

Primary cesarean sections in NTSV (Nulliparous, Term, Single, Vertex) in a tertiary hospital in Rural India

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Abstract

Background: Caesarean delivery is defined as an operative procedure to deliver the fetus or fetuses after the period of viability through an incision on the abdominal wall and uterine wall in an intact uterus. The World Health Organization (WHO) has identified an ideal caesarean section (CS) rate for a nation of around 10-15%. Caesarean section analysis and audits using Robson ten group classification system have identified the main drivers of Caesarean section rates (CSR) are the gravidas with previous CS and the nulliparous with term singleton fetus with vertex presentation (NTSV).¹⁻¹⁰ Given the low rates of vaginal birth after a caesarean section, once a woman undergoes her first CS, she is extremely likely to have repeat CS in subsequent pregnancies. This increases the burden of high risk pregnancies and increased CS rates subsequently. Reducing primary caesarean sections in NTSV is the key for improving overall health statistics. Hence, this one year prospective study was conducted to know the factors contributing to CS in NTSV population in a tertiary care hospital in rural India.

Materials and Methods: The study was a prospective observational study conducted in department of Obstetrics & Gynaecology at Pt.Jawaharlal Nehrugovt medical collegeChamba, HP from July 2019 to June 2020.

Results: Total number of deliveries during study period, were 2868, out of which 1186 (41%) were NTSVs. The CS among NTSVs were found to be 480(40%). The main indications for emergency caesarean sections in NTSV were fetal distress, failed induction and non-progress of labour,i.e. 43%, 15% and 13%, respectively.

Conclusion: The primary caesarean sections among the NSTV is an important contributor to the overall caesarean sections of the health institute. Caesarean audit should be performed routinely and every case should be scrutinised. Reducing the primary caesarean rate not only decreases total caesarean rate but also many long-term complications associated with previous caesarean sections like adherent placenta,rupture uterus etc. There is a need to develop standard clinical protocols for management of these conditions and emphasise vaginal delivery in NTSV.

Keywords:Caesarean section, Singleton pregnancy, Term pregnancy, Vertex presentation, Induction.

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I. Introduction

Cesarean section (CS) is an important surgery to save life of pregnant patient as well as fetus. However, CS is associated with increased risk of maternal and perinatal morbidity and mortality. Caesarean section rates are increasing all over the world to an extent that in certain centres in Brazil it has reached to 70-80%.¹¹ According to WHO (1985), caesarean section rates higher than 10% are not associated with reductions in maternal and newborn mortality rates.¹² The main groups of gravidas contributing to increase in CS rates are multiparous with previous CS and NTSV (Nulliparous, Term, Single, vertex presentation),who underwent elective CS, and emergency CS in labour. Therefore size of each of these groups and CS in each of these groups will influence overall CS rates. Hence women who are nulliparous, at full term, with a singleton pregnancy in vertex presentation (NTSV) have been established as a standard population and used as a target group for reducing the caesarean birth rate.^{13,14} The diagnosis and standard management of labour in these patients requires review in this low-risk group.¹⁵ Vaginal delivery in this low risk group is highly desirable as it affects the mode of delivery in future pregnancies. Thus to avoid further increase in CS rates as well to prevent complications in future pregnancies, the focus should be delivering NTSVs through vaginal route. NTSV caesarean section analysis provides a good basis for comparison of CS in the health facility. Hence, this study was conducted to identify and analyse the factors associated with increasing rate of CS in NTSV at a tertiary care hospital in rural India.

II. Materials and Methods

The study was a hospital based descriptive observational study conducted in department of Obstetrics &Gynecology at Pt.Jawaharlal Nehru govt medical college Chamba, HP from July 2019 to June 2020.

Inclusion Criteria:

All nulliparous women with gestational age at or >37wk with cephalic presentation who underwent CS either electively, or on emergency basis following either spontaneous or induced labour. Nulliparous-patients who never delivered a baby of >24 weeks or >500gms, term-pregnancies ≥ 37 completed weeks, Singleton with Vertex presentation (NTSV) were included.

Exclusion Criteria: Nulliparous patients with abnormal lie and non-vertex presentations, preterm & multiple pregnancy.

