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A Retrospective Analysis of Annual Cesarean Section Rate in a Tertiary Care Hospital, KOTA

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ABSTRACT

Objective: *Caesarean Section is the second commonest surgery done in India after tubectomy and has great impact on maternal and neonatal health. Increasing Caesarean rates have raised the need to study its influencing factors. The objective is to analyze the different indications and frequency of caesarean sections in order to reduce such deliveries in a tertiary hospital.*

Methods: *This retrospective study was conducted over a period of one year from 1st July 2016 to 30th June 2017 at the Department of OBG, medical college, Kota (Rajasthan), India. Data of patients who delivered by C-Section in our hospital during the defined study period was recorded and a statistical analysis of various parameters namely, the caesarean section rates, its indications, demographic features, the patient's morbidity and mortality was done.*

Results: *The total numbers of women delivered over the study period were 11477, out of which C-Sections were 4545. The overall CS rate was 39.60%. Previous CS was the leading indication to the CS rate (43.07%) followed by fetal distress (11.15%), oligohydroamniosiugr (09.32%), breech presentation (7.50%), cephalopelvic disproportion (CPD) (6.15%) and arrest of labor (04.61%). 15.08% patients had various complications mainly infection (7.50%) and operative injury (3.26%). There was 3mortality during this period.*

Conclusions: *Being a tertiary care hospital, a high rate of Caesarean deliveries was observed. Although individualization of the indication and careful evaluation, following standardized guidelines, practice of evidenced-based obstetrics are done in our institute but due to multiple and unavoidable factors cesarean rate is increasing. Audit and feedback is the best way to judge clinical practice and to reduce the frequency of cesarean section in any tertiary setup.*

Keywords: *Cesarean section(CS), Previous cesarean section, Double loop of cord(DLOC), Fetal distress.*

INTRODUCTION

"Once a cesarean, always a cesarean" was the rule for classical cesarean section (CS) but now a days CS is considered a safe mode of delivery associated with less perinatal complications despite high health and financial cost. Cesarean delivery is defined as the birth of the fetus through incision in the abdominal wall and the intact uterine wall. This definition does not include removal of fetus from the abdominal cavity in the

case of abdominal pregnancy or in case of rupture uterus [1]. Cesarean section is the second commonest surgery done on the women in India after tubectomy and has great impact on maternal and neonatal health.

The WHO published guidelines regarding CS rates in 1985 which was revised in 1994. The guidelines published in 1997 by UNICEF, WHO, and UNFPA states that proportion of cesarean birth should range between 5 to 15%. The rate of CS below 5% seems to be associated with gaps in obstetric care leading to poor health outcomes for mother and children, whereas rates over 15% don't seem to improve either maternal or infant health.[2] In US, rate was 22.7% in 1990 which increased to 32.8% in 2010, which shows about one mother in three now give birth by cesarean section [3]. These high level are also reported in Latin America; ranged from 16.8% to 40%. The estimate for CS rates in EAST Asia also shows that it is well above 15% [4].

In India we have variable CS rate ranging from 5% to nearly 40% depending on various factors.[5]

The increasing global rates of caesarean section have been one of the most debated topic in maternity care. Cesarean section is a major surgical procedure and like every surgical procedure, carries a significant risk of morbidity and mortality.

The reason for increase in Caesarean birth are multifactorial and include the increasing number of woman with prior Caesarean delivery, the increase in multifetal gestation, increasing use of intrapartum fetal monitoring, medico legal concerns, maternal autonomy in decision making regarding mode of delivery. Today the previous Caesarean section is the main contributory factor for the high frequency of caesarean delivery worldwide.[6]

The indications of caesarean sections vary among institutions as there is no standard classification system exists for indications of C-Section. [5,6]

Many obstetricians consider caesarean section to be quite simple, efficient, safe and psychology-cally well tolerated procedure and far superior to secondary interventions such as vacuum delivery or emergency section but opposite school of thought also exists. Thus, cesarean is a subject of professional controversy. Although the caesarean section rates have increased over the last years.

