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Original Research Article

Indications of caesarean section in a tertiary care teaching hospital

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ABSTRACT

Background: The rising trend of caesarean deliveries is noticed across the globe. The caesarean deliveries are associated with costlier health care, increased risk of maternal and perinatal morbidity as compared to vaginal deliveries. This study was aimed to find out the rate and various indications of caesarean deliveries and to amend the current protocols based on these findings to reduce the incidence of caesarean in our institute in future.

Methods: A cross sectional observational study was done to find the caesarean delivery rate and various indications contributing to it for a period of one year. All pregnant women with period of gestation more than 28 weeks who delivered in hospital were included in the study. All women with period of gestation less than 28 weeks and in labour irrespective to mode of delivery and foetal outcome were excluded from the study.

Results: The overall Caesarean section (CS) rate was 34.23% out of 2676 deliveries. The commonest indication was repeat CS (45.09%) followed by foetal distress (12.66%), failed induction (12.34%) and arrest of labour (10.26%). The commonest cause for the repeat CS was patient refusal for trial of labour 195 (47.22%).

Conclusions: The common indications of CS found are repeat CS, Foetal distress, NPOL and failed induction. Foetal distress, NPOL and failed induction are amenable to intervention and needs to be introspected at institutional levels. Trial of labour after CS (TOLAC) should be encouraged to control the rising trend of CS.

Keywords: Caesarean section, Vaginal birth after caesarean, Indications

INTRODUCTION

The commonest surgery performed in any obstetrics department in the world today is CS. Various studies found no evidence of any beneficial effect on maternal and newborn health in populations having CS rate above 15% and there is no empirical evidence for an optimum percentage. In fact, caesarean deliveries are associated with increased risk of maternal and perinatal morbidity as compared to vaginal deliveries even in low-risk cases.¹ In recent times the proportion of caesarean section in total delivery conducted is increasing steadily and has reached the epidemic proportion in few countries. The association of certain factors, such as social, cultural, accessibility to health services, transport, and clinical practice patterns might be the reason for the wide variation in caesarean section rates across different countries or different regions

within the country.^{2,3} The rising CS rates may indicate a trend towards costlier health care delivery system and lower threshold of risk appetite among the health care providers to avoid litigation later on.⁴ It is important to know the indications of CS being performed in a particular set up so as to understand the extent to which caesarean deliveries may be preventable.

This study was aimed to find out the rate and various indications of caesarean deliveries and to use these findings to amend the current protocols to reduce the incidence of caesarean in our institute in future.

METHODS

It was a cross-sectional hospital-based observational study carried out to find the caesarean delivery rate and various

indications contributing to it. The data was collected in a prospective manner for all the deliveries that occurred during one year period between 1st Jan 2019 to 31st Dec 2019 in the department of Obstetrics and Gynaecology in a tertiary care teaching hospital in Maharashtra. In caesarean deliveries along with other demographic profile data collected included indication of surgery, emergency or elective surgery, past obstetric history, present pregnancy parameters including antenatal care, associated medical illness, gestational age, no. of foetuses etc.

Inclusion criteria

All pregnant women with period of gestation more than 28 weeks who delivered in hospital were included in the study.

Exclusion criteria

All women with period of gestation less than 28 weeks and in labour irrespective to mode of delivery and foetal outcome were excluded from the study.

Sample size

All the pregnant women fulfilling the inclusion criteria and delivered in the hospital during the study period were included for statistical analysis.

Ethics statement

The study protocol was approved by institutional review board and participants were enrolled after informed consent.

Statistical analysis

The data was collected from the labour room birth register and entered using Microsoft excel version 2013. The final data was analysed and overall CS rate was calculated. The CS data was further summarized in percentages and proportions for various indications.

RESULT

There were a total of 2676 deliveries during the study period, out of which, 916 had delivered via CS. The overall CS rate was 34.23% (Table 1). The major contributor to CS was due to elective CS rate of 66.96% in pregnancies with previous history of CS (Table 2).

A majority of patients undergoing CS were at term 754 (82.04%) at time of delivery (Figure 1). Only a small group of 73 (16.08%) agreed to vaginal trial of labour after caesarean (TOLAC) however 41 (56.16%) had successful vaginal delivery. The remaining 32 of this group had uneventful emergency CS (Table 3). The CS rate due to foetal distress in TOLAC group was 40.63% while 25% underwent CS due to suspicion of scar dehiscence.

