INCIDENCE AND INDICATIONS OF PRIMARY CESAREAN DELIVERIES IN A TERTIARY CARE HOSPITAL

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Abstract:

Background: The Caesarean section (CS) rate is steadily increasing worldwide including India. CS is associated with increasing morbidity and mortality. Primary CS is an important contributor for overall CS rate. Our objective was to estimate the primary CS rate in our institution and provide an in-depth analysis of the indications of primary CS.

Methods: This was a cross sectional study conducted at tertiary care teaching hospital. The data was collected for all women delivering in hospital from June2020-December 2020. The proportion of women undergoing primary CS was recorded. The mean age, socioeconomic status, parity was recorded. The indications for CS were tabulated and analysed.

Results: Out of 1370 deliveries 717 were c-sections and out of this 586 were primary c- sections, 42.77%. Mean age of the women was 24 yrs. Majority belonged to middle soccio economic status. 28.3% were multiparous. Most common indication for CS was fetal distress (25.2%)

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followed by CPD (24.5%) Failure to progress and failed induction were 8.1% and 7.6% respectively. Maternal request accounted for 1.5% of causes.

Conclusion: Study of primary CS rate and in-depth analysis of the causes of the CS will be the first step in reducing CS rate.

Key words: Primary Cesarean rate, Fetal distress, CPD

Introduction:

Cesarean delivery is the one of the most common major surgical procedure performed worldwide.(1) The total cesarean rate, defined as the percentage of cesarean deliveries out of all births in a given year, has risen dramatically since 1996; in 2009, 32.9% of all U.S. deliveries were by cesarean.(2)The developed countries also have a high rate of caesarean section .Cesarean delivery is associated with twofold higher morbidity and ninefold risk of mortality than vaginal births. (3)Cesarean delivery also increases the of subsequent uterine rupture, placenta accreta, hemorrhage, hysterectomy, and maternal death.(4) Safely lowering the total cesarean rate is a stated objective of the U.S. Department of Health and Human Services .(5)

According to Robsons classification the causes for CS can be classified into 10 categories. (6).Various studies including a study done by the author previously have shown that category 1, category 2(nulliparous group) and 5(previous LSCS) account for majority of the CS. (7) Reducing the CS rate in group 1and 2 will help to reduce CS rate in category 5 has well as overall CS rate. Studying the causes for CS in a teaching institution will be the first step in reducing CS rate and help institutions to formulate policies to reduce CS rate.

Using data from the Consortium on Safe Labor, Zhang et al found that having a prior uterine scar contributed most to the overall cesarean rate, accounting for 30.9% of all cesarean deliveries (8). Barber et al found that 50% of the increase in cesarean deliveries at their institution was

attributed to an increase in primary cesarean deliveries.(9)Thus Understanding the factors leading to primary cesarean deliveries is essential to reducing the total cesarean rate.

Many factors have been cited for the increase in cesarean rate, including delayed childbearing, multiple gestations, increasing maternal obesity, maternal request, and physicians' fear of litigation (10) The majority of studies to quantify these factors have been limited by sample size or geography; the contribution of factors on a national scale is unclear.

The objective of this study was to characterize the indications for primary cesarean delivery in a tertiary care teaching hospital   and to identify opportunities to lower primary cesarean rate.

Materials and methods

This was a prospective study undertaken in a tertiary care teaching hospital.

It was a cross sectional observational study where all pregnant women undergoing primary c-section in OBG department from June 2020 -December 2020 were included.

Inclusion criteria

1 - primigravida taken for elective or emergency LSCS.

2- multigravida with previous normal delivery undergoing either elective or emergency LSCS.

3- cases associated with medical or obstetric complications like pregnancy induced hypertension, preeclampsia, and cardiac disorder in pregnancy are also included.

Exclusion criteria

1- case of previous LSCS

2- patients undergoing full term normal delivery or preterm delivery.

3- patients undergoing hysterotomy.

The sample size was calculated using the formula   4 pq/l2

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where p = 40%, prevalence of c-section deliveries in JSS Hospital over past 5 yrs and q = 100-p=60% and I is the allowable error=10%

Sample size = 4*40*60/10*10

$\qquad$ = 96

Thus, the final sample size of 100 was considered for the study.

Method of data collection

The demographic characters of the pregnant women undergoing either elective or emergency cesarean delivery, indication for the procedure and obstetrics outcome was obtained from the surgeon's operative reports and obstetrics files.

The indications were tabulated and analyzed.

Statistical analysis

Data collected was entered in MS Excel and analyzed using SPSS version22. Descriptive statistical measures like percentage, mean and standard deviation was applied. A P value of less than 0.05 was considered as statistically significant.

Ethical issues involved in the study.

This study did not involve any invasive procedures does not cause any harm to the physical and mental wellbeing of the subject.

RESULTS:

Out of 1370 deliveries that occurred in study period 717(52.33%)were c-sections and out of this 586 were primary c- sections (ie. Primigravida delivering through c-section or a multipara undergoing c-section for the first time). Which gives a primary c-section rate of 42.77%. The

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highest numbers of primary c-section were seen in age category of 21-25yrs, with mean age of women undergoing CS to be 24 yrs.(Table 1)

Majority of women belonged to middle socioeconomic status.(Table 2)71.7% of the women were primgravida(Table 3). The average gestational age of CS was at 38-40weeks.(Table 4)

Out of associated medical disorders gestational diabetes mellitus was the most associated complication. (Table 5). Average birth weight of fetus at birth was 2.7 kgs.

