ORIGINAL ARTICLE

ANALYSIS OF CAESAREAN SECTIONS RATES USING ROBSON'S TEN GROUP CLASSIFICATION SYSTEM, UNIT B MCHC, ATH ABBOTTABAD

Sundus Ambreen Afridi[1], Khalid Ahmad[2], Ruqqiya Sultana[1]

Department of Gynae & Obs, Ayub Medical College, Abbottabad, [2]Khyber Medical University, Peshawar-Pakistan

Background: There is growing international concern about the increased rate of caesarean sections (CS), 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% Achieving reductions in maternal and infant morbidity and mortality are, among others, the objectives promoted by the World Health Organization (WHO) for 2030. The analysis of unjustified C/S rate is done by Using Robson's Ten Group Classification system. **Methods:** Cross-sectional study by using Robson's Ten Group classification, in Unit B MCHC, ATH Abbottabad during 6 months, from 1st August 2021–31st January 2022. **Results:** Total Patients Delivered during this duration of study were 777, among which 352 were delivered by C/S were 352. Analysis by Robson ten-group classification system showed C/S Rate as: Group 1:16.81%, Group 2: 78.95%, group 3:1.56%, group 4:77.14%, group 5:89.22%, group 6: 83.33, Group 7:67.86, Group 8:40, group 9:100%, Group 10:46.97. The total Caesarean section rate was 45.3%. **Conclusion:** By RTGCS analysis, C/S rates Group 5, 4 and 2 are major contributions in overall C/S rates in studied clinical setup. Group 1 and 10 are also contributing. Overall C/S rates can be decreased by working on them.

Keywords: Caesarean section; RTGCS: Robson ten-group classification system; Delivery

Citation: Afridi SA, Ahmad K, Sultana R. Analysis of caesarean sections rates using Robson's ten group classification system, unit B MCHC, ATH Abbottabad. J Ayub Med Coll Abbottabad 2022;34(3):537–9.

DOI: 10.55519/JAMC-03-10986

INTRODUCTION

The increased C/S rate is a growing concern internationally. The caesarean rate of higher than 10–15%, in the absence of any clinical justification does not reduce infant and maternal mortality rate worldwide.[1] The therapeutic cascade of avoidable interventions are increasing by excessive and unjustified use of clinical procedures[2] and become life-threatening in the present or future pregnancies for both the women and children[3]. Among the objectives promoted by WHO for 2030, the reduction in maternal and infant morbidity and mortality can be achieved by avoiding clinically unnecessary caesarean sections. However, there are challenges to keep CS rates low while ensuring safe outcomes for mothers and infant.[4]

For feedback and audit of the C/S rate and its optimization in clinical setups worldwide, there was a lack of a classification tool that can be used internationally.[5] In 2001, Robson *et al*. proposed an overall classification method, in order to inform measures aimed at preventing unnecessary procedures that facilitates in understanding the rate of CS in a center and makes it possible to identify key subpopulation groups. The WHO has proposed the use of the Robson ten-group classification system (RTGCS) as the global standard, as this classification method allows for the analysis of changing trends over time. It makes possible to compare differences between centers and shed light on how changes in clinical practice can optimize caesarean rates[6]. The worldwide rise in CS rates is a clinical concern because of its potential maternal and perinatal risks, cost issues, and inequity in access.[7]

Objective was to analyze trends of CSs and evaluating them according to Robson's Ten Groups Classification System in MCHC Ayub Medical Complex

MATERIAL AND METHODS

Design, Population and Sample: An observational Cross-sectional study was conducted at Unit B MCHC, ATH; Abbottabad in 6 months duration, from 1st Aug, 2021- 31st Jan 2022, Data included all the deliveries conducted during above period, including VDs and C/S deliveries. During this period a total of 777 deliveries done, among which 352 were C/S.

Data Collection Tools: We used RTGCS to categorize all women as follows:

1. Nulliparous, singleton cephalic, 37 weeks, spontaneous labour.

2a. Nulliparous, singleton cephalic, 37 weeks, induced labour.

2b. Nulliparous, singleton cephalic, 37 weeks, or caesarean delivery before labour.

3. Multiparous, singleton cephalic, 37 weeks, spontaneous labour.
4a. Multiparous, singleton cephalic, 37 weeks, induced labour.
4b. Multiparous, singleton cephalic, 37 weeks, caesarean delivery, before labour.
5. Previous caesarean delivery, singleton cephalic, 37 weeks, spontaneous labour or induced labour or caesarean delivery before labour.
6. All nulliparous singleton breeches, spontaneous labour or induced labour or caesarean delivery before labour.
7. All multiparous singleton breeches (including previous caesarean delivery), spontaneous labour or induced labour or Caesarean delivery before labour.
8. All multiple pregnancies, spontaneous labour or induced labour or caesarean delivery before labour.
9. All abnormal singleton lies (including previous caesarean delivery but excluding breech), spontaneous labour or induced labour or caesarean delivery before labour.
10. All singleton cephalic, _36 weeks (including previous caesarean delivery), spontaneous labour or induced labour or Caesarean delivery before labour[8].

