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Original Research Article

A study on analysis of caesarean section indications using Robson's ten group classification system

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ABSTRACT

Background: Over the past decades, there has been a steady rise in the rate of caesarean delivery. Although not well understood, multiple factors have contributed to this uptrend. The goal of cesarean delivery is to avoid the complications that might develop after vaginal delivery. However, this major surgery is not without significant impact on maternal and fetal outcomes. Maternal complications include the increased risk of post-partum hemorrhage, risk of hysterectomy, infection and deep venous thrombosis besides longer hospital stay.
Methods: This was retrospective observational study done in the department obstetrics and gynecology at T. S. Misra medical College for a duration of 18 months from December 2021 to May 2023. It included all patients who underwent caesarean section.
Results: In our study maximum patients were in group 10(30.2%) according to Robsons classification followed by group 5 (20.9%).
Conclusions: In conclusion, the rate of caesarean delivery is trending up and this has contributed to significant medical, social and financial impacts in the involved families. The most common indication for CS is previous CS. Therefore, the rate of CS can be controlled if CS is done in primigravidae with the genuine indication.

Keywords: Caesarean section, Robson classification, Maternal characteristics

INTRODUCTION

Caesarean section (CS) is the most commonly performed surgical procedure in obstetrics.[1] The incidence of elective and emergency CS is on the increase globally. The world health organization (WHO) has repeatedly reported any population-based rate of CS should not be more than 15% in developed countries, a minority of CSs are contributed by maternal request for non-medical reason.[2,3] The UK National institute for health and care excellence (NICE) guidelines recommend that elective CS on maternal request should be facilitated after full consent is obtained.[4] The indications for CS can be maternal or foetal or both.[5]

The goal of CS delivery is to avoid the complications that may develop after vaginal delivery. However, CS is also not without significant impact on maternal and foetal or neonatal outcomes. Therefore, maternal complications increase two and five fold for elective and emergency caesarean sections respectively.[1] In 2016, Kupari et al from Finland concluded that the increase in CS rate does not lower the incidence of neonatal asphyxia. Rather, the rate of NICU admissions was higher after CS deliveries in their review.[6] Based on the timing when CS needs to be done, indications are divided into four groups: Emergency CS; There is an immediate threat to mother or foetus and the CS should be done within 30 minutes example cord prolapse, Urgent CS; there is maternal or foetal

compromise, which is not immediately life threatening and delivery should be completed within 60-70 minutes, Scheduled CS; these are the cases where the mother or physician cannot wait to elect a date for CS nor does it mean that CS should be done on that day and Elective CS; Mother and staff elect the date and time of CS.[7]

In 2015, WHO proposed the use of the Robson classification (also known as the 10-group classification) as a global standard for assessing, monitoring and comparing caesarean section rates both within healthcare facilities and between them. The system classifies all women into one of 10 categories that are mutually exclusive and, as a set, totally comprehensive. The categories are based on 5 basic obstetric characteristics that are routinely collected in all maternities (parity, number of fetuses, previous caesarean section, onset of labour, gestational age, and foetal presentation).

Table 1: Description of groups as per Robson classification.

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

METHODS

This study was conducted retrospectively for a period of eighteen months from December 2021 to May 2023 in gynaecology and obstetrics department of TSM medical college and hospital, Lucknow. It included all patients who underwent CS for one of the indications. A total of 172 patients were included in the study. These patients were divided in ten groups according to ROBSONS Classification system by WHO. The data was collected from hospital database. Data included maternal characteristics like age, parity, diseases associated with pregnancy like preeclampsia, indication of caesarean section, antenatal steroid cover, elective or emergency caesarean and type of anaesthesia under which caesarean section was done. In our study a total of 172 CSs were done. The data were analysed by Statistical Package for Social Sciences (SPSS) version 22.0 software and described in terms of frequencies, percentages.

RESULTS

In our study majority that is 116 patients (67.4%) were in the age group 21 to 30 year as shown in (Table 2).

Table 2: Maternal characteristics.

