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ORIGINAL ARTICLE

Rising Cesarean Section Rate, Need to Revisit Cesarean Section Indications

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ABSTRACT

Background: Pakistan is one of those countries where cesarean sections rate has increased unusually in the past two decades from 27% to 37.7%.

Objective: This study will help to analyze the CS rate in a tertiary care center in Pakistan over a period of one year. And help to recognize the main indications for increase trend. And will help to develop strategies to decrease this ongoing increasing rate of CS.

Study design: Retrospective Descriptive Study

Place of study: Lahore General Hospital, Lahore

Duration: one year 01-01-2021 to 31-12-2021

Methodology: This Retrospective Descriptive Study is carried out in gynecology unit 2 of Lahore General Hospital Lahore. Records of all patients who delivered in gynecology unit two over a period of one year from 1st January 2021 to 31st December 2021 are collected and analyzed. The demographic details of all the women including their age, gravidity as well as indication for CS are recorded. Results are calculated in terms of frequencies and percentages. The data is shown in forms of tables and charts. The data of the last month is plotted according to new CS classification of WHO Robson's classification system. This will help to identify the different groups of women undergoing CS and will also identify the group with most Cesarean Sections.

Results: The overall CS rate was 48.98%. In the last month Robson classification app is used and results shown in form of a table which shows the group of women with cesarean section rate. This will help to plan interventions to decrease CS rate.

Conclusion: CS rate is increased overall globally, which has been seen in Pakistan also. There should be good antenatal care and one to one intrapartum care so maximum number of women delivering vaginally hence, will decrease overall CS rate and indirectly decreasing complications of CS and repeat CS especially blood transfusions & morbid adherent placenta.

Keywords: Cesarean section, Robson classification, CS indications.

INTRODUCTION

Cesarean section is a procedure for childbirth in which fetus is delivered through an abdominal and uterine incision[1].The first documented cesarean section was performed in 1610[2] and first modern CS was performed by doctor James Barry on 25th July18261. Cesarean section is considered to be a lifesaving procedure for both mother and fetus[3] especially where vaginal delivery is not possible or contraindicated and not doing an indicated CS increasing danger for life of both mother and fetus[12] but on the other hand CS is not without risk as there are short and long term complications associated with them like increase maternal morbidity and mortality, need of blood transfusions post-partum infection and postpartum hemorrhage ,retained placenta, morbidly adherent placenta and prolonged hospital stay[3]. Pakistan is one of those countries where cesarean birth rate is unusually increased in past 2 decades especially in tertiary care center as from 27% in 2002 to 37.7% in 2012[4]. a rising trend in overall south Asian countries is seen including Pakistan where this rate was 3.2% in 1990 to 20% in 2018[5].Over the last decades especially the last two there has been a progressive rise in overall CS rate globally .And in most countries including developing and developed countries the reason for this progressive rise of delivery by CS is not completely known[6]. The WHO has recommended a generalized 10% (varies 9-15) rate of CS based on systemic review and ecological analysis[12] but the rate is raised in UK according to NICE guideline the rate is around 25-30%[13] hence, WHO has adopted a (TGCS) Ten Group Classification System also known as(Robson Classification). This system classify women admitted for delivery into ten groups according to their characteristics and then investigates differences in CS rates in these homogenous group of women[7]. Thus will helps us to compare CS in different groups and between same groups in different obstetric units[7]. Previously CS is classified by different methods one is by urgency as category 1, 2, 3 & 4 as described in cesarean section guidelines[13,14]. the other classification according to indications which is widely used, various indications to do CS are fetal distress, mal-presentation, repeat CS, medical disorders as HTN, DM, obstetric cholestasis, epilepsy, brain tumors, failed induction, prolonged or obstructed labor, abruption or placenta previa[14], and a recent one Robson classification[14]. Cesarean section rates in some countries are significantly higher than WHO recommendations as Turkey 50%, Mexico 45%, Chile 45%, Italy 36%, and USA 32% while in some countries it is at or near the recommended rate of WHO as in Iceland 15%, Israel 15%, Sweden16% and Norway17%[24]. So, WHO new formulated Robson classification will help to compare different groups of women in different regions and will define the optimum Cesarean section rate around the globe and for that specific region.