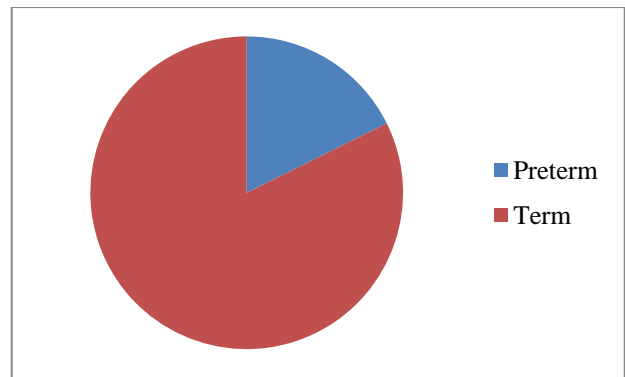


Figure 1: Period of gestation.

Table 1: Caesarean section rates.

Variables	No. of cases	Percentage (%)
Mode of delivery		
Vaginal delivery	1760	65.77
Abdominal delivery	916	34.23
Total	2676	
Primary/ repeat		
Primary sections	503	54.91
Repeat sections	413	45.09
Total	916	
Type of CS		
Emergency CS	446	48.69
Elective CS	470	51.31
Total	916	

Table 2: Post caesarean pregnancy.

Variables	No. of cases	Percentage (%)
No. of previous CS		
One	419	92.29
≥ Two	35	7.71
Total	454	
Mode of delivery		
Vaginal delivery	41	9.03
Elective CS	304	66.96
Emergency CS	109	24.01
Total	454	

Table 3: TOLAC and its outcome.

Variables	No. of cases	Percentage (%)
Category		
Unfit for TOLAC	186	40.97
Unwilling for TOLAC	195	42.95
Willing for TOLAC	73	16.08
Total	454	
Mode of delivery		
Vaginal delivery	41	56.16
Emergency CS	32	43.84
Total	73	

Among the indications, the commonest was repeat CS (45.09%) followed by foetal distress (12.66%), failed induction (12.34%) and arrest of labour (10.26%). The malpresentations including breech (5.68%) and multifoetal gestation (4.26%) were among other significant contributors to overall CS rate (Table 4).

The commonest cause for the repeat CS was patient refusal for trial of labour 195 (47.22%) followed by multiple previous CS 35 (8.47%). The labour related indications like foetal distress, arrest of labour, failed induction etc along with scar tenderness also had significant 65 (15.74%) contribution to repeat CS. Other minor but significant contributors were associated illness like hypertensive disorders, APH, malpresentation, multifetal gestation, oligohydramnios, preterm PROM etc.

DISCUSSION

In our study, we calculated the data for CS indication like previous caesarean section, foetal distress, failed induction, non-progress of labour, breech and other malpresentations, multifetal gestation, complete placenta praevia, refusal by patient for trial of labour in previous caesarean section and other maternal and foetal indications. The other indications included the maternal conditions that could complicate vaginal delivery like post myomectomy/ hysterotomy, post Fothergill etc.

In our study the rate of CS observed was 34.23%, which is almost double the accepted upper norm of WHO ie.15%. When compared to other studies the CS rates were lower than the study conducted by Ferriari et al in Brazil (46.6%) and higher than Kazmi et al (20.3%).^{5,6} When compared with various Indian studies then our study had lower CS rate as compared to Singh et al (51.1%) and B Bhardwaj et al (40.5%), comparable with Gupta et al (32.46) and Preetkamal et al (33.20%) but was higher than the study conducted by Yadav et al (21.60%) and Prameela et al (25.8%) (Figure 2).⁷⁻¹¹ The indications of CS section in the present study were comparable with the other studies.

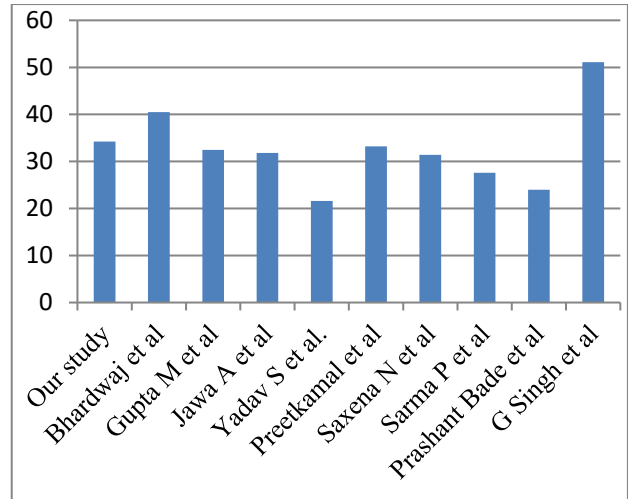


Figure 2: CS rates.

