYSIS OF CAESAREAN SECTION RATE ACCORDING TO ROBSON'S 10 GROUPS CLASSIFICATION: A RETROSPECTIVE CROSS-SECTIONAL STUDY AT A TERTIARY CARE HOSPITAL IN INDIA****Dr. Moushmi Parpillewar Tadas DGO, DNB\*<sup>1</sup> Dr. Prashanthi S. M. S.<sup>2</sup> and Dr. SnehalLede<sup>3</sup>**<sup>1</sup>Associate Professor, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Nagpur, Maharashtra state, India.<sup>2</sup>Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Nagpur, Maharashtra state, India.<sup>3</sup>Junior Resident, Department of Obstetrics and Gynaecology, Government Medical College and Hospital, Nagpur, Maharashtra state, India.

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Maharashtra state, India.**ABSTRACT**

**Background:** The cesarean section rate is increasing worldwide. Classifying cesarean section according to Robson's Ten group classification system helps to bring down cesarean section rate. Aim was to classify the cesarean section according to their causes and standardize indication of caesarian section. **Method:** This study was conducted at Government Medical College and Hospital, Nagpur, Maharashtra, India. Data of all pregnant women delivered during 6 months period by cesarean section during January 2020 to June 2020 collected and percentage of various groups as per Robson's Ten Group Classification System were calculated. **Results:** Out of 4858 deliveries, 2134 delivered by lower segment cesarean section. The cesarean section rate was 43.9%. Group 5 contributes to maximum (32.75%). Cesarean section rate was maximum among primigravida (58.8%). **Conclusion:** In present study, previous cesarean section group was highest contributors to all cesarean section deliveries. Robsons classification provides the contributors to cesarean section and help to identify the large contributors so easy to work on it. It also allows evaluation and comparison of contributors to cesarean section.

**KEYWORDS:** Caesarean section, Robsons Ten group classification, caesarean section audit, primary and repeat caesarean.

**INTRODUCTION**

Caesarean section rates are increased over last decade. Rising cesarean section (CS) rates are a major public health concern and cause worldwide debates due to potential maternal and perinatal risks associated with this increase, increased hospital stay and increased cost issue.<sup>[1-5]</sup> Rising CS rates is attributed to various causes like increased number of patients with previous cesarean section, more use of electronic fetal monitoring in labor diagnosing more cases of fetal distress, infertility treatment with multiple and precious pregnancies, increased incidence of cesarean delivery on maternal request and increased age of pregnancy and rising incidence of induction of labor.<sup>[6]</sup> International concern over such increases have prompted the World Health Organization to suggest that CS rates should not exceed 15%.<sup>[7]</sup> with some evidence indicating caesarean rates above 15% are not associated with additional reduction in maternal and neonatal mortality and morbidity.<sup>[8]</sup> The decision to perform a primary CS has important implications for maternal morbidity in the current

pregnancy and mode of delivery and maternal morbidity in subsequent pregnancies.<sup>[9-13]</sup>

To understand the reasons of increasing cesarean rate and to propose and implement effective measures to decrease trends, we have to compare and monitor CS rates. Ideally, there should be a classification system to monitor and compare CS rates at facility level in a standardized, reliable, consistent and action-oriented manner.<sup>[1,7-9]</sup> The lack of standardized internationally accepted classification system to monitor and compare caesarean section rate is a factor preventing a better understanding this trend and underlying cause.<sup>[14]</sup> Robson criteria (also known as Ten Group Classification System, TGCS) is a standard classification system of 10 mutually exclusive and totally comprehensive indications. According to WHO, Robson classification will aid in optimization of the cesarean section use, assessment of the strategies aimed to decrease the cesarean section rate and thus improve the clinical practices and quality of care in various health care facilities.<sup>[7]</sup> So, we made an attempt to classify the

caesarean section based on this system to address the cause of rising cesarean section in our scenario.

#### Aim of study

- To classify the cesarean section according to their causes.
- To identify and audit the rising causes of cesarean section in our scenario.
- To standardize the indications of cesarean section.

#### METHODOLOGY

This was a hospital based retrospective cross sectional study of patient population who underwent caesarean section at Department of Obstetrics and Gynecology, Government Medical College, Nagpur, which is a tertiary care hospital in central India. This study was carried out for a period of six months from January 2020 to June 2020 after obtaining permission from Institutional Ethics Committee.

#### Inclusion criteria

All patients who underwent caesarean section in Government Medical College, Nagpur.

#### Exclusion criteria

All patients who are referred after cesarean section to Government Medical College, Nagpur.

#### Method

Patients who undergone cesarean section at Government Medical College Nagpur were noted.

Following variables age, parity, period of gestation, labor (spontaneous /induced), first or previous cesarean section and birth weight was noted. Classification of cesarean section was done according to Robson's classification.

#### RESULTS

Total deliveries during study period were 4858, out of these 2134 patients delivered by cesarean section. Majority of women (78.3%) were in 21 to 30 age group, 13.5% were in 31 to 40 age group and few were in 20 age group. (Table 1).

Majority were term patients 37 to 40 wks (71.8%), followed by 34 to 37 wks (14.85%). Out of total Cesarean sections, rate was more in spontaneous labor and pre labor group. (Table 2).

Most cesarean sections were performed in primigravida (58.8%) and previous cesarean section group (41.1%). Commonest indications of primary caesarean section were fetal distress, meconium stained liquor, failure to progress, cephalopelvic disproportion, malpresentations and unfavourable cervix.

Maximum contribution of cesarean was in Robson's group 5 that is multiparous with prior cesarean section, singleton, and cephalic  $\geq 37$  wks. (32.75%) (Table 3).

