ORIGINAL ARTICLE

DETERMINING THE INDICATIONS OF C- SECTION BASED ON WHO ROBSON CLASSIFICATION—AN EXPERIENCE IN A TERTIARY CARE HOSPITAL IN PESHAWAR

Fauzia Afridi[1], Zubaida Akhtar[1], Ayesha Afridi[2], Qudsia Qazi[3], Jamila M Naib[1]

[1]Department of Gynaecology MTI, Khyber Teaching Hospital, Peshawar - Pakistan

[2]Department of Radiology, Polyclinic Hospital, Islamabad - Pakistan

[3]Department of Gynaecology MTI, lady reading Hospital, Peshawar - Pakistan

ABSTRACT

Objective: To determine the frequency of various groups of patients undergoing C- section in a tertiary care hospital in Peshawar, using WHO Ten Group ROBSON Classification of C sections

Material and Methods: A descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Khyber Teaching Hospital Peshawar from January-March 2019 on patients delivered in the facility. The patients were classified into 10 groups based on WHO Robson's criteria and the C- section rate determined in each group. The data was analyzed in MS excel.

Results: Out of the total 1364 deliveries during this period, 330 were by C sections, making the C- section rate 24%. The biggest contributor to the overall C- section rate was Group 5 (38%) followed by Group 2 (15%), Group 4 (12%), and Group 1 (11%).

Conclusion: Robson classification is a useful tool to classify and analyze C- section rates. Although the rate of C sections in our setup is not very low, it can be further lowered by devising strategies to curtail sentinel C sections and performing interventions like induction of labor and pre-labor C sections, only if they are evidence-based.

Key Words: C section, WHO Ten Group ROBSON Classification

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INTRODUCTION

C- section rates are sky-rocketing by the day. [1] According to a global survey, the C- section accounts for nearly half of the deliveries in countries like Brazil, Mexico, Turkey, and Egypt and nearly one-third in the USA and Australia.[1, 2, 3] In Pakistan, C- section rates are consistently on the rise, with the C- section rate increasing from 3.2% to 20% over the last three decades.[4] Although the C- section can be a life-saving procedure for both mother and the baby, its unjustified use can be associated with increased maternal and perinatal morbidity and mortality. [5] The rising incidence of the morbidly adherent placenta (placenta accreta) in patients with repeated C sections has added to the life-threatening complications of C sections. [6] Therefore, efforts are needed to decrease C- section rates without compromising maternal and perinatal outcomes. [7]

In order to tackle the rising C- section rate, Robson devised a classification system, endorsed by WHO, which classifies women into ten groups based on parity, presentation, the onset of labor, previous C-section, and period of gestation.[8]

This system of classification allows an objective comparison and audit of C- section rates in different health care facilities and within the same facility over time.[9] The objective of this study was to determine the frequency of various groups of patients undergoing C- sections in a tertiary care hospital in Peshawar, using the WHO Ten Group ROBSON Classification of C-sections. Classifying the C- section into various groups depending on certain variables will help to determine the major contributor to the C-sections. Strategies can be devised to bring down C- section rates in that particular group/group, hence contributing to the overall reduction in the C- section rate and its complications.

Correspondence
Dr. Zubaida Akhtar
Associate Professor
Department of Gynae, MTI, Khyber Teaching Hospital, Peshawar - Pakistan
Email: drzubaidakmc@gmail.com
Cell: +92-333-9156842
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MATERIALS AND METHODS

A descriptive cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Khyber Teaching Hospital Peshawar from January -March 2019. The sample size was 330, based on WHO software for sample size determination, taking the frequency of the C-sections as 20%, using a 95% confidence interval and 5% margin of error. [4] The sampling Technique was Non-probability consecutive sampling.

Table 1: 10 Group Robson Classification

Group	Description
1	Nulliparous, single cephalic, >37 weeks, in spontaneous labor
2	Nulliparous, single cephalic, >37 weeks, induced (2a) or C- section before labor (2b)
3	Multiparous, single cephalic, >37 weeks, in spontaneous labor
4	Multiparous, single cephalic, >37 weeks, induced (4a) or C- section before labor (4b)
5	Previous C section, single cephalic, > 37 weeks. Previous 1 C- section (5.1) Previous 2 or more C- sections (5.2)
6	Nulliparous breech
7	Multiparous breech
8	Multiple pregnancies (including previous C- sections)
9	Abnormal/transverse lie (including previous C- sections)
10	Single, cephalic, <36 weeks (including previous C-section)

All women admitted through OPD or Emergency and delivered either via vaginal route or C- section during the study period were included. Women undergoing delivery or C- section elsewhere and referred to our hospital after delivery were excluded. All the eligible women` data was entered into a proforma and were classified into ten groups based on parity, previous C section, presentation, period of gestation, and labor onset.

The Primary Outcome Measures were, the percentage contribution of each Robson group to the overall C- section rate and the rate of C-sections in each group (number of C-sections in a group/total number of deliveries including C-sections in that group).

Before the start of the study, permission was taken from the ethical committee of the hospital. Data was analyzed in MS excel and results were presented as tables and graphs.