III. Results

The data obtained was coded and entered into the Microsoft Excel spreadsheet. The data was analysed and the final results and observations were interpreted as follows. Total numbers of patients delivered during study period, were 2868, out of which 1186 (41%) were NTSV. Table 1 depicts age distribution of NTSVs. Maximum number NTSVs belong to 20-25 years. Total number of vaginal deliveries in NTSV during the study period were 706(60%) and CS were 480(40%). Total number of CS were 725 (25%) and contribution of NTSV to overall CS rate was found to be 480(16.7%). Number of elective LSCS in NTSV was 40(8%) and emergency LSCS as 440(92%). Table 2 depicts different indications for elective LSCS. The indications for elective LSCS were precious pregnancy (conceived with infertility treatment/subfertility) 10 (25%), IUGR 9(22.5%), placenta previa 9(22.5%),anamnios8 (20%) and Macrosomia 4(10%). Among 440 emergency CS, the commonest indication was fetal distress 189 (43%) followed by failed induction 66(15%) and non-progress of labour 57(13%). Other indications for emergency LSCS were severe pre eclampsia44(10%), antepartum haemorrhage 44(10%),CPD 26(6%), DTA 9 (2%) and cord presentation 5(1%)Table 3.

Table 1: Age distribution of NTSVs

Age(years)	Number of women	Percentage
18-25	528	45
26-30	443	37
>30	215	18

Table 2: Indications of elective LSCS.

Indications	Number of women	Percentage
Precious pregnancy	10	25
IUGR	9	22.5
Placenta previa	9	22.5
Anamnios	8	20
Macrosomia	4	10

Table 3: Indications for emergency LSCS.

Indications	Number of women	Percentage
Fetal distress	189	43
Failed induction	66	15
Non progress of labour	57	13
Severe pre-eclampsia	44	10
Ante-partum haemorrhage	44	10
CPD	26	6
DTA	9	2
Cord presentation	5	1

IV. Discussion

A total of 2868 gravidas delivered during the study period. Nulliparous patients at term with single pregnancy and vertex presentation were 1186(41%) of total obstetric population, and they constituted major group. This is similar to other studies where NTSV contribution to obstetric population is maximum i.e. 53.3%, Prameela et al.,⁵ 76% Malik et al.¹⁰ This constitute the most important group in any obstetric population because they have the most variation in terms of management and outcome. Also the mode of delivery in this low risk group influences outcomes in future pregnancies. Among 1186 NTSVs, the NTSV CS were 480(40%). The NTSV CS rate in other studies was, 25% Malik et al,¹⁰ 21%, Kazmi et al,⁷ 51% Ray et al.⁴ The overall CS rate during the study period was 725 (25%). The contribution of NTSV to overall caesarean section rate in the study is 480 (16.7%). NTSV CS rates varies widely, from 10.3% to 34.2%, in different studies globally.¹⁶⁻¹⁹ This may be due to variation in clinical practices, in different parts of the world, affecting mode of delivery in NTSVs. This indicates that despite of being low risk group i.e., women who are nulliparous, single, cephalic, ≥ 37 weeks are the major contributors for primary CS. The total elective LSCS in NTSV were 40(8%). In cesarean section audit by Malik et al¹⁰ in Sri Lanka, the elective LSCS among NTSV population was 14%.

Total emergency LSCS were 440 (92%), showing maximum LSCS in NTSV. The main indications for emergency cesarean sections in NTSV in the study were fetal distress, failed induction, nonprogress of labour. i.e. 43%, 15%, 13%, respectively. More number of CS are being performed for indications like fetal distress i.e.53% (Malik et al¹⁰), 53.2% (Siebles et al²⁰).

Other indications for emergency LSCS include severe pre eclampsia 44(10%),CPD 42(5.49%), antepartum hemorrhage 44(10%), CPD 26(6%) DTA 9(2%), cord presentation 5(1%).Other studies also proved that medical and obstetric complications increase the risk of CS.²¹

V. Conclusion

The primary cesarean birth rate among the NTSV population of women contributed significantly to the overall CS rate. Analysis of CS in low risk NTSV has identified the grey areas like fetal distress, non-progress of labour and failed induction where universally accepted clinical guidelines should be advocated to decrease primary CS rate among NTSV. Also practices such as periodic training the obstetricians in interpreting suspicious and nonreactive CTG, skilled pelvic examination for diagnosing CPD, use of partogram for monitoring progress of labour, use of pre-induction cervical ripening agents to get successful outcome in induction of labour is recommended. Terminology for diagnosis of failure-to-progress and fetal heart rate patterns should be standardised to help improve the comparability of studies and better management of labour in NTSVs to reduce primary CS rates in this low risk group. This will lead to better quality care, improved health outcome and reduced costs.

Conflict of Interest: Nil

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