There was trend of increased percentage of cesarean section in group 2, nulliparous singleton, cephalic,  $\geq 37$  weeks, induced labor.

**Table 1: Showing the demographic characteristics.**

AGE	Total No of Caesarean (n- 2134)	Percentage %
<20	130	6
21-30	1671	78.3
31-40	290	13.5
>40	43	2
<b>PARITY</b>		
1	1095	51.3
2	771	36.1
3	178	8.3
4	56	2.6
5	34	1.5
<b>BOOKED</b>	1322	61.9
<b>REFERRAL</b>	812	38
<b>RURAL</b>	1222	57.2
<b>URBAN</b>	912	42.7

**Table 2: Showing delivery characteristics of Caesarian sections.**

Period of Gestation	Total No of Caesarean (n- 2134)	Percentage %
<34WKS	94	4.4
$\geq 34$ WK-36WK6D	317	14.85
$\geq 37$ WK-39WK6D	1534	71.8
$\geq 40$ WK-42WK	189	8.8
<b>ONSET OF LABOUR</b>		
SPONTANEOUS	959	44.9

PRELABOUR	748	35.0
INDUCED	427	20
<b>TYPE</b>		
PRIMARY CESAREAN	1255	58.8
REPEAT CESAREAN	879	41.1
<b>MODE OF DELIVERY</b>		
VAGINAL DELIVERY	2703	55.64
CESAREAN SECTION	2134	43.92
INSTRUMENTAL	21	0.43

**Table 3: Showing classification of Caesarian sections according to Robson's criteria.**

Robsons criteria	Total no of caesarean in each group	Contribution made by each group to cesarean section rate
1	434	20.3
2	512	23.9
3	44	2
4	48	2.2
5	699	32.75
6	130	6
7	26	1.2
8	47	2.2
9	41	1.9
10	153	7.1

## DISCUSSION

Cesarean section is an important parameter to assess obstetrical care services of a country. Many classification systems were in vogue to classify cesarean section in the past. However, in the year 2001 Michael Robson introduced the ten-group system for classifying cesarean sections. Later WHO in 2014 proposed the use of Robson classification as global standard for assessing, monitoring and comparing cesarean section within health care facilities. WHO identified this system as the most fulfilling so far as international and local needs are concerned.<sup>[7]</sup> As cesarean section has long term implications on both mother and fetus, it becomes more the reason to determine indications of cesarean sections at institutional level to provide data regarding management of labour and delivery. Robsons classification is simple, flexible, and reproducible clinically and we can analyze the contribution of induction to cesarean section rate.

During the study period total 4858 deliveries occurred, out of which 2134 women delivered by cesarean section. Total cesarean section rate was 43.9%. WHO proposed that at a population level cesarean section rates higher than 10% are not associated with reduction in maternal and neonatal mortality rates. Cesarean section was high at our centre as we get many high risk cases referred here and almost 38% of caesarean were of referred cases. Cesarean section rate in our study was 43.9% which was similar to Ferrira et al,<sup>[15]</sup> 46.6%, Samba and Mumuni,<sup>[16]</sup> 46.9%, but higher when compared to Prameela et al.<sup>[17]</sup> 25.8%, Kazmi et al,<sup>[18]</sup> 20.3%, Shrisath et al,<sup>[19]</sup> 29.09%. Group 5 (32.75%) contribute maximum which was similar to M. Bhatt et al <sup>[20]</sup> 32.8%, P.Mittal et al,<sup>[21]</sup>

31.8% but lower than Shrisath et al<sup>[19]</sup> (54.1%). Second largest contribution was by group 2 (24.95%) which was similar to P. Mittal et al<sup>[21]</sup> 22.2% and M. Bhatt et al,<sup>[20]</sup> 21.8%. Primary cesarean section contributes to 58.8% which was higher than Kazmi et al<sup>[18]</sup> 40.3%. Total cesarean rate in previous caesarean group was 41.1% lower than Kazmi et al,<sup>[18]</sup> 52.9%., Bhardwaj et al<sup>[6]</sup> 59.7%.

Repeat cesarean section rate are increasing day by day as many doctors are reluctant to give trial for vaginal delivery and even patient do not consent for trial of labour. To decrease the cesarean section in previous caesarean group, we should first start reducing the primary cesarean section and encourage vaginal birth after caesarean (VBAC) after proper case selection. To reduce primary cesarean section, unnecessary induction of labour should be avoided and proper case selection for prelabor cesarean section should be done. Appropriate management of first and second stage of labour should be done. Use of partograph and cardiotocography will help to reduce rising cesarean section rate. So attempts should be made to perform cesarean section after proper justification and documentation of cause.

## CONCLUSION

Robsons classification provides the contributors to cesarean section and help to identify the large contributors so easy to work on it. It also allows evaluation and comparison of contributors to cesarean section. Group 1, 2 and 5 are largest contributors and they are modifiable for reducing cesarean section rate. Increased cesarean section rate results in increased risk of placenta previa and accreta in subsequent pregnancy

and increases maternal morbidity and mortality. Proper management of first and second stage of labor, proper case selection for induction of labor, use of partograph and cardiotocography, avoiding unnecessary induction will help to reduce cesarean section. To decrease rate in group 5, trial of labour should be offered to woman with proper case selection and after proper counseling of patient about risk and benefits. High risk categories, elderly primigravida, patient conceived through in vitro fertilization should be encouraged for vaginal deliveries. Standardization of indication of cesarean section, regular audits and definite protocol help to reduce cesarean section rate.

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**Author's contribution:** MPT conceptualized the study, collected data, analyzed, and wrote the manuscript. PS and SL collected data and analyzed.

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