RESULTS

Out of the total 1364 deliveries during this period, 330 were by C sections, making the C- section rate 24%. The biggest contributor to the overall C- section rates were patients with previous scar (Group 5) followed by Group 2 (15%), Group 4 (12%), and Group 1 (11%). Table 1 and 2 shows the 10 group Robson classification and the total number of deliveries and C-sections in each group and the absolute and relative contribution of each group to the C- section rate. respectively.

Table 2: Robson Report Table

Robson Group	No. of CS in Group	Total N In Group	Group Size (%)	Group CS rate (%)	Absolute Group contribution to Overall CS rate (%)	Relevant Group contribution to Overall CS rate (%)
1	36	318	23	11	3	11
2	48	57	4	87	4	15
2a	25	34	2	74	2	8
2b	23	23	2	100	2	7
3	16	568	42	3	1	5
4	39	50	4	74	3	12
4a	10	21	2	48	1	3
4b	29	29	2	100	2	9
5	125	185	13	76	9	38
5.1	68	128	9	53	5	21
5.2	57	57	4	100	4	17
6	18	31	2	58	1	5
7	21	41	3	51	2	6
8	4	31	2	13	0	1
9	10	10	1	100	1	3
10	13	73	5	18	1	4
Grand Total	330	1364	100		24	100

DISCUSSION

Khyber Teaching Hospital is one of the three largest public sectors, tertiary care hospitals in Peshawar, Pakistan. It is 1800 bedded hospital that not only caters to patients in the vicinity but also receives referred and complicated cases from tribal areas as well as neighboring war-torn country Afghanistan. The Obstetrics and Gynaecology Department consists of three units with more than 15000 deliveries per year.

During the study period, a total of 1364 deliveries took place out of which 330 were by C- section making the overall C- section rate 24%. This rate is comparable to the national C- section rate of 20% in Pakistan. [3] However, studies conducted in tertiary care hospitals in Rawalpindi, Islamabad, and Karachi showed a much higher C- section rate of 54%, 33%, and 49% respectively.[10, 11, 12] Also a study conducted in five hospitals in five countries in South Asia revealed a collective C-section rate of 36%. [13]

The major contributor to the overall C- section rate was Group 5 comprising 38% of the total C sections. This result is similar to the studies performed in Gilani S et al, Ansari A et al and Hassan L et al. [10, 11, 13] These findings are also consistent with studies performed in Sri Lanka and France. [14, 15] However, this is in contrast to a study conducted in Multan, in which Group 10 was the major contributor to the C section. [16] In our study, about 47% of patients with a previous 1 C- section (group 5.1) underwent vaginal birth after a C- section (VBAC). This is less than the 66.7% VBAC rate reported in PIMS, Islamabad. [11] This is because induction of labor is offered in very limited cases of previous scar owing to the risk of scar rupture. Also, induction in such patients needs one-to-one close monitoring which is usually not possible in this very busy setup.

The second and third highest contribution to C-section rate was by groups 2 and 4 respectively which comprise nulliparous and multiparous patients with induced labor / pre-labor C- section respectively. These groups contributed 15% and 12% of the total C sections respectively. A study done in Australia also showed that rates of C- section are greater in induced as compared to spontaneous labor. [17] Being a tertiary care hospital, usually, patients with bad obstetric history and precious pregnancies (no alive issues despite many years of marriage) are referred here for C- section and neonatal care, which may partly explain the high rates of pre-labor C section. However, evidence-based protocols should be devised to reduce pre-labor C sections performed for a fetal cord around the neck diagnosed on ultrasound. Also, induction of labor should be medically indicated and justifiable. The absolute rate of C- section in the induced groups (2a and 4a) is very high (74% and 48%) which might be due to missing data regarding induction in patients who deliver vaginally. [8] Group 1 contributed 11% of the total C section, which is comparable to the 10% rate suggested by Robson for this group. [8] The C sections in this group can further be reduced by one-to-one supportive care and reviewing labor care protocols including replacement of the traditionally used Partogram by the WHO Labor care guide. [18]

Groups 1-5 contribute to the majority (79%) of C sections. Clinical protocols should be devised in order to curtail C-sections in these groups and re-audits performed using Robson classification to determine the impact of the interventions on the C- section rate. [19]

The strength of the study lies in the fact that it is one of the few studies done in this province and in a tertiary care hospital, which receives patients from diverse backgrounds, both booked and un-booked. Also, the subgroups of groups 2, 4, and 5 were analyzed, which has been done in very few studies so far. This can contribute further to our understanding of the indications of the C section. The limitations of the study are that it was a single-center study and was non-randomized. Further studies should be conducted to evaluate maternal and fetal outcomes in the various Robson Groups. [20] Also, a system should be devised within the Robson classification whereby the exact indication of the C- section within Groups 1-4 and Group 10 can be reported.

CONCLUSION

Robson classification is a useful tool to classify and analyze C-section rates. Although the rate of C sections in our setup is not very low, it can be further lowered by devising strategies to curtail sentinel C sections, and performing interventions like induction of labor and pre-labor C sections, only if they are evidence-based.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Afridi F:	Topic Selection, article writing
Akhtar Z:	material and methods
Afridi A:	Proof Reading, Discussion
Qazi Q:	Data Analysis
Naib JM:	Data collection, Referencing

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.