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ANALYSIS OF CAESAREAN SECTIONS USING ROBSON'S CLASSIFICATION SYSTEM IN A TERTIARY CARE CENTRE IN NORTHERN INDIA: AN EMERGING CONCEPT TO AUDIT THE INCREASING CAESAREAN SECTION RATE

Obstetrics and Gynaecology

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ABSTRACT

There has been an increase in rate of caesarean section over last five decades. This is a matter of international public health concern as it increases the caesarean section related maternal morbidity. The aim of the present study was to evaluate that in a new medical college which clinical situation contributed and led to caesarean deliveries as per Robson's classification system and to audit the increasing rate of caesarean section.

This study was performed in Government Medical College Kathua in the Union territory of Jammu and Kashmir from November 2020 to April 2021. In the present study, all cases delivered by caesarean section during the period of six months were recorded and classified according to Robson's 10 group classification system.

Out of total 1366 women delivered, 630 underwent CS (46.12%). It was observed that majority of caesarean sections belonged to group 2 and group 5 of Robson criteria. Group 5 comprised of patients with one or more previous caesarean section with cephalic presentation according to Robson criteria and maximum number of caesarean sections done in the present study belonged to this group that is 40.3%. Group 2 that is nulliparous singleton cephalic > 37 week induced labour or caesarean section before labour comprised 29.2%. Breech pregnancies (groups 6 and 7) had > 90% caesarean rates.

Women with a previous caesarean delivery represent an increasing proportion of caesarean deliveries. Use of the Robson criteria allows standardized comparisons of data and identifies clinical scenarios driving changes in caesarean rates. Hospitals and health organizations can use the Robson 10-Group Classification System to evaluate quality and processes associated with caesarean delivery.

KEYWORDS

Caesarean section, Robson's classification

INTRODUCTION

The Caesarean delivery rates have been on the rise in the last few decades throughout the world going up to 50-60% in many centres [1-4]. It has increased from a rate of 5% in 1940s and 1950s to 15% in 1970 and 1980s. However there has been a dramatic increase in the caesarean section rate globally, even beyond 30% in some areas. The increasing rate of caesarean section is a matter of international public health concern as it increases maternal morbidity [5-7].Hence arose the need of standardization of classification of caesarean section through Robson criteria within the healthcare facilities as proposed by MS Robson in the year 2001. The 10 group Robson classification of caesarean section has been appreciated by WHO in 2014 and FIGO in 2016 [8]. According to WHO, Robson classification will aid in optimisation of the caesarean section use, assessment of the strategies aimed to decrease the caesarean section rate and thus improve the clinical practises and quality of care in various health care facilities.

AIM OF THE STUDY

The present study was done to analyse caesarean sections using Robson's Ten Group Classification system (TGCS) and determine the groups of patients which contribute the most to caesarean sections in the study group over a period of six months. This will subsequently enable initiation of interventions in the identified groups to reduce the caesarean rates.

OBJECTIVES OF THE STUDY

- To classify the caesarean section according to indications using Robson's TGCS.
- To identify and audit the rising causes of caesarean section in our scenario.

Table 1: Robson's classification of caesarean section

Groups	Clinical Characteristics
1	Nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labour
2	Nulliparous, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour
3	Multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, spontaneous labour
4	Multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour
5	Multiparous with prior caesarean section, singleton, cephalic, ≥37 weeks
6	All nulliparous breeches
7	All multiparous breeches (including previous caesarean section)
8	All multiple pregnancies (including previous caesarean section)
9	All pregnancies with transverse or oblique lie (including those previous caesarean section)
10	Singleton, cephalic, ≤36 weeks (including previous caesarean section)

METHODS

The present study was carried out retrospectively over a period of six months from November 2020 to April 2021 in the department of Obstetrics and Gynaecology, Government Medical College Kathua, Jammu and Kashmir, India. All data was retrieved and entered in a preformed structured performa.

The parameters considered were according to the classification system

- Parity (with/ without previous CS).
- Gestational age (>37/<36 weeks).
- Foetal presentation (cephalic/ breech / abnormal lie).
- Number of foetuses (singleton/ multiple).
- Onset of labour (spontaneous/ induced / pre labour CS). (Table1)

Data collected was analysed using simple statistical measures like percentage and proportion. Descriptive statistical analysis was done.

RESULTS

From November 2020 to April 2021 there were a total of 1366 deliveries, of which 630 had caesarean section accounting for an overall caesarean delivery rate of 46.12%.

When the data was analysed as shown in Table 2; the maximum contribution of caesarean was through Robson's group 5 that is multiparous with prior caesarean section, singleton, cephalic, ≥37 weeks (40.3%). There were 256 patients in this group with 254 patients who had caesarean section for previous caesarean section (99.2%). 2 patients with prior caesarean section delivered vaginally.

