

Study of Caesarean Section using Robson's Ten Group Classification System

Umesh Anil Sawarkar¹, Ashwini Rameshpant Raut²

¹Assistant Professor, Department of Obstetrics & Gynaecology, Panjabrao Deshmukh Memorial Medical College, Amravati, Maharashtra

²Junior Resident, VMGMC, Department of Pathology, Solapur, Maharashtra

Received: 30-11-2023 Revised: 10-12-2023 / Accepted:22-12-2023

Corresponding author: Umesh Anil Sawarkar

Conflict of interest: Nil

Abstract

The aim of the present study was to calculate the overall cesarean section rate, to identify groups of women (distributed according to Robson's Ten Group classification system) that contributed most to the overall cesarean section rate and to analyze cesarean section rates. This cross-sectional study was conducted at "The Department of Obstetrics and Gynaecology, The study population included a total of 200 women who underwent CS in the hospital. All pregnant women with gestational age of more than 28 weeks, delivered during the study period were classified according to Robson's ten-group classification system. Cesarean section rate, group size, group cesarean section rate and absolute and relative contribution of each group to caesarian section (CS) rate were calculated and analysis was done. 54% cases were of 10 group of Robson's Classification (Singleton, cephalic, ≤ 36 weeks including previous cesarean section). 19% cases indication was Previous Cesarean Section. 17% cases indication s was Fetal Distress. "Robson's ten group classification system" helps us to identify the main groups of subjects who contribute most to the overall CS rate. In present study as women with previous cesarean section constitute the most important determinant of overall cesarean section rates. We should judiciously make use of vaginal birth after cesarean section but not at the cost of maternal or fetal health.

Keywords: Cesarean section, Robson's classification.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

There has been an increase in rate of cesarean section over last five decades. 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 cesarean section rate globally, even beyond 30% in some areas. As advised by WHO guidelines and US Healthy initiative 2000, the cesarean section rate should not be beyond 15%. [1] However, there was an upward trend of cesarean section rate as there were no reliable and internationally standardised data enabling a global comparison for the indications of cesarean sections. The increasing rate of cesarean section is a matter of international public health concern as it increases the cesarean section related maternal morbidity. [2,3,4] Hence arose the need of standardization of classification of cesarean 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. [5] According to WHO, Robson classification will aid in optimisation of the caesarean section use, assessment of the strategies

aimed to decrease the cesarean section rate and thus improve the clinical practises and quality of care in various health care facilities. So, we made an attempt to classify the caesarean section based on this system to address the cause of rising caesarean section in our scenario. The Robson classification is for "all women" who deliver at a specific setting and not only for the women who deliver by cesarean section. It is a complete perinatal classification. It provides a framework for monitoring and auditing CS rates. It is based on four obstetric concepts: category of pregnancy, previous obstetric history, course of pregnancy and gestational age. On this basis women are categorized into ten groups. The classification process is mutually exclusive and all inclusive, which means that every woman fits into one group and one group only [6]. Main strengths of the Robson classification are the simplicity of its design, the validity of its purpose, its ease of implementation and directness of initial interpretation [7]. The aim of present study was to calculate overall cesarean section rate, to identify groups of women (distributed according to

Robson's ten group classification system) contributed most to overall cesarean section rate and to analyze cesarean section rates within groups in our institute.

Material and Methods

This cross-sectional study was conducted at "The Department of Obstetrics and Gynaecology, The study population included a total of 200 women who underwent CS in the hospital during the specified study period. Written consent was taken from all the study participants. Women having laparotomy for uterine rupture or those with missing records were excluded. For all the women

enrolled, maternal history, bio-data, symptomatology, clinical examination, management outcomes, pregnancy-related information (gestational age, fetal presentation, number of fetus and onset of labour) and maternal and fetal outcomes at discharge (complications, APGAR score at five minutes, birth weight) were recorded. The dependent variable was Robson classification group. All the study information was noted on a predesigned proforma. All completed data was entered in SPSS version 26.0 for analysis. Descriptive statistics of study participants and variables were calculated. Table 1 shows Robson's classification of cesarean section.

Table 1: Robson's classification of cesarean section.

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

Results

Table 2 : Distribution of Cesarean Section cases in terms of Robson's 10-Groups Classification

Robson's 10-Groups Classification	Caesarean Section cases number = 200	(%) Contribution made by each group to overall CS
1	22	11 %
2	12	06 %
3	11	5.5 %
4	04	02 %
5	28	14 %
6	05	2.5 %
7	06	03 %
8	02	01 %
9	02	01 %
10	108	54 %

Table 2 shows Distribution of Cesarean Section cases in terms of Robson's 10-Groups Classification 54% cases were of 10 group of Robson's Classification (Singleton, cephalic, ≤ 36 weeks including previous cesarean section)

Table 3: Indications leading to Cesarean Section in the Present Study (n=200)

Indications	Caesarean Section cases number = 200	Percentage
Previous Cesarean Section	38	19 %
Fetal Distress	34	17 %
Hypertensive Disorders of Pregnancy	14	07 %
Failed Induction of Labour	16	08 %
Cephalopelvic Disproportion	14	07 %
Maternal Requests	12	06 %
Contracted Pelvis	10	05 %
Breech	16	08 %
Abruption	18	09 %
Placenta Previa	16	08 %
Others	12	06 %

Table-3 shows Indications leading to Cesarean Section in the Present Study . 19% cases indication was Previous Cesarean Section. 17% cases indication s was Fetal Distress.

