CAESAREAN SECTION RATE AND FREQUENCIES OF INDICATIONS USING ROBSON–TEN CLASSIFICATIONS

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ABSTRACT:

OBJECTIVES:

To determine the caesarean section rate (CSR) and frequency of different indications of caesarean section (CS) in a tertiary care hospital.

METHODOLOGY:

A retrospective study done in the Department of Obstetrics and Gynecology Hayatabad Medical Complex Hospital Peshawar, a tertiary care hospital, from a period of 1st January 2019 till 31st December 2019. The required data was collected from the patient's hospital records (clinical charts) with the consent of the hospital ethical committee.

RESULTS:

The total number of deliveries over the study period was 5611. Out of these 1258 patients were delivered through caesarean section (CS), giving a CSR of 22%. The main contributing groups in our study were Robson Groups R5 (multiparous with prior CS, singleton, cephalic and >37 weeks), R1 (nulliparous, cephalic, singleton >37 weeks in spontaneous labor or CS) and R6 (all nulliparous breeches) with percentages of 21.1%, 17.5% and 12.9% respectively.

CONCLUSION:

Our study showed Robson Groups 5, 2 and 6 as the major contributors, focusing on these groups could have an impact on decreasing the cesarean section rate in future. Limiting the primary cesarean section rate can affect the overall cesarean section rate (CSR).

KEYWORDS: _Caesarean Section, Robson, Maternal Morbidity, Obstetrics, Gynecology_

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INTRODUCTION:

In the field of obstetrics, caesarean section (CS) has emerged as a lifesaving surgical procedure both for the mother and the baby[1], appropriately employed it has shown to effectively reduce the maternal and infant mortality[2]. However, like any surgical procedure CS is not without risks both for the baby and mother, neonates born through CS have shown increased risks of respiratory distress syndrome (RDS) and increased admission to NICU[3]. Maternal complications

include anesthetic complications, thromboembolism, wound infection, long term effects on her future pregnancy e.g. risk of scar dehiscence, uterine rupture, and placental abnormalities like placenta accrete leading to life threatening emergencies. In short CS has a lifelong impact on the reproductive life of a female[4,5]. Caesarean section rates (CSR) are on a rise globally. A gradual upward shift in the caesarean rates have been observed over the past five decades, where it has increased from 5% in 1940 to 15% in 1970 and 1980's[6]. The Lancet series (2018) highlighted this issue by giving us the figures of year 2000 where CSR was 12.1% and it almost doubled in 2015 with a CSR of 21.1%. According to this report, the CSR was highest in Latin America and Caribbean (44.3%) and lowest in West and Central Africa (4.1%)[7]. Almost similar patterns in the CSR are observed in Pakistan, where the CSR has increased from 2.7% in 1990 and 1991 to 15.8% in 2012-2013[8]. WHO has recommended keeping the CSR at 10 to 15%, as rates exceeding this figure have not proven any beneficial effects for the mother and baby and no reduction in the rates of perinatal or maternal mortality were observed in areas with caesarean section above 10%[9]. Wide variations in CSR between different regions and among the health facilities suggest lack of protocols and a variation in practices[10]. For better understanding of the rates of caesarean section in different regions and health facilities we need an internationally accepted classification system for CS. WHO comes to the rescue by recommending Robson classification system, also known as Robson 10, as a global standard for assessing, monitoring, and comparing cesarean section rates between healthcare facilities[9]. A systematic review conducted by WHO in 2011 concluded that Robson classification is the most appropriate system to fulfill the current local and international needs[9]. Robson 10 classifies patients in ten groups using their obstetrical characteristics, which allows for comparison of the CSR between different health facilities with better understanding of the indications and less confounding factors[10]. The purpose of this study is to determine the CSR using Robson 10 classification for identification of the areas of focus. Using this information as a tool we can effectively reduce the CSR.

METHODOLOGY:

This is a retrospective study carried out in the Department of Gynecology and Obstetrics Hayatabad Medical Complex, a tertiary care hospital, of Peshawar city over a period of one year from 1st January 2019 to 31st December 2019. Approval from the hospital ethical committee was taken before proceeding for the research. The required data was obtained from the patient's hospital records (clinical charts). All the collected data was classified according to Robson's classification system,[11] analyzed using simple statistics and results calculated in terms of percentages. All the patients delivering through cesarean section during the study period were included. Relevant parameters like gestational age, parity, previous scar, fetal presentation (breech, cephalic, transverse) and number of fetuses (singleton/multiple) were noted. Exclusion criteria: patients delivering normally or via forceps or vacuum and those delivering preterm were excluded from the study.

RESULTS:

The total number of deliveries over the study period were 5611. Out of these 1258 patients were delivered through caesarean section, giving a rate of 22%. According to our study, 265 patients delivered by CS were from R5 (multiparous, singleton with >37 weeks and previous scar), giving a CSR of 21.1%. 220 patients were from R1 (nulliparous with singleton, cephalic pregnancy and gestation of >37 weeks, in spontaneous labor), giving a CSR of 17.5%. The other dominant group was the nulliparous breeches (R6) with 162 (12.9%) patients delivered by CS.