This was followed by group 2 that is nulliparous, singleton, cephalic,

≥37 weeks, induced labour or caesarean section before labour which contributed 29.2% to total caesarean section rate. Induction of labour increased the chances of caesarean section in group 2.

The caesarean section rate in group 1 (nulliparous, singleton, cephalic, ≥37 weeks, spontaneous labour) (32%) and 3 (multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, spontaneous labour) (3.96%) was less as they came in spontaneous labour as compared with group 2 (nulliparous, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour) (61.7%) and group 4 (multiparous without previous caesarean section, singleton, cephalic, ≥37 weeks, induced labour or caesarean section before labour) (8.49%) respectively where the labour was induced (Table 2).

There was 100% caesarean rate in group 6 with nulliparous breeches whereas 11 out of 12 (91.6%) multiparous breeches had caesarean section in group 7. 0ne multiparous breech was delivered by full term assisted breech vaginal delivery.

3 out 4 patients with multiple pregnancies in group 8 had caesarean section contributing to 75%. There was 100% caesarean rate in abnormal lie (group 9). Group 10 contributed 4.12% to total caesarean section rate.

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 section in each group	Caesarean section rate (%)	Contribution made by each group to total caesarean section rate (%)
1	306	98	32	15.5
2	298	184	61.7	29.2
3	252	10	3.96	1.58
4	153	13	8.49	2.06
5	256	254	99.2	40.3
6	27	27	100	4.28
7	12	11	91.6	1.74
8	4	3	75	0.47
9	4	4	100	0.63
10	54	26	48.1	4.12

DISCUSSION

There is growing international concern about the increased use of caesarean sections (CS), particularly in high-income countries. Caesarean procedures performed in the absence of a clinical justification do not reduce maternal or infant death rates if carried out at a rate higher than 10%–15% [9]. The increasing rate of caesarean section (CS) has been a growing concern in most parts of the world. According to the latest survey 29.7 million (21.1%, 95% uncertainty interval 19.9–22.4) births occurred through CS in 2015, which was almost double the number of births by this method in 2000 [10]. WHO has proposed the Robson's ten group classification system (TGCS) as a global standard for assessing, monitoring and comparing CS rates within and between healthcare facilities in 2015 based on two multi country surveys [11-12]. Several regional and international studies have analysed the utility of this system to identify factors contributing to increasing CS rates which is a growing global concern. Makhanya et al recommends this system for auditing CS rates within healthcare systems [13].

In present study, the rate of caesarean section in our hospital (46.12%) is quite higher than what has been considered by WHO as 15% of all deliveries. The caesarean section rate depicted in year 2013-2014 in India was 16.4% [14]. This rose to 18% in 2015-16 when a health survey was conducted by Nation Family Health Survey. The average caesarean rate in Asian countries (27.3%) was much lower when compared with USA (31.1%) [15].

In the present study, the major contribution to overall CS is by group 5 (women with previous CS) followed by group 2. Similar finding has been noted in various Indian and international studies.

Ray A et al has 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)[16]. Similar findings were noted by Kazmi T et al, Helena et al and Tanaka et al[3,17-18]. Attempts to reduce repeat CS (by promoting trial of labour after caesarean section) for reducing overall CS rate may be under taken by full-fledged obstetric units with dedicated staff with careful selection of cases.

Labour induction protocols vary worldwide and multiple authors have quoted increasing labour inductions as an upcoming contributor to caesarean deliveries. Study by Ann M et al has found induced nulliparous underwent major proportion of primary sections[19]. In present study also group 2 and 4 had an increased caesarean section rate when compared with 1 and 3 respectively. Hence, the need of the hour is to firstly limit induction of labour. It should be strictly evidence based. Secondly, we should critically evaluate on daily basis the indication of primary caesarean section. This will not only decrease the caesarean section in nulliparous but will also eventually decrease caesarean section in multiparous with previous caesarean section.

Malpresentations, especially breech presentations also contributes significantly to overall as well as primary CS rates in the present study. Sneha et al have noted 100% CS rate in breech presentations regardless of parity[20]. Caesareans done for breech presentation can be reduced by training residents in the art of breech delivery.

Classification under the Robson's classification is the first step on the path to reduce caesarean rates. It is only through periodic analysis using the classification that relevant group specific measures can be introduced. Standardization of indication of caesarean deliveries, regular audits and definite protocols in hospital will aid in curbing the caesarean section rate.

CONCLUSION

All deliveries and caesareans should be universally categorized by the Robson's classification system. Groups contributing most to caesareans should be analysed regularly and interventions initiated. Those interventions should be targeted at reducing primary caesareans and convincing patients for trial of labour after caesarean section where possible. Inductions should be done only when necessary. A regular audit should be done in all institutions to rationalize caesarean rates. Impact of interventions to reduce caesarean rates should be studied and documented.

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Conflict of interest

None

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