RESULTS

In our study population, during 6 months duration, total women delivered were 777, among which 352 had C/S, making 45.3% of population size, then by using RTGCS, the C/S rate of each group is analyzed. Table-1 shows Group's C/S rate as: Group 1:16.81%, Group 2: 78.95%, group 3:1.56%, group 4:77.14%, group 5:89.22%, group 6: 83.33, Group 7:67.86, Group 8:40, group 9:100%, Group 10:46.97. The total Caesarean section rate was 45.3%.

Table-1: Group's C/S rate

Groups	no.C-s	Total Women in Group	GP Size (%)	GRP C-S Rate (%)	Absolute Contribution (%)	Relative Contribution	Robson's Guideline
1	20	119	15.32	16.81	2.57	5.68	Under 10%
2	45	57	7.34	78.95	5.79	12.78	Round 20-35%
2a	10	20	2.57	50	1.29	2.84	----
2b	35	37	4.76	94.59	4.5	9.94	----
3	3	192	24.71	1.56	0.39	0.85	Normally No higher than 3%
4	27	35	4.5	77.14	3.47	7.67	Rarely Higher than 15%
4a	5	13	1.67	38.46	0.64	1.42	--
4b	22	22	2.83	100	2.83	6.25	--
5	149	167	21.49	89.22	19.18	42.33	50-60% are appropriate
5.1	79	97	12.48	81.44	10.17	22.44	--
5.2	70	70	9.01	100	9.01	19.89	--
6	10	12	1.54	83.33	1.29	2.84	--
7	19	28	3.6	67.86	2.45	5.4	--
8	12	30	3.86	40	1.54	3.41	Around 60%
9	5	5	0.64	100	0.64	1.42	100%
10	62	132	16.99	46.97	7.98	17.61	Around 30%
Total	352	777	99.99	45.3	45.3	99.99	--

DISCUSSION

In our study population, during 6 months duration, total C/S rate was 45.3%, which is very high comparatively to the recommended 10–15% by WHO. After analyzing by using RTGCS, it is inferred that, the major contributors in increased C/S rates are Group 5, 4, and 2.

Group 5 (Previous scar, Spontaneous, induced or pre labour Caesarean delivery) is a major contributor: 89.22% (42.9% of overall C/S rate) in Current studying clinical setup. It is due to lack of health education regarding Vaginal delivery after caesarean (VBAC), and a lot referrals of Elective C/S of previous 2 or more scars from surrounding areas. Lack of expertise for VBAC and instrumental delivery is also a contributing factor for increase in rate of c/sec in group 5.it can be reduced by improving the skills of trainee medical officers working in health setups. It can be decreased by counselling the primary C/S patient for regular antenatal check-ups in next pregnancy, treating the preventable indications of Emergency C/S and preparing them for VBAC and emphasizing the health authorities to create and run more functional MCHCs in surrounding areas according to population need.

Group 4 (Multiparous, singleton, spontaneous, induced or pre labour caesarean delivery) is a also a major contributor in overall caesarean rates, about 77.14%, women admitted under group 4 were delivered by C/S, which should be less than 15% according to Robson's implementation manual.[8,9] Number of women whose labour is being induced is increasing, the major indicator of induction are undiagnosed obstetrical disorders in early pregnancy like PIH leading to impending eclampsia, Gestational diabetes mellitus etc., then induction in term, before 41 weeks, with unfavourable cervix for vaginal delivery at term lead to induction failure and C/S. The decrease in C/S rate in this Group can decrease overall rate of C/S in clinical setup over next decades. We believe, there should be primary health education regarding antenatal check-ups, and diagnosing obstetrical disorders at an early stage. It will lead to good outcomes of pregnancy. And there

should be evidence-based inductions as much as possible, with favourable cervix leading to vaginal delivery. Obstetric units should address a policy of inductions on postdates, strictly after 41 weeks, with bookings being made early in antenatal checkups.[10] Group 2 (Nulliparous, spontaneous, induced or pre-labour delivery) is another contributor in increased C/S rate in studied clinical setup. RTGCS analysis showed, it has a group C/S rate of 78.95%, It should be within the range of 20–35%. The main reason for this increase is lack of antenatal check-ups, leading to uncontrolled obstetrical disorders while reaching or at the term, then induction with unfavourable cervix, or pre-labour emergency C/S. Health programs and primary health education regarding early antenatal check-ups should be promoted.

