

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20170547>

Original Research Article

Is current rising trend of cesarean sections justified?

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Received: 19 January 2017

Accepted: 11 February 2017

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ABSTRACT

Background: Cesarean section has become more prevalent over the years due to various factors and is exceeding the tolerable limit specified by WHO. The objective of this study was to analyze cesarean section rates in our department and to identify the factors that contributed to rising cesarean section rate considering both institutional aspects as well as socioeconomic causes.

Methods: It was a retrospective study conducted between May 2015 to April 2016 and included all pregnant patients booked in antenatal clinic and unbooked patients admitted in early labour in whom cesarean section was conducted later along with cases coming in emergency for which cesarean section was indicated. Data was collected and categorized on the basis of age, parity, socioeconomic status, education and according to Robson's ten group classification.

Results: The cesarean section rate was found to be 33.2% in our study. The most common indication was repeat cesarean section, fetal distress, and breech presentation. Robson's group 1 had maximum cesarean rates followed by group 5, 6 and 3.

Conclusions: Tertiary care centers cannot be expected to have a similar rate as primary and secondary ones due to high number of complex cases referred to them. Though effort should be made to keep the cesarean rate at a low level as suggested by WHO but denying it for an indicated case just to adhere to keep low rate jeopardizes maternal and fetal health. Hence no definitive guidelines can be followed and a very judicious approach is needed.

Keywords: Cesarean, Tertiary, WHO

INTRODUCTION

Cesarean section is one of the oldest procedure performed in Obstetrics. The objective of cesarean section has changed from ancient to modern times, from being an indication for post-mortem delivery of fetus (in ancient era) to religious context (in medieval period) to emergency medical procedure (modern era).^{1,2,3}

The Cesarean section rates have been rising worldwide over the past decades. The World health organization (WHO) in 1985 suggested that cesarean rate should not

exceed 15%.⁴ In 2009 WHO revised guidelines recommending cesarean section rate(CSR) between 5 to 15%.⁵ Some factors that contribute to increased rate of cesarean section (CS) are an increase in maternal age, improvement of surgical and anesthetic techniques, lesser number of instrumental vaginal deliveries being performed, sharp decrease in vaginal birth after cesarean (VBAC) and fear of litigation. The increase in CSR is also due to increase in number of IVF pregnancies, altered family structure, demanding patients, increase in number of institutional deliveries, referral from peripheral rural hospitals to tertiary care centers. While

low CSR could be due to poor access to facilities of cesarean section, high rates may increase risk of maternal and neonatal morbidity. Cesarean section has become more prevalent over the years regardless of the risk that it may bring to mother and fetus. United Nations Millennium Developmental Goals (MDG) state that “most maternal deaths in developing countries are preventable through adequate nutrition, family planning, presence of skilled birth attendant and emergency obstetric care”. In low income countries biggest challenge is lack of trained health care individuals. Thus, it is observed that when CS access improves in areas where CS access is limited, neonatal, infant and maternal mortality rates decreased.

This operative intervention poses greater risk of placenta previa/ accreta in future pregnancies, prolonged hospital stay and increased incidence of respiratory distress syndrome in newborn.⁶ Anaesthetic complications, infections, lower breast feeding rates are some other important early complications.⁷ In long term prospective, women with previous cesarean are at risk of chronic pain, infertility, bowel obstruction and uterine rupture.⁸ Additionally babies delivered by cesarean are more likely to have allergies, obesity and other metabolic diseases.^{9,10} Cesarean section has eight fold higher mortality than vaginal delivery in addition to 8-12 times higher morbidity. The objective of this study was to analyze cesarean section rates in our department and to identify the factors that contributed to rising cesarean section rate considering both institutional aspects as well as socioeconomic causes. Moreover, the study included only the indicated group and not CS on demand. Hence, ethical issues for deciding CS were maintained. This study helped us to show the trends following Janani Bhalai Scheme (Janani Suraksha Yojna) where number of institutional deliveries have tremendously increased due to subsidised provisions.

METHODS

It was a retrospective study conducted at department of Obstetrics and Gynecology at Sri Guru Ram Das Institute of Medical Sciences and Research, a tertiary care centre, between May 2015 to April 2016. Approval was sought from institutional review board before data collection and analysis.

It included all the pregnant patients booked in antenatal clinic and unbooked patients admitted in early labour in whom cesarean section was conducted later. It also included all those cases coming in emergency for which cesarean section was indicated. All CS performed beyond 28 weeks were included in the study. Data was collected and categorized on the basis of age, parity, socioeconomic status and education. Both maternal and fetal indications for cesarean section were recorded. The information obtained was coded and transferred to perform already designed for study.