The objective of this study is to determine cesarean section rate in study population, the factor working for the increased cesarean birth and the possible interventions to decrease this ongoing epidemic of cesarean birth. The decrease cesarean birth will indirectly decreasing the maternal morbidity and mortality from repeat cesarean birth and improving fetal outcome.

MATERIAL AND METHODS

Inclusion criteria: Data of all pregnant women presented in gynae unit-II for birth of baby is included for research purpose. The data do not include any personal identification and confidentiality of data maintained by keeping patients name anonymous. Only the indications and their no is taken.

Exclusion criteria: All other patients for management of pregnancy complications other than birth of baby were excluded from study.

Robson classification:

Data Collection & analysis: Data from record registers of unit 2 is collected on a proforma. The data is collected after permission from institutional ethical committee. The collected data is then analyzed with the help of SPSS. CS rate is calculated by formula taking values shown in table no 1. Percentages of different

indications are calculated and shown in table no 2. Robson classification chart is taken from WHO website and the data from Robson app (the data from December 2021 to June 2022 of all births will be collected on app). And the results are taken from WHO Robson app report table with suggestion to decrease CS rate shown in table no 3.

The Robson classification with subdivisions:

Group	Obstetrical population
1	Nulliparous women with a single cephalic pregnancy >37 weeks gestation in spontaneous labor
2	Nulliparous women with a single cephalic pregnancy>37 weeks gestation who had labor induced or were delivered by CS before labor
2a	Labor induced
2b	Pre-labor CS
3	Multiparous women without a previous CS , with a single cephalic pregnancy>37 weeks gestation in spontaneous labor
4	Multiparous women without a previous CS with a single cephalic pregnancy>37 weeks gestation who had labor induced or were delivered by CS before labor
4a	Labor induced
4b	Pre-labor CS
5	All multiparous women with at least one previous CS, with a single cephalic pregnancy, >37 weeks
5a	With one previous CS
5b	With two or more previous CS
6	All nulliparous women with a single breech pregnancy
7	All multiparous women with a single breech pregnancy including women with previous CS (s)
8	All women with multiple pregnancies including women with previous CS(s)
9	All women with a single pregnancy with a transverse or oblique lie , including women with previous CS(s)
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous CS(s)

RESULTS

Table 1: Total births in one year

Sr. No.	Total women	No of LSCS	Vaginal births
January	308	153	155
February	290	149	139
March	303	143	166
April	227	117	110
May	236	139	97
June	268	151	117
July	385	190	195
August	385	184	201
September	406	179	227
October	266	121	145
November	308	152	156
December	274	115	159
Total	3660	1793	1870

CS rate =cs/total births x100
CS rate = 1793/3660x100=48.98%

During the study period there were a total of 3660 patients delivered in gynecology unit 2. There were 1793 cesarean births of which the main indication for CS were previous cesarean birth almost 32% and fetal distress33%. Lahore General Hospital is a teaching hospital and tertiary care center while reviewing record a large bulk more than 60% patients were un-booked presenting first time in LGH in emergency department, and some of them have no antenatal checkup even in any other health facility, leading to a large proportion of patients having CS due to unattended complicated pregnancy, which could possibly have vaginal delivery if timely interventions have been done in antenatal period e.g. ECV in breech presentation. The Cesarean section rate calculated is around 49% which is quiet high. The results are shown in tables below.