MATERIALS AND METHOD

This retrospective study was conducted at the Department of Obstetrics and Gynaecology, JK lon hospital, Medical college, Kota from 1st July 2016 to 30th June 2017. Booked, unbooked, referred cases that underwent CS either elective or emergency during this study period were included. Indications, demographic features of patients, type of CS (primary or repeat) and outcome were recorded and analyzed. Ideally, booked mother were defined as those who had at least three antenatal visits during whole pregnancy but technically, at our centre, patients who had ANGANWADI card with TT immunization plus one or more antenatal visits to hospital, taken as booked patients. While unbooked or referred patients who had no visits during antenatal period at our centre or referred in emergency from PHC, CHC, other medical centre and hospitals. Baseline investigations and ultrasonography done in all the study subjects.

RESULT

There were a total of 11477 deliveries during the study period, out of which, 4545 had delivered via C-Section. The overall C-Section rate was 39.60%. The rate of primary CS was 56.93%. 71.19% CS were done as emergency procedure. CPD, previous ≥1 CS and malpresentation were the commonest indications for elective CS (Table 1).

MODE of DELIVERY	No. of cases	Percentage %
Vaginal delivery	6932	60.40
Cesarean section	4545	39.60
Primary cesarean section	**2589**	**56.97**
Repeat cesarean section	**1956**	**43.07**
TYPE OF CS		
Elective CS	1321	28.81
Emergency CS	3235	71.19

Maximum no. of C-sections was in the age group of 21-25 years (58.14%) followed by 31.90%

patients in the age group of 26-30 years. These two groups constituted nearly 90% of total C-Sections. Only 1.10% of the cases belonged to the elderly age group of above 35 years. Maximum no. of caesarean sections was in multiparous females (55.67%). Table 2(below)

AGE GROUP IN YEARS	NO. OF CASES	PERCENTAGE%
<20	278	6.11
21-25	2642	58.14
26-30	1450	31.90
31-35	125	2.75
>36	50	1.10
PARITY WISE		
Primi	1828	40.23
Multi (G2-G4)	2623	55.67
GrandMulti(G5 or above)	94	1.10
ANTENATAL STATUS		
Booked	1979	43.54
Unbooked or Referred	2566	56.46

93.80% of the study group were term (≥37wk of gestational age) patients.

Among the indications, it was observed that repeat C-section (43.07%) was the commonest cause followed by fetal distress (11.15%), oligohydroamnios with or without IUGR (9.32%) and breech (7.50%). (Table3) below-

INDICATION	NO. OF CASES	PERCENTAGE%
Previous CS≥1	1956	43.07
Fetal distress	506	11.15
Oligohydroamnios±IUGR	423	9.31
Breech	341	7.50
CPD	270	5.94
Arrest of labor	210	4.61
PIH±APE	200	4.40
Failed induction	167	3.67
Antepartum hemorrhage	135	2.96
Obstructed labor	118	2.59
DLOC with head floating	112	2.45
Malpresentation or abnormal lie	48	1.06
Multiple pregnancy	22	0.48
Others (medical disease, BOH, cord prolapsed etc.)	37	0.81
Total	4545	100

Commonest cause for primary cesarean was fetal distress 516 (21.60%), followed by oligohydro-amnios with or without IUGR (n=433,18.13%), CPD (n=363,15.20%). Commonest cause for the repeat C-Section was previous two or more CS (23.21%,n=454) fetal distress(n=391,20.02%) followed by scar tenderness(n=320,16.35%) and CPD (n=311,15.89%). Figure (1) below-

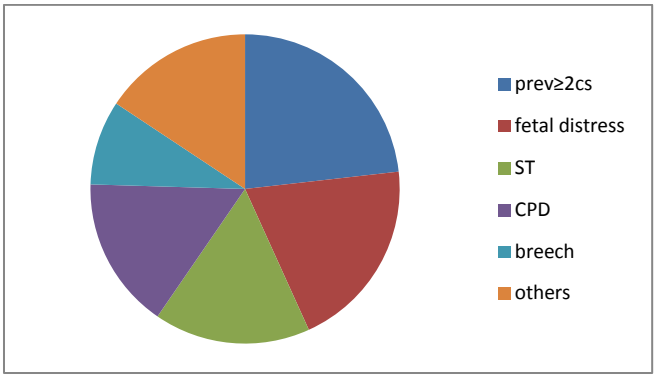

Table: 4 Maternal Morbidity and Mortality

COMPLICATION	No. OF CASES	PERCENTAGE %
Wound sepsis	341	7.50
Incision extention /hematoma	148	3.26
Atonic PPH	72	1.58
Post op fever/spinal headache	69	1.51
Bladder injury minor/major	34+4	0.83
UTI	18	0.40
Total	686	15.08