Table 1: CSR and Frequencies Indicated through Robson-Ten Classification

Groups (R)	Clinical Characteristics	Results (%)
1	Nulliparous, Singleton, Cephalic, >37 Weeks, Spontaneous Labor	17.5%
2	Nulliparous, Singleton, Cephalic, >37 Weeks Induced Labor or Cesarean Section Before Labor	10.3%
3	Multiparous Without Previous Cesarean Section, Singleton, Cephalic, >37 Weeks, Spontaneous Labor	9.9%
4	Multiparous Without Previous Cesarean Section, Singleton, Cephalic, >37 weeks, Induced Labor or Cesarean Section Before Labor	6.0%
5	Multiparous With Prior Cesarean Section, Singleton, Cephalic, >37 weeks	21.1%
6	All Nulliparous Breeches	12.9%
7	All Multiparous Breeches (Including Previous Cesarean Section)	7.1%
8	All Multiple Pregnancies (Including Previous Cesarean Section)	5.1%
9	All Pregnancies With Abnormal Lie (Transverse or Oblique Lie) (Including That Previous Cesarean Section)	5.9%
10	All Single, Cephalic, <37 Weeks, Including Previous CS	3.9%

DISCUSSION:

Rising CSR has become a global health problem. Wide variations have been observed in the rates of CS across the globe. To overcome this discrepancy WHO recommended the use of Robson 10 classification system as a uniform and standardized system for the analysis and audit of cesarean section. CSR of this study is 22%, higher than the WHO recommended rate of 10 to 15%, but rates even higher than ours were observed in certain other hospitals of Pakistan e.g., 33% in PIMS (2016-2017)[12], 49% in Fauji Foundation Pindi,[13] 31.26% in Agha Khan Hospital Karachi (2014)[14], 46.7% in CMH Abbottabad (2018)[15]. A study done at Kahuta research laboratories has shown an unacceptably high rate of 64% for the year 2017-2018[15]. Majority of the studies have reported Robson groups (R) 1, 2 and 5 as the main contributors[16,17]. A study done in LRH Peshawar has reported a rate of 21.7% (2010-2011),[17] this is somewhat closer to the 22% rate of our current study. Our study showed somewhat similar results with groups 1, 5 and 6 as the leading groups. Robson (R5) was the major contributor in our study with 21.5%; some studies have reported even higher rates for Group 5 such as 80.3%, 58.2%, 61% and 36%[16,18]. The different trends seen in the rates may be because of different labor ward protocols but an overall increase rate seen in the R5 group shows that there is generally a fear of trial of labor in a previous scarred uterus and patients opting for elective CS due to the risk of rupture[19]. Promoting VBAC (vaginal birth after CS) can effectively lead to lowering of CS rate in R5 group, studies have shown that VBAC (vaginal birth after CS) is safe when conducted in a controlled environment of hospital[20]. A study from a tertiary care hospital showed a reduction of CS rate from 63% to 57% with successful VBAC (vaginal birth after CS)[21]. This shows that offering trials of labor to the patients with non-recurrent indications can effectively reduce the cesarean section rate. Groups R1 and R2 comprise of nulliparous patients. Our study gave R1 (nulliparous, single, cephalic, >37 weeks in spontaneous labor) as the second major contributing group with 17.5% rate of CS, R2 (nulliparous, single, cephalic, >37 weeks, induced or cesarean section before labor) was showing a rate of 10.3% in our study but in certain other studies it was the second leading group after group

5[17,18,21]. Lowering rate of primary CS, i-e R1 and R2 can positively affect the overall CS rate[22]. Implementing strict labor protocols, use of partograph for labor monitoring[23], judicious use and correct interpretation of CTG,[24] can affect the rate of CS in this group. R6 and R7 comprise of nulliparous and primiparous breeches. Our study showed R6 to be the third leading group with 12.9%. The results of the term breech trial led to a rise in caesarean deliveries done for breech fetuses. External cephalic version has shown a positive role in decreasing CS rate[25]. Use of ECV and improving skills in breech vaginal delivery can control the rate in these groups. R8 comprises multiple pregnancy, the decision about the mode of delivery depends upon the presentation of the first baby in twin pregnancy. In cases of first breech, in twins, and in higher order pregnancies CS is the best management. Nothing much can be done in this group and R9 where the fetus presents with an abnormal lie and CS is the recommended management. The contribution by these groups to the overall CS rate is small owing to their small size.

CONCLUSION:

Using Robson as a standardized classification system, target areas can be identified where improvement can be made with implementation of properly designed protocols, with a hope to achieve the WHO recommended rate of CS. Our study showed R5, R2 and R6 as the major contributors.

LIMITATIONS:

It's a small-scale study, done in one hospital only, for better understanding larger scale studies including more than one hospital are needed.

CONFLICT OF INTEREST: None

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