Parameters		N (%)
Age (years)	<21	5 (2.9)
	21-30	116 (67.4)
	>30	51 (29.7)
Parity	1	73 (42.4)
	2	61 (35.5)
	≥3	38 (22.1)
Pre-eclampsia	Yes	12 (6.9)
	No	160 (93.1)
GDM	Yes	6 (3.5)
	No	166 (96.5)
Previous caesarean	Yes	78 (45.3)
	No	94 (54.7)
Elective	Yes	44 (25.6)
	No	128 (74.4)
Anaesthesia	Spinal anaesthesia	167 (97.1)
	General anaesthesia	5 (2.9)

Table 3: Distribution of patients in groups as per Robson classification.

Groups	N	%
1	29	16.9
2	42	24.4
3	2	1.2
4	5	2.9
5	36	20.9
6	3	1.7
7	1	0.58
8	2	1.2
9	0	0
10	52	30.2

In our study majority of the women were primipara 73 (42.4%) followed by multipara 99 (57.55%) as shown in (Table 2). 12 (6.9%) women had pre-eclampsia and 160 (93.1%) did not have preeclampsia as shown in (Table 2). About 6 (3.5%) patients who underwent caesarean had gestational diabetes in our study as shown in (Table 2). In our study 78 women (45.3%) had history of previous caesarean and 94 women (54.75) had no history of previous caesarean. In our study 44 (25.6%) women underwent elective caesarean and 128 (74%) women underwent emergency caesarean as shown in (Table 2). As shown in (Table 2), 167 (97.1%) underwent caesarean under spinal anaesthesia while only 5 patients (2.9%) underwent caesarean under General anaesthesia. In our study we got 29 patients in group1, 42 patients in group 2,

2 patients in group 3, 5 in group 4, 36 in group 5, 3 in group 6, 1 in group 7, 2 in group 8, zero in group 9 and 52 in group 10 as shown in (Table 3). So, the most common indication for CS was group 10 accounting for 52 (30.2%) patients. In a study done by Wahane et al Robson Group 1 (24.5%) had the greatest representation followed by Group 5 (21.27%) and 3 (14.18%). While Groups 6 (10.13%) and 9 (0.63%) had the least representation.[10]

DISCUSSION

In our study majority of the women were primipara 73 (42.4%) followed by multipara 99 (57.55%) as shown in (Table 2). In study conducted by Badge VL et al 36 (40%) women were primipara and 54 (60%) women were multipara.[9] In our study 12 (6.9%) women had pre-eclampsia and 160 (93.1%) did not have preeclampsia as shown in (Table 2). Preeclampsia accounted for 15.4% of all CS in a study done by Kritpol et al.[11,12] About 6 (3.5%) patients who underwent caesarean had gestational diabetes in our study as shown in (Table 2). In our study 78 women (45.3%) had history of previous caesarean and 94 women (54.75) had no history of previous caesarean.

The main indication for CS delivery was previous CS delivery (43%) in a study conducted by Khasawneh et al.[8] In our study 44 (25.6%) women underwent elective caesarean and 128(74%) women underwent emergency caesarean as shown in (Table 2). In a study done by Sharma et al the total number of elective caesarean section was 112 (33.9%) and emergency caesarean section was 218 (66.1%).[11] In our study 167(97.1%) underwent caesarean under spinal anaesthesia while only 5 patients (2.9%) underwent caesarean under General anaesthesia. The Royal college of anaesthetists audit book suggests that fewer than 15% of emergency and fewer than 5% of elective Caesarean sections should be performed under general anaesthesia. However, published departmental audits have reported rates of 9-23%.[13]

In our study we got 29 patients in group 1, 42 patients in group 2, 2 patients in group 3, 5 in group 4, 36 in group 5, 3 in group 6, 1 in group 7, 2 in group 8, zero in group 9 and 52 in group 10 as shown in (Table 3). So, the most common indication for CS was group 10 accounting for 52 (30.2%) patients. In a study done by Wahane et al Robson Group 1 (24.5%) had the greatest representation followed by Group 5 (21.27%) and 3 (14.18%). While Groups 6 (10.13%) and 9 (0.63%) had the least representation.[10]

Limitations

Current study has limitations including the small sample size and the mono-centric data collection; therefore, these findings cannot be generalized to the general population of India.

CONCLUSION

In our study we found that maximum number of the patients who underwent caesarean belonged to group 10 followed by group 5. Both groups include patients with previous caesarean. A total of 45.3% patient underwent caesarean for previous caesarean indicating the increase in rate of caesarean section.

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