Discussion

World health organization has endorsed CS rate < 15% to balance the risk and benefits of CS. Rising trends in CS rates are feared to implicate lower threshold of labour pains, lesser levels of expertise adopting instrumental deliveries, malpractices, labour induction without indications as well as maternal requests.[8-12] It is very important to keep evaluating CS rates over a period of time and compare it with past data to mark the possible areas of improvement with an aim to lower overall CS rates.[13,14].In our study 54% cases were of 10 group of Robson's Classification (Singleton, cephalic, ≤36 weeks including previous cesarean section). Table-3 shows Indications leading to Cesarean Section in the Present Study . 19% cases indication was Previous Caesarean Section. 17% cases indication s was Fetal Distress. Vogel et al analysed the contributions of specific groups through Robson's 10 group classification system in 2 WHO multi- country surveys and concluded the proportion of women with previous caesarean section has increased along with the caesarean section rate in these women as we see in present study. [15] Similarly, the use of induction and pre-labour caesarean caesarean section and caesarean section after induction in multiparous has also increased according to them. 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. The hospital where this study was conducted was a tertiary care centre where there is large number of referred high risk cases. There is an increase in trend of caesarean section on maternal request. However, we need to reduce the number of caesarean sections in primiparas and make judicious use of vaginal birth after caesarean deliveries but not at the cost of health of mother and baby. ACOG recently recommended clinical guidelines to restrict the number of caesarean deliveries which are nonmedically indicated and induction of labour before 39 weeks of gestation.[16]Efforts to reduce such births should include awareness to public, reducing unindicated induction before 39 weeks certain changes and standardization in the departmental policies. Increasingly sedentary lifestyle and poor tolerance to pain are adding to CSMR ratio.

Conclusion

“Robson's ten group classification system” helps us to identify the main groups of subjects who contribute most to the overall CS rate. In present study as women with previous cesarean section constitute the most important determinant of overall cesarean section rates, evidence based labor management protocols and labor induction protocols should be strictly followed by obstetric units to optimize cesarean section rates among nullipara

References

1. WHO Statement on Cesarean Section Rates; WHO/RHR/15.02. Available at http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/.
2. Lumbiganon P, Laopaiboon M, Gulmezoglu AM, Souza JP, Taneepanichskul S, Ruyan P, et al. Method of delivery and pregnancy outcomes in Asia: the WHO global survey on maternal and perinatal health 2007-08. *Lancet*. 2010; 375(9713):490-9.
3. Marshall NE, Fu R, Guise JM. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. *Am J Obstet Gynecol*. 2011;205(3):262.e1-8.
4. Souza JP, Gülmezoglu AM, 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 Perinatal Health. *BMC Med*. 2010;8(1):71.
5. FIGO Working Group on Challenges in Care of Mothers and Infants during Labour and Delivery, Bestpractise advice on the 10-Group Classification System for caesarean deliveries, *Int J Gynecol Obstet*. 2016; 135(2); 232-3.
6. Robson MS. Can we reduce the cesarean section rate? *Best Pract Res Clin ObstetGynaecol*. 2001; 15:179-94.
7. Betran 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.
8. Khan MA, Sohail I, Habib M. Auditing the cesarean section rate by robson's ten group classification system at tertiary care hospital. *Professional Med J*. 2020;27(4):700-706.
9. Naeem M, Khan MZ, Abbas SH, Khan A, Adil M, Khan MU. Rate and Indication of elective and emergency cesarean section: A study in a Tertiary Care Hospital of Peshawar. *J Ayub Med Coll Abbottabad*. 2015; 27:151-154.

10. Amin N, Malik NJ. Role of antenatal checkup on caesarean section rate – study at CMH Attock. Pak Armed Forces Med J. 2017;67(4):599-603.
11. Jabeen J, Mansoor MH, Mansoor A. Analysis of indications of caesarean sections. J Rawalpindi Med Coll (JRMCC). 2013;17(1):101-103
12. Stavrou EP, Ford JB, Shand AW, Morris JM, Roberts CL. Epidemiology and trends for Caesarean section births in New South Wales, Australia: A population-based study. BMC Pregnancy Childbirth. 2011; 11:8.
13. Kolas T, Hofoss D, Daltveit AK, Nilsen ST, Henriksen T, Hager R, et al. Indications for cesarean deliveries in Norway. Am J Obstet Gynecol. 2003;188(4):864-870.
14. MacDorman MF, Menacker F, Declercq E. Cesarean birth in the United States: epidemiology, trends, and outcomes. Clin Perinatol 2008;35(2):293-307.
15. Vogel JP, Betrán AP, Vindevoghel N, Souza JP, Torloni MR, Zhang J, et al., Use of the robson classification to assess caesarean section trends in 21 countries: a secondary analysis of two WHO multicountry surveys. The Lancet Global Health, 2015;3(5):e260-70
16. Stavrou EP, Ford JB, Shand AW, et al. Epidemiology and trends for caesarean section births in New South Wales, Australia: a population- based study. BMC Pregnancy Childbirth 2011;11(1):8.