The most common indication for primary CS was fetal distress (tachycardia or bradycardia) 24.5% followed by cephalopelvic disproportion / contracted pelvis accounted for 24.4 % of primary c-sections. Other common indications for CS was failed induction in 48(8.9%)followed by failure to progress 41cases(6.1%) oligohydramnios(5.9%) and breech presentation(4.7%). Maternal request for CS accounted for 1.5% of the cases. (Table 6)

Discussion:

Primary cesarean rate in our study was 63.9% and the primary cesarean rate among parous women was 10.28%. The increase is proportional to that of increase in general cesarean rates observed. Recent reports are showing that cesarean section rates are exceeding the World Health Organization threshold of 15% . Particularly in Asia and South America differences were found to be more than 50 percent in some instances.(2) A study in India has shown total caesarean rates in the public, charitable and private sectors were 20 %, 38% and 47% respectively. (11)

Most common indication in our study was fetal distress which is similar to other studies done by Pillai et al ,(12)James D.(13).However a study done by Gangawar R et al has concluded that diagnosis of fetal distress based on electronic fetal monitoring is imprecise and a poor predictor

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of fetal outcome and the result is a tendency for unnecessary caesarean sections.(14). But the fear of litigation has increased the use of continuous fetal monitoring and intervention early in labour . (15) Unnecessary CS procedures performed due to suspicious fetal heart traces generally occur because of limited knowledge regarding the CTG patterns that predict neonatal outcomes or due to the fear of medicolegal liability. (16) Review meetings designed to correctly interpret CTG traces may help to reduce the CS rate. In cases with non-reassuring fetal heart traces, resuscitative measures like maternal positioning, oxygen supplementation, correction of maternal hypotension and uterine hyperstimulation should be tried before the decision to perform a CS procedure is made. Fetal heart rate acceleration in response to scalp stimulation is a recommended procedure to confirm that the fetus does not have acidosis.(17) Some evidence exists to indicate that fetal scalp sampling reduces the CS rate when the fetal heart trace is suspicious.(18)

 Next most common indication was CPD similar to study done by Leitch et al. (19)

Scoring for risk factors for CPD, second opinion by senior obstetrician and elective induction are some of the strategies proposed to reduce CS for CPD (20)

Failed induction and Failure to progress accounted for ---- % of the cases. The causes for failed induction and failure to progress varied from early induction to inadequate dosing to inadequate uterine contractions. Further studies to elaborate on the specific causes and having strict institutional policies in accordance with the ACOG criteria for dystocia will help to reduce CS. (21)

Other common indication for CS was severe preeclampsia, eclampsia and GDM on insulin with macrosomia , and antepartum haemorrhage. Ours being a tertiary care institute these women

were referred for further management. Good ANC care , early detection and treatment of associated complication like preeclampsia will help to prevent CS for this indication(22)

Finally, CS for maternal request accounted for 1.5%. Fear of labour, inadequate knowledge etc have been important contributing factors. WHO has proposed non clinical interventions which include childbirth training workshops, nurse led applied relaxation training programmes and pshycosocial couple based prevention programme to reduce the fear among women regarding vaginal birth.(23)

In contrast to other studies where caesarean section rates were proportional to increase in maternal age, in our study 41.5 percent belonged to age group 25-29 years.

Conclusion:

In summary, global increase in cesarean section rates may be due to combination of factors: increased safety of procedure, increased use of fetal monitoring and medico legal situations and fear of malpractice suits, obstetric indications, maternal request. Optimum maternal and perinatal outcome depends on good obstetric practice rather than caesarean section. Caesarean section should be done only when there is medical indication. Having a good antenatal care, early referral before complications, strict institutional policy for induction, monitoring of pregnant women in labour and for deciding on CS improves chance for improved maternal and perinatal outcome with low caesarean rates.

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Table 1: Age of pregnant women who underwent primary CS

AGE	No. OF Pregnant women(n=586)
≤20	74
21-25	256
26-30	186
≥31	70

Table 2: Socioeconomic status of pregnant women who underwent primary CS

S-E STATUS	No. OF Pregnant women(n=586)
LOWER	96

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MIDDLE	294
UPPER	196

Table 3: Parity of pregnant women who underwent primary CS

PARITY	No. OF Pregnant women(n=586)
PRIMI	420
MULTI	166

Table 4: Gestational age of women undergoing CS

GESTATIONAL AGE	No. OF Pregnant women(n=586)
≤37	167
38-40	417
≥41	2

Table 5: Associated medical complications

COMPLICATIONS	NO.OF WOMEN
GDM	52
HTN	51
HYPOTHYROIDISM	27
ANEMIA	4
EPILEPSY	1
RHD	3
HBsAg POSITIVE	3
JAUNDICE	1

OTHERS	43

Table 6: Indication for LSCS

INDICATION FOR CS	TOTAL NO OF CASES (n=586)	% OF THE TOTAL (n=100%)
FETAL DISTRESS (Non reassuring NST and Meconium stained liquor)	148	25.2%
CPD/Contracted pelvis	145	24.4%
Failed induction	48	8.1%
Failure to progress	41	6.9%
GDM with macrosomia	9	1.5%
Oligohydramnios	38	6.4%
Severe preclampsia	20	5.1%
eclampsia	8	1.0%
Abruptio placenta	8	1.3%
Placenta previa	8	1.3%
PROM	19	4.9%
PPROM	12	2.0%
IUGR	13	2.2%
Multiple pregnancy	13	2.2%
Breech presentation	28	4.7%

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Oblique lie/deflexed head	8	1.3%
Precious pregnancy	12	2.0%
Maternal request	8	1.5%

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