Table 2: Percentage of CS according to indications

Sr. No	Indications of cesarean delivery	% age
1	Fetal distress	33%
2	Previous 1 LSCS	21%
3	Previous CS >1	11%
4	Uterine dystocia	2%
5	Obstructed labor	1%
6	Placenta previa	4%
7	Multiple pregnancy	2%
8	Failed induction	4%
9	Medical disorders HTN,DM	9%
10	Chorioamnionitis	1%
11	Malpresentation breech ,transverse lie	7%
12	Abruption	4%
13	Precious pregnancy	1%
14	Patient demand	00

While evaluating the data the two months with maximum deliveries were August &September 2021 as there were 385 births in August and 406 births in September. While auditing the data in August there were 201 vaginal births and 184 CS making the 47.7% rate of CS. There were 81 CS due to fetal distress these women were not separately identified but include both primigravida and multigravida, with and without previous scar, prolonged or Dai-handled, induced patients. There were 21 CS due to previous 1 LSCS, 25 with previous 2 LSCS, 18 due to previous 3LSCS and 2 due to previous 4 LSCS. 3LSCS due to mal-presentation 2 with multiple pregnancy and 5 due to APH, 3 LSCS carried out for obstructed labor and 10 with medical disorder. There were 7 VBAC, 4 assisted BREECH deliveries and 7 instrumental deliveries of all the 201 vaginal births. Hence, the data shows major CS rate was due to fetal distress or repeat cesarean birth. almost same trend was seen in September showing where CS rate 44% and CS due to fetal distress 57, previous 1LSCS 32, previous 2LSCS 27, previous 3 LSCS 15, previous 4 LSCS 4, there were 2 CS due to placenta previa major degree and 3 due to placenta accrete, 2 due to multiple pregnancy, three with cord prolapse and 4 due to APH, there were 8 cases of obstructed labor and all were referred patients and 9 LSCS due to various medical disorders. Here in this month of September 10 VBAC, 4 BREECH AND 3 FORCEPS & 2 VACCUM deliveries carried out , again the main reason for this increase trend was mainly un-booked referred patients with most of them having previous cesarean births.

Last month Robson report table

Group	No of CS in group	No of women in group	Group size (%)	Group CS rate (%)	Absolute group contribution to overall CS rate %	Relative contribution of group to overall CS rate %	Robson guideline
1	14	41	17.67	34.15	6.03	10.85	Under 10%
2	6	6	2.59	100	2.59	4.65	Around 20-35%
2a	0	0	0	0	0	0	--
2b	6	6	2.59	100	2.59	4.65	--
3	13	67	28.8	19.4	5.6	10.08	No higher than 3.0%
4	6	8	3.45	75	2.59	4.65	Rarely higher than 15%
4a	0	2	0.86	0	0	0	
4b	6	6	2.59	100	2.59	4.65	--
5	53	60	21.9	88.33	19.34	46.09	50-60% are appropriate
5.1	22	27	9.85	81.48	8.03	19.13	--
5.2	31	33	12.04	93.94	11.31	26.96	--
6	10	12	4.38	83.33	3.65	8.7	--

7	3	6	2.19	50	1.09	2.61	--
8	1	6	2.19	16.67	0.36	0.87	Around 60%
9	1	1	0.36	100	0.36	0.87	100%
10	20	39	14.23	51.28	7.3	17.39	Around 30%
Total	115	274	99.99	41.97	41.94	100.01	

The data calculated on Robson app again showing that majority of CS falls in group 1-5 showing group 5 contribution as 19.34 %of all births and 46.09% of all cesarean births and remaining major contribution from group 1-4 mainly fetal distress almost near to 17% of all births and around 37% of all cesarean births.

