Section: Obstetrics & Gynaecology

Research

CAESAREAN SECTION RATE AMONG PRIMIGRAVIDA IN A TERTIARY HEALTH CARE CENTRE IN NORTH-EASTERN INDIA

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Abstract

Background: Caesarean section can save lives, but it is frequently performed without valid medical indications. The proportion of CS at the population level is a measure of the level of access to and use of this intervention. It can serve as a guideline for policy-makers and governments in assessing progress in maternal and infant health and in monitoring emergency obstetric care and resource use. In recent years, an increasing number of women requested delivery by elective CS without valid medical indications. High CS rates are an issue of international public health concern. The aims & objectives are the study was carried out to estimate the incidence and determine the indications of CS among primigravida admitted in the Department of Obstetrics and Gynaecology, JNIMS and to compare the morbidity between Vaginal delivery and Caesarean section. **Materials and Methods:** A hospital-based prospective study was done in the department of Obstetrics and Gynaecology, JNIMS, Manipur during May 2019 to April 2021 among 710 primigravida women admitted in ante natal ward, JNIMS, Manipur. The independent variables were age, gravida, history of treatment for infertility, psycho-social stress and iron/folic acid supplementation while the outcome variables were Caesarean section, birth weight of the baby, Apgar score, congenital anomaly and admission in Neonatal ICU. **Result:** CS was done for 183 cases giving a CS incidence rate 25.8%. A total of 141 (19.9%) had emergency CS while elective CS was done for the remaining 42 (5.9%) cases. Fetal distress (43.2%) was the commonest indication for CS, which was followed by cephalo-pelvic disproportion (13.7%) and others. Normal birth weight was found more among the NVD cases whereas low birth weight and big babies were seen more among the CS deliveries. This difference was found to be statistically significant ($p<0.05$). APGAR score less than 4 was seen more among NVD group, 4-7 score more among CS group and score >7 among NVD group. This finding was found to be significant ($p<0.03$). The difference in the score at 5 minutes between the two groups was not found to be statistically significant ($p=0.588$). NICU admission was seen more in the CS group but the difference was not statistically significant (p-0.14). **Conclusion:** One-fourth of all the cases had CS. The most common reason for indication of CS in this study was fetal distress followed by CPD, antepartum haemorrhage, oligohydramnios, malpresentation, failed induction, failure to progress, obstructed labour, eclampsia and cord prolapse. Congenital abnormality was seen in few cases. Normal weight was seen more in NVD but low birth weight and birth weight>3.5kg was seen more in CS deliveries. Apgar score at 1 min & 5 min < 4 was seen more among NVD group, 4-7 score more among CS group and score >7 among NVD group. There was more NICU admission in CS deliveries.

INTRODUCTION

Caesarean section (CS) is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk. CS can save lives, but it is frequently performed without valid medical indications. The proportion of CS at the population level is a measure of the level of access to and use of this intervention. It can serve as a guideline for

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policy-makers and governments in assessing progress in maternal and infant health and in monitoring emergency obstetric care and resource use. Since 1985, the international healthcare community has considered the ideal rate for CS to be between 10% and 15%. Since then, CS have become increasingly common in both developed and developing countries.[1] It has increased from about 5% in the developed countries in the early 1970s to more than 50% in some regions of the world in the late 1990s. However, it must be accepted that CS delivery carries somewhere between 5-10 times more risk than that of vaginal deliveries. Based on a survey by the World Health Organisation (WHO) on methods of delivery during the period 2007-08, the overall rate of CS around the world where 27.3% and 27% despite the fact that in 1985, WHO recommended that no region should have a CS rate over 10-15%.[2] At population level, CS rates higher than 10% are not associated with reductions in maternal and newborn mortality rates.[1] Moreover, increased CS has burden on health system and imposes strain on families.[3]

In recent years, an increasing number of women requested delivery by elective CS without valid medical indications because of the fear of episiotomies, long and painful labor, pelvic floor trauma and subsequent incontinence associated with vaginal birth. The increase in the incidence of LSCS in last three decades is mainly due to safer anaesthetic drugs and advanced anaesthesia techniques. better surgical techniques and protective umbrella of various broad spectrum anti-biotics. increased use of electronic intrapartum monitoring and improvement in NICU facilities and availability of blood and blood products.[4,5]

The term "Caesarean delivery on maternal request (CDMR)" has generated worldwide debate because several studies have shown that this phenomenon may be one of the drivers of the rising CS rate. In recent years, governments and clinicians have expressed concern about the rise in the numbers of caesarean section births and the potential negative consequences on maternal and infant health. High CS rates are an issue of international public health concern.[6] Hence, it was felt to study in-depth regarding this issue.

Aims & Objectives

The study was carried out to estimate the incidence and determine the indications of CS among primigravida admitted in the Department of Obstetrics and Gynaecology, JNIMS and to compare the morbidity between Vaginal delivery and Caesarean section.

