

Trends of Caesarean Delivery in a Tertiary Care Hospital in North Karnataka

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ABSTRACT

BACKGROUND

The drastically increasing rate of Caesarean section (CS) is a topic of constant worry and analysis throughout the world. In order to understand the degree to which Caesarean section may be preventable, it is important to know why Caesarean sections are performed. Due to nonexistence of any standard classification for indications of Caesarean section, indications for the same vary among institutions. We wanted to evaluate the rates and predictors of Caesarean section among institutional deliveries in a tertiary care hospital in an economically backward rural area.

METHODS

This was a cross-sectional prospective study. Pregnant women who underwent Caesarean section (CS) between June 2019 and December 2019 at BLDE (DU) Shri. B. M. Patil Medical College Hospital and Research Centre, Vijayapur, Karnataka, were recruited for the study. Demographic and obstetric data including indications of Caesarean section and pregnancy outcomes were collected and analysed.

RESULTS

The mean age of the study participants was 24.62 + / - 3.77 years. The study patients were multigravidas, majority delivered at term. The mean gestational age was 38.09 + / - 2.023. The common indications were previous CS (33.1 %), cephalopelvic disproportion (16.9 %), hypertensive disorders of pregnancy (6.7 %) and maternal request (3.4 %). Post-delivery, majority of the babies (78.92 %) were stable and were on mother's side.

CONCLUSIONS

Previous caesarean section is the leading cause of Caesarean section in modern era. Hence reduction in primary caesarean section can reduce the rate of over all Caesarean section rate. Clinical, judgmental skills of the obstetrician, legal issues and the patient demands all contribute in the increasing trends of Caesarean section. Hence proper training, obstetric audit, and counselling of the patient party helps in changing the trends of increasing caesarean rate.

KEY WORDS

Caesarean Section, Indications for Caesarean Section, Maternal Morbidity

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BACKGROUND

In today's era, delivery by caesarean section has become the 'new normal'. Caesarean section is a surgical procedure involving incision of the walls of the abdomen and uterus for delivery of offspring. This term should never be applied to the removal of a child from the abdomen after rupture of the uterus and to any procedure of abdominal pregnancy. Indeed, it is the most commonly performed obstetrical procedure throughout the world. Normal vaginal delivery has lost its normality because of various issues like more pain and suffering to the mother, risk of injury to the baby, fear of litigation to the doctor etc. In contrast Caesarean section is painless, elective and involves much less risk for both to the mother and foetus. The World Health Organization (WHO) suggested a Caesarean section rate of 10 - 15 % as the upper limit for any country at the population level.¹ Many of them have raised above this recommendation and some have exceeded it by a wide margin.² However, infant and mortality rates don't seem to show a proportionate decrease in most parts of the world.³ According to The Federation of Obstetric and Gynaecological Societies of India, individualization of predilection for the women in labour with the expectation of a successful and safe vaginal delivery is the hallmark of labour management in this century, in cahoots with the ability to intervene with a caesarean section, if needed, to prevent morbidity and mortality⁴. It was perceived that higher caesarean section rates were associated with lower maternal and infant mortality only up to a specific point, after which Caesarean section rates were not significantly associated with these positive outcomes.^{5,6} Approximately 4-fold increase in the risk of maternal mortality is associated with Caesarean delivery. Maternal saturninity rates are larger Caesarean surgeries than vaginal deliveries. The causes of the maternal morbidity are endometritis, myometritis, postpartum haemorrhage (PPH), urinary tract infections and thromboembolism. Obese patients have much higher morbidity. In addition, unnecessary Caesarean deliveries are associated with higher health care costs in many low-income settings. In the last decade in India the rates of Caesarean section have almost magnified from 9.0 % in 2008 to 18.7 % in 2018 among institutional births and in private set up the percentages peaks to almost 40 - 45 %.⁷ When we look into the causes for this steep increase, non-medical indication like preference of dates, economic affluence⁵ etc. On the other hand post-operative maternal morbidity occurs in 9 - 15 % of Caesarean sections and it lowers fertility rates as compared to vaginal birth.⁸ In neonates the risk of respiratory morbidities increases in cases of elective Caesarean section.⁹ Many studies have observed that the neonates born through C-section have low bacterial exposure, which in turn changes their immunity and gut microbiome diversity. Children are expected to have high chances of allergy, asthma, and childhood obesity. The increasing trend of rates may indicate a trend towards a more costly medical delivery systems and lowered threshold of abnormality detection among the health care providers. In India, Janani Suraksha Yojana and maternal ambulances services in rural areas which was started in last decade have brought many significant changes in maternal and perinatal outcomes in India, due to which there is significantly raised number of institutional deliveries, this may have brought a difference in pattern of Caesarean sections as well, analysis of

which has not been incorporated in much of the studies. If above mentioned factors can be clarified, it may indicate specific areas that could be targeted to control Caesarean section rates. It is time to realize that c sections not only put both the mother and child at risk, but also have huge economic burden compared to normal vaginal delivery. Thus, the current study is planned to understand the rates and indications of Caesarean section among institutional deliveries in a tertiary care hospital in an economically backward rural area.

METHODS

A prospective cross-sectional study was conducted at BLDE (DU) Shri. B. M. Patil Medical College Hospital and Research Centre, Vijayapur, Karnataka from June 2019 to December 2019 after obtaining the institutional ethical committee clearance. A total of 670 beneficiaries who underwent caesarean section for delivering their babies were included in the study. The purpose of the study was explained using informed consent document and such consent was obtained from each of the study subjects. For the purpose of the study, complete history of the study participants including their age, previous history of pregnancy, previous mode of delivery and indication of caesarean section elective or emergency was noted. The gender and status of the child after birth was also noted.