The indications were also classified according to Robson’s ten group classification system (TGCS) which is as follows -

- Nulliparous single cephalic >37 wks in spontaneous labour
- Nulliparous single cephalic >37 wks induced or CS before labour
- Multiparous single cephalic >37 wks in spontaneous labour
- Multiparous (excluding previous CS) single cephalic >37wks induced or CS before labour
- Previous CS, single cephalic >37 wks
- All nulliparous breech
- All multiparous breech (including previous CS)
- All multiple pregnancies (including previous CS)
- All abnormal lies (including previous CS)
- All single cephalic <36wks (including previous CS)

Contribution of each group to overall CSR was analyzed.

RESULTS

During the study period from May 2015 to April 2016, there were total of 3233 deliveries out of which 1072 patients had cesarean sections and 2161 had vaginal deliveries. Hence the cesarean section rate was 33.2%.

Table 1 describes the sociodemographic details of the patients. It was observed that higher number of cesarean section were done amongst age group 21 to 30 yrs (67.6%). More number of multigravida (56.1%) underwent cesarean section. Number of patients belonging to rural area were 778 (72.6%) and those from urban areas were 294 (27.4%). Amongst total 1072 patients 682 (63.6%) were booked and 390 (36.4%) were unbooked. 420 (39.2%) patients underwent emergency cesarean section whereas in 652 (60.8%) patients, cesarean was done electively.

Table 1: Sociodemographic Data.

Parameter	
Age in years	Number of cesarean sections
<20	35(3.3%)
21-30	735(67.6%)
31-40	282(26.3%)
>40	30(2.8%)
Parity	
Primigravida	421(39.3%)
Multigravida	602(56.1%)
Grand multigravida	49(4.6%)
Socioeconomic Status	
Rural	778(72.6%)
Urban	294(27.4%)

Table 2 depicts indications of cesarean section. The most common indication was repeat cesarean section seen in 320(29.9%) patients. Other common indications were fetal distress seen in 191(17.8%) and breech presentation 180(16.8%). NPOL and CPD contributed to 5.4% and 5.3% respectively. 70 patients reported with APH, out of these 28(2.6%) had placental abruption and 42(3.9%) had placenta previa. Cesarean section done due to fetal indications included severe IUGR in 42(3.9%) and severe oligohydramnios in 37(3.5%) patients.

Table 2: Indications of cesarean section.

Maternal Indications	Number of cesarean sections
Repeat LSCS	320(29.9%)
Placenta Previa	42(3.9%)
Abruptio Placenta	28(2.6%)
NPOL	58(5.4%)
CPD	57(5.3%)
Pre-Eclampsia	40(3.7%)
Eclampsia	14(1.3%)
Obstructed labour	8(0.7%)
Pregnancy with fibroid	7(0.7%)
Fetal Indications	
Fetal Distress	191(17.8%)
Breech presentation	180(16.8%)
Transverse Lie	14(1.3%)
IUGR	42(3.9%)
Severe Oligohydramnios	37(3.5%)
Twin pregnancy	34(3.2%)

Table3: Indications according to Robson's classification.

Robson's class	No. of cesarean section	Percentage of cesarean section
1	290	27.1
2	72	6.7
3	120	11.2
4	42	3.9
5	223	20.8
6	160	14.9
7	20	1.9
8	34	3.2
9	14	1.3
10	97	9.0

Group1 had maximum number of CS as 27.1% and it was followed by group 5(20.8%). Group 6 and group 3 had 14.9% and 11.2% CS respectively. Approximately equal number was contributed by group 4(3.9%) and group 8(3.2%).

DISCUSSION

Currently cesarean section rates in developed and developing countries have exceeded tolerable limit of 5 to 15% specified by WHO indicating unnecessary use of

this intervention. During the study period, 3233 patients were delivered, out of which 1072 underwent CS giving a CSR of 33.2%. CSR in our study was comparable to that of Shiba Mittal, who reported Cesarean rate to be 28.93 % in 2011 in a tertiary care hospital in Mumbai.¹¹ Saha et al. reported a CSR of 29 % in 2007 in Kolkata.¹² A study conducted by Stavrou et al. in New South Wales, Australia, showed cesarean rate of 29.5 per 100 births in 2008.¹³ In this study, 67.6% of CS were performed in patients with age range 21 to 30 yrs which might be because this age group represents the reproductively active age group. The CSR in primigravida was 39.3% which is higher than 25% reported by a study conducted by Oladapo OT from Sagamu, Nigeria.¹⁴ In present study, we classified indications on the basis of Robson's Ten group Classification System (TGCS) which is based on well-defined parameters and can be easily applied. The TGCS helped to identify main groups of subjects which contributed most of overall CSR. It also helped to identify subgroups requiring close monitoring for more in-depth analysis of indications for CS.