MATERIALS AND METHODS

A hospital-based prospective study was done in the department of Obstetrics and Gynaecology, JNIMS, Manipur during May 2019 to April 2021 among all the primigravida women admitted in ante natal ward, JNIMS, Manipur. Women with previous history of Myomectomy and hysterotomy were excluded.

A sample size of 710 was calculated based on the CS rate of 21.1% from the NFHS-4 report at 95% confidence level and an absolute allowable error of 3.[7] The cases were recruited by using convenience sampling. The independent variables were age, gravida, history of treatment for infertility, psycho-social stress and iron/folic acid supplementation while the outcome variables were Caesarean section, birth weight of the baby, Apgar score, congenital anomaly and admission in Neonatal ICU.

Data were collected by using a pre-tested, semi-structured questionnaire which had sections on history, physical examination, obstetrical examination, breast examination and systemic examinations investigations and management.

Dinoprostol gel was used for ripening and misoprostol and low dose oxytocin for induction of labor in some cases. Study cases were monitored by standard partograph of World Health Organisation (WHO). Vaginal examination was done 4 hourly to assess the progress of labour. Whenever any sign of fetal distress or failure in progress of labour, CS was done immediately after counselling of guardians with consent.

All the data collected were first entered in Microsoft excel 2007. Data were analysed using IBM SPSSv18. Descriptive statistics such as mean, SD, and proportions were used to describe the findings. Findings were presented in tables and appropriate graphs. Test of significance was performed using Chi-square test and P-value of <0.005 was taken as significant.

The study was conducted after approval from IEC, JNIMS. An informed consent was taken from the patient and strict confidentiality was maintained by not taking names of respondents and also by presenting data in groups.

RESULTS

Completed data sets could be collected from 710 study-participants. There was no refusal. Their mean age (SD) was 25.5 (6.4) years. Women younger than 24 years constituted the majority (325; 45.8%). [Table 1] Comparable proportions of them were from both urban and rural areas. Hindus constituted the majority (456; 64.2%) followed by Muslims and other religious groups.

Majority of the cases were booked cases (612; 86.2%). Majority of them had a gestational age of 37-40 weeks (626; 88.2%) at the time of enrolment. This was followed by <37 weeks (74; 10.4%) and >40 weeks (1.4%).

Normal vaginal delivery (NVD) was the most common mode of termination of pregnancy in 527 (74.2%) of cases while CS was done for 183 cases giving a CS incidence rate 25.8%. A total of 141

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(19.9%) had emergency CS while elective CS was done for the remaining 42 (5.9%) cases.

Fetal distress was the commonest indication for CS, which was followed by cephalo-pelvic disproportion and others. [Table 2]

Table 1: Age distribution of study-participants (n=710)

Age in years	No. (%)
<24	325 (45.8)
25-29	222 (31.3)
30-35	113 (15.9)
36-40	45 (6.3)
>40	5 (0.7)

Table 2: Distribution of respondents by indication of CS (n=710)

Indication for CS	Frequency (%)
Fetal distress	79 (43.2)
Cephalo-pelvic disproportion	25 (13.7)
Ante-partum haemorrhage	18 (9.8)
Oligohydramnios	15 (8.2)
Malpresentation	14 (7.7)
Failed induction	12 (6.6)
Failure to progress	9 (4.9)
Obstructed labour	6 (3.3)
Eclampsia	3 (1.6)
Cord prolapse	2 (1.1)

Congenital abnormality was seen in 05 cases (0.7%).

Table 3: Comparison between NVD and CS regarding birth weight.

Birth weight (kg)	NVD (%)	CS (%)	X2 value and p value
<2.5	46 (8.7)	35 (19.1)	64.76
2.5-3.5	471 (89.4)	121 (66.1)	0.00
>3.5	10 (1.9)	27 (14.8)	

Normal birth weight was found more among the NVD cases whereas low birth weight and big babies were seen more among the CS deliveries. This difference was found to be statistically significant (p<0.05).

Table 4: Comparison between NVD and CS regarding APGAR score APGAR score

APGAR score	NVD	CS	p-value
At 1 minute			0.03
• <4	36 (6.8)	5 (2.7)	
• 4-7	101 (19.2)	47 (25.7)	
• >7	390 (74.0)	131 (71.6)	
At 5 minutes			0.588
• <4	11 (2.1)	2 (1.1)	
• 4-7	31 (5.9)	13 (7.1)	
• >7	485 (92.0)	168 (91.8)	

APGAR score less than 4 was seen more among NVD group, 4-7 score more among CS group and score >7 among NVD group. This finding was found to be significant (p<0.03). The difference in the score at 5 minutes between the two groups was not found to be statistically significant (p=0.588). [Table 4]