The most common indications for primary caesarean delivery include, in order of frequency, foetal distress, failed induction, labour dystocia, foetal malpresentation and, multi-foetal gestations which is comparable to most of the studies (Table 5). The pregnant women with previous CS contribute heftily to overall CS rates in developing countries. Out of all the caesarean deliveries, maximum proportion belonged to Robson group 5 i.e., previous CS, single, cephalic >37 weeks. Previous CS was responsible for 45.09% of total CS done in our study and was similar to rates observed by Gupta (36.52%) and Chavda et al (39.90%).¹² Foetal distress was the second commonest indication accounting for 12.66% of CS and was comparable with most of the studies. It has been observed and even proved by various RCTs that caesarean rates due to foetal distress have increased in recent past with more and more use of electronic foetal monitoring systems without much improvement in neonatal outcomes.¹³ Failed induction was the third commonest indication accounting for 12.34% of CS and was high as compared to most of the studies.

Table 5: Indications contributing to the caesarean rate.

Indications	Present study (%)	Gupta et al (%)	Sarna et al (%)	Jawa et al (%)	Chavda et al (%)	Prashant Bade et al (%)	Singh et al (%)
Previous CS	45.09	36.52	23	23.90	39.90	24.80	29.70
Foetal distress	12.66	11.82	30.99	16.06	19.10	11.70	12.1
Failed induction	12.34	3.54	14	-	7.30	2.90	-
Arrest of labour	10.26	13.65	2.99	13	0.90	16.60	25.40
Breech/ malpresentation	5.68	8.05	3.03	9.37	18.6	6.80	11.3
PIH	3.60	3.54	12.99	11.66	-	-	4.80

Non progress of labour or arrest of labour was responsible for CS in 94 (10.26%) of patients. To reduce CS rate this particular subset of population needs attention as most of the CS were nulliparous 84 out of total 94 in this subgroup. The better training of the labour room staffs specially to

rule out CPD and strict partographic monitoring will help to curb the rising rate in this category of patients. Presence of a suitable companion in labour if allowed as per hospital policy will help not only to reduce CS rates but also increase patient satisfaction rates.¹⁴

Despite the high success rate (56.16%) of vaginal delivery in TOLAC (trial for labour birth after caesarean) group the practice of TOLAC is less in our hospital due to unwillingness of the patients for the same. The patient who underwent emergency CS in this group also had healthy outcome. No trial was given to patients with previous 2 or more sections, those presenting with scar tenderness and in those women who refused for vaginal delivery.

Another group of patients where intervention may help to reduce the CS rate is post IVF pregnancies. In our institute out of 160 such pregnancies who underwent CS, 45 were elective CS due to obstetric indication varying from multi foetal gestation with breech presentation, severe oligohydramnios, FGR etc. Low threshold for CS kept in case of post IVF pregnancies contributed to 115 emergency CS. The large contributor of emergency CS in this group was failed induction 49 (30.62%) followed by non-progress of labour 22 (13.75%) and foetal distress 15 (9.38%).

The reasons for the increased CS are multifaceted. Commonly cited causes like difficult manipulative or instrumental vaginal deliveries, foetal distress detected especially with the use of continuous electronic foetal monitoring, liberal use of caesarean in high-risk cases, no TOLAC, fear of the patient for labour pain and apprehension of the obstetrician regarding the fear of poor neonatal outcome are amenable to changes. The better training and standardisation of clinical protocols will definitely can improve the obstetric outcome and decrease the CS rates. The use of Robson classification has been proposed by WHO as global standard for assessing, monitoring and comparing caesarean section within health care facilities. As CS has long term implications on both mother and foetus, it becomes more the reason to determine indications of CS at institutional level to provide data regarding management of labour and delivery.

The Robson criteria allow standardisation of CS data and effective comparisons of same across countries. Based on this criterion major contributor to CS rate can be identified and strategies including health care practices can be evolved to reduce the rate. The other effective strategy can be to reduce the rate of unindicted primary caesarean section. Adherence to standardised induction and labour protocols can reduce caesarean section rates in this group. Other interventions like external cephalic version for breech presentation, trial of labour with first twin is in cephalic presentation in twin gestations can also contribute to lowering of the primary caesarean delivery. Another group where intervention can be quite productive is convincing women to undergo TOLAC.

CONCLUSION

In our study the rate of CS observed was 34.23%. The major contributor to CS was due to elective CS rate of 66.96% in pregnancies with previous history of CS. The other common indications of CS were foetal distress,

NPOL and failed induction which are amenable to intervention and needs to be introspected at institutional levels. Trial of labour after CS (TOLAC) should be encouraged to control the rising trend of CS.

Recommendations

The most crucial and rewarding intervention in controlling overall caesarean section rates may be reduction in primary caesarean sections. Foetal distress, NPOL and failed induction are the main contributors to primary CS which are amenable to intervention and needs to be introspected at institutional levels to curb this rising trend of CS due to these factors. TOLACs need to be offered to patients with previous caesareans after proper patient selection and after proper counselling of the patients regarding risks and benefits. CDMR should be discouraged to reduce primary CS rates. Robson ten group classification system can be a starting point to formulate better guidelines based on experience of various institutions to reduce this rising rate of CS.

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