In present study, we found that there is need to focus on the monitoring of women in group 1,3,5,6 in particular, if CSR is to be reduced. Robson stated that CSR in group1 should be below 15% but in our study group1 contributed 27.1% of total cesarean section. This higher than expected CSR is probably because of higher number of CS for non-reassuring FHR pattern.¹⁵ It contrasts markedly with other data reported to be as 6.7% in national maternity hospital in Dublin in 2006.¹⁶ Thus, in group 1 CSR can be reduced by not just taking non-reassuring FHR on Non-Stress Test (NST) as the only criteria for fetal distress (as NST carries 50% false positive rate). Thus, to avoid unnecessary cesarean section, fetal scalp blood sampling should be encouraged to detect true fetal acidosis.

In present study, 20.8% of patients who underwent CS were those who had singleton pregnancy with gestation > 37 weeks with previous CS and belonged to group 5 in Robson's classification, forming second largest group of CS. So, implementation of trial of Vaginal Birth After Cesarean (VBAC) can control the increasing CSR.^{17,18} In spite of this conducting VBAC trial is not always possible due to risk of rupture uterus and associated risk to mother and baby. In present study, the repeat cesarean section with abnormal lie and presentation were not given trial, those having scar tenderness on examination or with previous 2 LSCS were deferred from VBAC. The cases which were selected for trial of labour after cesarean (TOLAC) were screened by ultrasound for scar thickness and if found to be less than 3mm, trial was not given. These findings are similar to study conducted by Dodd JM.¹⁹ The selected patients for TOLAC were monitored and if signs of scar tenderness developed, they were taken for CS. In current study, in all nulliparous breech, External Cephalic Version trial was not given, making it 3rd most common group (6) for CS in Robson's classification i.e 14.9%. All malpresentations or

transverse/oblique lie which formed group 9 in Robson's classification (1.3%) were taken for elective CS. Offering ECV to patients with breech presentation at 37 wks of gestation who fulfill criteria to deliver vaginally is another way to decrease the cesarean section performed for malpresentation.²⁰

Compared with other groups, multiparous women with singleton pregnancy more than 37 wks coming in spontaneous labour (group 3) are less likely to have obstetric indication for cesarean since they present very low risk in general, however in our study CSR in this group was 11.2%. This is similar to the WHO Global Survey in Latin America where they found CSR of 10% in this group.²¹ Multiple pregnancy belonging to Robson group 8 contributed 3.2% of CSR. The increasing incidence of multiple gestation over past years due to assisted reproductive technology might explain the increase in CS performed due to this indication.

Present study comprised that placenta previa accounted for 3.9% and placental abruption 2.6% of total CS. Most of patients of placental abruption were unbooked. Free of cost CS in this referral centre with opportunity to get treated under multidisciplinary team made these high-risk patients being referred to this centre. In current study 3.7% CS were performed due to preeclampsia and 1.3% due to eclampsia, most of which were referred from outside. So, early booking, correct diagnosis, timely referral and management can prevent unnecessary CS and associated morbidity can be decreased. In our study obstructed labour contributed to 0.7% of total CS. Opportunity of conducting institutional delivery has reduced incidence of obstructed labour as continuous monitoring helps in timely intervention in case of NPOL. JSY scheme has made antenatal visits more regular due to which booked patients are examined before labour and women with CPD are excluded from trial of labour. Pregnancy with fibroids was indication for CS in 0.7% of cases. More pregnancies are seen with fibroids due to conception in elderly age or infertility treated or de-novo. Fibroids can be mapped and route of delivery decided however temptation to perform cesarean myomectomy didn't influence the choice for obstetrician per se.

This institution, being tertiary referral center with NICU facilities receives high risk patients like severe IUGR with Doppler changes, preterm labour and severe oligohydramnios with fetal compromise. With lot of social pressure for survival of child, patients opt for cesarean section as route of choice even for low birth weight/Extremely LBW and preterm babies and NICU is strenuously working for the survival and better neonatal prognosis.

CONCLUSION

Obstetrician should provide ethical, competent and evidence based service to women and should take unbiased decision before performing cesarean section

after considering merit/indication in each case. The cesarean section rate varies in different institutions. Tertiary care centres cannot be expected to have a similar rate as primary and secondary one due to high number of complicated cases referred to them. Though effort should be made to keep the cesarean rate at a low level as suggested by WHO and practices like trial of VBAC should be enthusiastically encouraged, every case should be individualized. Cost effectiveness in low resource settings is an important issue especially when obstetrical management is covered under subsidised scheme for women health under JSY, as people coming to hospital are in great number but at the same time NICU expenses are beyond bounds of poor subjects. Therefore, any delay in decision making for CS can be harmful and defies the very aim of JSY to reduce maternal mortality/morbidity and perinatal mortality. Though, performing cesarean section for non-indicated cases is unethical, denying it for an indicated case just to adhere to keep low rate jeopardizes maternal and fetal health. Hence no definitive guidelines can be followed and a very judicious approach is needed for decision making for CS.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Preetkamal, Kaur H, Nagpal M. Is current rising trend of cesarean sections justified? *Int J Reprod Contracept Obstet Gynecol* 2017;6:872-6.