Table 5: Comparison between NVD and CS regarding NICU admission

NICU admission	NVD	CS	p-value
Yes	32 (6.1)	17 (9.3)	0.14
No	495 (93.9)	166 (90.7)	

NICU admission was seen more in the CS group but the difference was not statistically significant (p-0.14). [Table 4]

DISCUSSION

Normal vaginal delivery was the most common mode of termination of pregnancy in 74.2% of cases and incidence of CS was 25.8% in primigravida women in this study. Similar incidences of CS among primigravida was found in studies done by by Sehgal R et al (26.8%) and Deepika J et al (26.4%).[8,9]

Some studies found lower incidences of CS among primigravida. The reason behind this low rate may be explained by the less desire to be delivered by Caesarean by the patients and the wish to have spontaneous vaginal delivery unless it is medically indicated. With the noticed decreased in family size in developed and some developing countries, and the global trend for safe motherhood, no more difficult deliveries, either breech or instrumental

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have been attempted. The obstetricians and parents alike are aiming for what is in their belief a safe delivery for mother and baby.[10] Among CS, emergency was more than elective (77% vs 23.0%). This finding was in concordance with the studies by Latif R et al (68.8% vs. 31%), Jagannath P et al (85% vs. 15%) and Bhatia N (89% vs.11%).[11,12,13]

The most common reason for indication of CS in this study was fetal distress (43.2%) followed by CPD (13.7%), antepartum haemorrhage (9.8%), oligohydramnios (8.2%), malpresentation (7.7%), failed induction (6.6%), failure to progress (4.9%), obstructed labour (3.3%), eclampsia (1.6%) and cord prolapse (1.1%). Congenital abnormality was seen in five cases (0.7%). This finding was in concordance with the study by Prajapati N et al,[14] where the most common indication of primary caesarean section in primigravida was fetal distress 29.3% followed by cephalo-pelvic disproportion 14.8%, oligohydromnios 4.1%. Most common reason for CS as fetal distress was also found in the studies by Mesleh R et al, Shehadeh A, Birla S et al, Joshi SD et al and Sehgal R et al.[4,15,16,17,18]

In the study by Mehedi et al,[2] most common indication was both CPD and fetal distress in 21% each followed by malpresentation (14.7%), failure induction of labour (13.8%), severe oligohydramnios (10.6%), etc.

In the study by Elrishi F et al,[19] the most common indication for CS in primigravida was dystocia (26.7%), followed by malpresentation (23.3%), fetal distress (21.4%), PIH (7.4%), APH (3.4%), etc). in the study by Mahajan N et al,[20] indications of CS were arrest of progress (55.6%), fetal distress (37.0%) and deep transverse arrest (7.4%). Similarly, in the study by Latif R et al,[10] most common indication was failure to progress (31%), fetal distress (22%), failed induction (14%), etc.

Normal weight was seen more in NVD but low birth weight and babies weight>3.5kg was seen more in CS deliveries. This finding was in concordance with the study by Song G et al,[21] where LBW (4.6% vs 2.7%) and big babies (12.5% vs 4.1%) were more among CS group than normal delivery group. The birth weight was also an important factor in Cesarean delivery, 15.4% of the total births were low birth weight and it is suggested that Cesarean birth is a safer route of delivery for low birth

weight while macrosomia accounted for 8.7% of neonates; macrosomic infants had also been associated with unengaged fetal head, malpositioning and prolonged labor in nulliparae.[18]

Apgar score at 1 min & 5 min < 4 was seen more among NVD group, 4-7 score more among CS group and score >7 among NVD group. In both of them, score >7 was more followed by 4-7 score and then score <4. Similar finding was noted in the study by Shehadeh A and Mahajan N et al.[14,19]

NICU admission was seen in 6.9% of cases in this study. NICU admission was seen more in CS group but was statistically insignificant (p>0.05). In the study by Dutta I et al,[21] NICU admission in adult primigravida was 12.2%.

CONCLUSION

The commonest mode of delivery was NVD and one fourth of them had CS. The most common reason for indication of CS in this study was fetal distress followed by CPD, antepartum haemorrhage, oligohydramnios, malpresentation, failed induction, failure to progress, obstructed labour, eclampsia and cord prolapse. Congenital abnormality was seen in few cases. Normal weight was seen more in NVD but low birth weight and babies weight>3.5kg was seen more in CS deliveries. Apgar score at 1 min & 5 min < 4 was seen more among NVD group, 4-7 score more among CS group and score >7 among NVD group. In both of them, score >7 was more followed by 4-7 score and then score <4. NICU admission was seen more in CS group. There was more NICU admission in CS deliveries. CS deliveries are common these days and their reasons need to be scrutinized regularly to avoid unnecessary physical, mental and financial hazards. Further studies with a better study design need to be conducted to reveal the real picture.

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