DISCUSSION

It is very important that there should be immediate and convenient provision of health care facilities for all pregnant women across the globe[8]. Cesarean section is an important key procedure which helps to decrease both maternal as well as neonatal morbidity and mortality and is considered best indicator of maternal health services quality[17]. And as seen in areas where there is lack of facilities, trained staff or equipment there is increased maternal morbidity and mortality[15]. On the other side this increase CS rate is not without complication, thus, to optimize this increase CS there should be a detail assessment of obstetric units practice[20] which would enable them to monitor and audit there performance and for homogenous practice across different settings Robson classification is advised by WHO[7]. In our study there is a significant increase in CS rate that is 48.98% which is also shown by another study of Pakistan that is a progressive increase from 27% to 37.7%[4] from 2002 -2012 here the rate increase almost at same pace that is almost 10% increase in last 10 years. The main indication for this rising rate from data is repeat CS. The increase rate around 50% is also quoted by an Egyptian study which shows overall CS rate to be 52%[9] and institutional based CS as high as 67.3%[10]. There is increase in CS globally which creates burden on health system along with complications in mothers and also effects future pregnancies[11]. The recommended rate of CS according to WHO is was between 9-15%. This increase rate >10% is not associated with reduction in maternal or neonatal mortality according to WHO[12]. However, in June 2010 WHO has withdrawn this statement and saying "there is no empirical evidence for an optimum percentage. What matters most is that all women who need cesarean section receive them"[21] The reason suggested was that it would be an underutilization of a tertiary care health facility as is mainly referral center[4] as in our study or become over utilization of small hospitals[4].

In the last table Robson report shows that each group has increased CS rate then recommended, particular focus should be on group 1-5 (as unscarred and previous 1 LSCS) all efforts should be made to deliver them vaginally. This increase rate is also shown by other studies as in group 1-5 and main proportion is group 5[16,17]. This month of December specific CS rate is 41.94 which is also very high. Some reasons for increase CS other than medical are time management financial gains which shows malpractice at physicians end[13]. However, in institutional practice especially, in public sector the main reason for increase CS rate are patients with repeat CS and with some complications of pregnancy. Hence, the major responsibility is of attending obstetrician to offer cesarean section according to need in best interest of both mother and baby[4]. There is need to review the indication of primary CS which are mostly fetal distress and failure to progress, a senior obstetrician should decide a primary cesarean section. Second need to advocate good antenatal care and safe inter-pregnancy interval for Vaginal Birth after Cesarean section (previous1LSCS) and for this there are initiatives by[22] US department of Health and Human Services Healthy people initiative 2020 to decrease primary cesarean section rate and to increase the VBAC rate by 10% each. As VBAC has been advocated as safe option[18] but many women did not opt for it due to fear of uterine rupture during trial of cesarean scar[19].

Lahore General Hospital is a teaching hospital and tertiary care center while reviewing record a large bulk more than 60% of patients were un-booked presenting first time in LGH in emergency department, and some of them have no antenatal checkup even in any other health facility, leading to a large proportion of patients having CS due to unattended complicated pregnancy, which could possibly have vaginal delivery if timely interventions have been done in antenatal period. These findings endorsed the previous study that some medical factors, population characteristics, and socioeconomic status of women presenting are some main reasons of women going for a formal checkup in a healthcare facility, and moreover, the medical risk factors further determine the Cesarean birth incidence. Like mother age, urban area, carrier oriented and with medical disorders as obesity hypertension diabetes mellitus have more cesarean births[23]. As In Robson app we are able to classify scarred and unscarred pregnant women, and women with previous 1 LSCS where we can offer VBAC to suitable patients and women[23]. With more than 1 Cesarean birth where cesarean delivery is safest option, moreover, the breech is again classified as primigravida and multigravida so the option of external cephalic version & assisted breech delivery can be offered to suitable patients that will help in decreasing overall CS rate. The preterm patients are separately classified giving importance to neonatal resuscitation need in this group of women.

CONCLUSION

Cesarean section is one of important interventions for safe motherhood, and facilities, trained staff and adequate equipment should be available in every healthcare facility dealing with pregnant women. There should be detailed assessment and management of different issues during antenatal period and optimization of different medical conditions like anemia, HTN, DM, cardiac disease and other medical disorder offering ECV for breech presentation and membrane sweeping for postdate pregnancy & plan along with place of delivery should be discussed. There should be adequate monitoring preferably one to one monitoring during labor thus making maximum no of pregnant women to deliver by vaginal route which would likely to have a great overall impact on decreasing cesarean section rate.

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