15.08% patients had complications like infections (7.50%), operative injury (3.26%), atonic PPH (1.58%) and anaesthetic complications like spinal headache (1.51%), 4 patients had major bladder injury for which bladder repair done. Maternal mortality were for 3 cases, out of three, 2 died from ICH (intracranial hemorrhage) due to APE, one from DIC after CS done for APH. (Table: 4) above

DISCUSSION

There has been a steady increase in the rates of CS in both developed and developing countries. [7,8,9]

The reasons for the increased caesarean are multifaceted. Commonly cited causes are:

- Increased institutional deliveries.
- Avoiding difficult manipulative or instrumental vaginal deliveries.
- Fetal distress detected especially with the use of continuous electronic fetal monitoring.
- Liberal use of caesarean in high risk cases like Breech presentation, previous caesarean delivery, growth retarded fetus, multiple pregnancy, preterm baby.
- Improved safety of C-section with better surgical techniques, anaesthesia, better

availability of blood and its products, advanced antibiotics.

- Some time defensive behavior due to medico legal concerns
- Fear of the patient for labor pain.

In present study, rate of cesarean section observed is 39.60%, which is much higher than accepted norm of WHO i.e.15%. Basically this present study is conducted in a tertiary care hospital attached to medical college. As such, the most of the attending the OPD and also those availing the emergency services are basically referred cases from the nearby and also some of the distant PHC, CHC, Sub divisional Dispensaries and the Civil Hospitals. Given the situation, it may be difficult to curtail the rates in tertiary care institutes, catering to a large population of referred cases. There is almost nil cesarean incidence in any govt. sector nearby. (CHC, civil hospitals, railway and district hospitals).

The average annual CS rate in present study comparative with Shabnam S(40.10%) and Barber et al(36.50%).[7,8]

In the present study most common cause for CS is previous CS(43.07%), that is comparable with study conducted by G Singh et al and Nikhil et al.[9,10] 56.46% of cases in our study either unbooked or referred. Farah Karim *et al.;* [11] conducted a study regarding Trends and Determ-inants of CS showed that 53.34% of the patients undergoing CS were unbooked or referred.

Practice of trial of VBAC is less in our hospital due to doubtful scar strength, lack of details regarding prev CS and also refusal by patients and attendants. Fetal distress accounted for 11.15%, breech 7.50%, CPD 5.95% are same as found in study by Nikhil et al.[9] PIH incidence(4.41%) comparable to G Singh et al.[10] Although incidence are high in case of oligohydroamnios /IUGR (9.32%) from other studies.[9,10]

Analysis of age of the patients showed that 90.04% of cases were in the age group of maximum fertility i.e. between 20-30 years. Other Indian studies also showed similar results. [12,13]

The caesarean sections were associated with increased risk of maternal and perinatal morbidity as compared to vaginal deliveries even in low risk cases. In our study, the morbidity rate was found as 15.08%. Surgical site infection (7.50%) was the commonest complication followed by intraoperative injury (3.26%), atonic PPH (1.58%). These complications occur especially in emergency cases. In a study by Santhanalakshmi C et al,[14] the commonest complication was wound infection (38%). The next common complications were UTI, post op fever and spinal headache, 20%, 19%, and 14.4% respectively. In a study by Osman BALCI et al the morbidity rate was found as 14%. Febrile morbidity was detected as the most common with 11%.[15]

There were three case of maternal death, MMR of 68/1,00,000. This is in contrast to the MMR reported as 564/100,000 & 666/100,000 by Rehana et al [16] and Ali et al [17] respectively. This low MMR is attributable to high level of antenatal care services provided by our setup.

CONCLUSION

Greatest emphasis attached to fetal welfare in today's small family norm has changed the delivery practices in favor of C-Section. There is no empirical evidence for an optimum percentage. What matters most is that all women who need caesarean sections receive them (WHO Statement 2010). Audit and feedback is the best way to judge clinical practice and to reduce the frequency of cesarean section in any tertiary setup. Adoption of different strategies and changing clinical practice for delivery of breech presentation and detection of true fetal distress and labor dystocia and unbiased implementation of such protocol are some of the ways to reduce the CS rate in any tertiary setup.

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