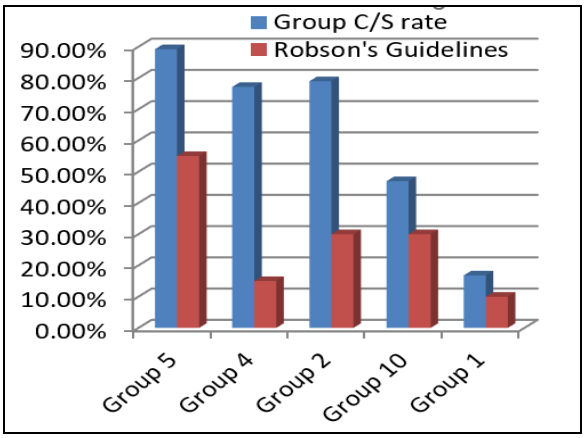

Figure-1: The RTGCS contributing groups in overall C/S rates as compared to Robson's Guidelines

Group 10 (preterm, singleton, spontaneous, induced or preterm labour) and 1(Nulliparous, spontaneous labour) as also contributing in overall C/S rate. The main reason for these is also a lack of antenatal surveillance. It can be decreased by promoting primary health education and diagnosing preventable obstetrical complications at an early period of gestation. The strength of study is that, there is no such study conducted before in this clinical setup. Moreover, the population data were collected on daily basis and then by using RTGCS C/S rates is analyzed. The major groups contributing in overall C/S rate is analyzed.

The limitations in this study were, lack of digital record, taking time in data collecting on daily basis.

CONCLUSION

By RTGCS analysis, C/S rates Group 5, 4 and 2 are major contributions in overall C/S rates in studied clinical setup. By making policies regarding MCHCs, and improving primary health education for the importance of antenatal checkups and improving health facilities can decrease rates in these groups, which will impact on overall C/S in next few years.

AUTHORS' CONTRIBUTION

SA: Literature search, data collection. KA: Data collection, data analysis, write-up. RS: Conceptualization of study design, proof reading.

REFERENCES

1. Cagan M, Tanacan A, Aydin Hakli D, Beksac MS. Changing rates of the modes of delivery over the decades (1976, 1986, 1996, 2006, and 2016) based on the Robson-10 group classification system in a single tertiary health care center. J Matern Fetal Neonatal Med 2021;34(11):1695–1702.
2. Souza JP, Gülmezoglu A, Lumbiganon P, Laopaiboon M, Carroli G, Fawole B, *et al*. Caesarean section without medical indications is associated with an increased risk of adverse short-term maternal outcomes: The 2004–2008 WHO Global Survey on Maternal and Perinatal Health. BMC Med 2010;8:71.
3. Tura AK, Pijpers O, de Man M, Cleveringa M, Koopmans I, Gure T, *et al*. Analysis of caesarean sections using Robson 10-group classification system in a university hospital in eastern Ethiopia: A cross-sectional study. BMJ Open 2018;8(4):e020520.
4. Ye J, Zhang J, Mikolajczyk R, Torloni MR, Gülmezoglu AM, Betran AP. Association between rates of caesarean section and maternal and neonatal mortality in the 21st century: A worldwide population-based ecological study with longitudinal data. BJOG 2016;123(5):745–53.
5. Betrán AP, Vindevoghel N, Souza JP, Gülmezoglu AM, Torloni MR. A systematic review of the Robson classification for caesarean section: What works, doesn't work and how to improve it. PLoS One 2014;9(6):e97769.
6. Robson M. The ten group classification system (TGCS)-a common starting point for more detailed analysis. BJOG 2015;122(5):701.
7. Kirchengast S, Hartmann B. Recent lifestyle parameters are associated with increasing caesarean section rates among singleton term births in Austria. Int J Environ Res Public Health 2019;16(1):14.
8. WHO. Robson Classification: Implementation Manual; WHO: Geneva, Switzerland, 2017.
9. WHO. WHO Statement on Caesarean Section Rates; World Health Organization: Geneva, Switzerland, 2015; p.667–70.
10. Gardner K, Henry A, Thou S, Davis G, Miller T. "Re: Improving VBAC rates: the combined impact of two management strategies," Aust N Z J Obstet Gynaecol 2015;54(2):195.

Submitted: May 19, 2022	*Revised: May 30, 2022*	*Accepted: June 6, 2022*

Address for Correspondence:
Dr. Khalid Ahmad, Islamabad School and College, near Vickey Nursery, CMH Road, Muzaffarabad-AJK
Cell: +92 348 521 8400
Email: ka31749@gmail.com