Statistical Analysis

Statistical analysis was done using summary statistics of Mean \pm SD, Freeman-Halter Fisher test. Data were analysed by SPSS v.23.0 and Microsoft office 2007.

RESULTS

The study participants were predominantly young belonging to the age group of 21 - 25 years followed by 26 - 30 years as shown in Figure 1.

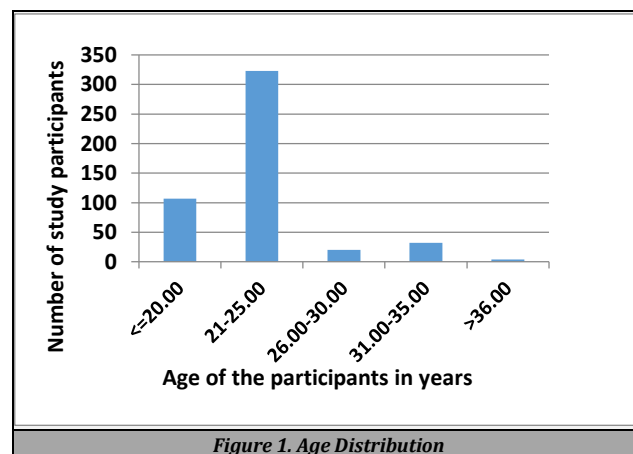


Figure 1. Age Distribution

The mean age of the study participants was 24.62 \pm 3.77 years. 403 (60 %) of the study participants were multigravida while the rest i.e. 204 (40 %) were primigravida.

A majority 465 (69.4 %) mothers delivered at term i.e. more than 37 weeks, 198 (28.4 %) of them delivered late preterm (32 - 37 weeks) while 15 (2.2 %) delivered in early preterm period (< 32 weeks). The mean gestational age was 38.09 + / - 2.023 as shown in Table 1.

Gestational Age (Weeks)	No of Patients	Percentage
<= 32	15	2.2
33 - 37	190	28.4
> 38	465	69.4
Total	670	100.0
Mean ± SD	38.09 ± 2.023	

Table 1. Gestational Age

The indications for which CS was conducted is detailed in table 2. The most common indication was previous lower segment caesarean section (LSCS) followed by cephalopelvic disproportion.

Indications	No. of Patients	Percentage
Antepartum haemorrhage (APH)	13	1.9
Cephalopelvic disproportion	113	16.9
Failure to induce	12	1.8
Fetal distress	92	13.7
Hypertensive disorder of pregnancy	45	6.7
Mal presentation	36	5.4
Maternal conditions	4	.6
Maternal request	23	3.4
Multiple pregnancy	12	1.8
Non-progress of labour (NPOL)	29	4.3
Poor BISHOP	6	.9
Previous LSCS	222	33.1
Severe oligohydramnios	63	9.4
Total	670	100.0

Table 2. Indications of CS among Study Participants

Among all CS 179 (26.7 %) was elective while 491 (73.2 %) were done because of emergency indication as shown in Table 3.

Mode of Delivery	No. of Patients	Percentage
Elective	179	26.7
Emergency	491	73.2
Total	670	

Table 3. Mode of Delivery

Post-delivery, majority of the babies 78.92 % were stable and present by mother's side, while the rest needed intervention as shown in table 4. There were 4 twin deliveries, 359 (53.26 %) babies delivered were males while 315 (46.74 %) were females.

Neonatal Outcome	No. of Patients	Percentage
Intrauterine device (IUD)	18	2.52
Mothers side	532	78.93
Neonatal intensive care unit (NICU) admission	125	18.55
Total	674	100

Table 4. Distribution of Neonatal Outcome after Delivery

DISCUSSION

The present study was conducted in a tertiary medical college of North Karnataka to estimate the rates of Caesarean section and evaluate the indications of the same. The study

participants in our study were from young age groups. Similarly, study conducted by Aruna Biradar et al.¹⁰ on primary Caesarean section reported the age group of study participants to be 21 - 30 years. Also study by Benzouina et al.¹¹ on CS rates reported mean age of the pregnant women to be 27.8 years. Majority of the mothers in the study were multigravidas which is similar to the finding of Unnikrishnan B et al, 46.8 % cases were primiparous and 47.6 % were multiparous¹² and also Prasad et al.¹³ and Naeem et al.¹⁴ In our study only 15 mothers delivered before completing full term. Similarly, Barros et al.¹⁵ in their study reported that only 10 % of the patients undergoing CS delivered before full term gestation. Also, Leal et al.¹⁶ reported 38 % preterm birth in patients undergoing CS in public hospitals. The most common cause of CS in our study was previous CS followed by cephalopelvic disproportion.

In a study by Anand Nikhil et al. and Pandya J M et al also reported 42.09 % and 46.2 %, respectively as the most common indication for Caesarean section^{17,18} But, in a study by Onankapa et al.¹⁹ The primary indications for Caesarean section was cephalopelvic disproportion. Also Y. Ali²⁰ reported cephalopelvic disproportion (44 %) as the main indication of CS. The observed difference in the indication of CS in our study may be because the obstetricians are scared of giving a trail of labour in cases of previous CS due to medico legal issues.

On the other hand, the contingent rise in repeat Caesarean delivery has been associated with an increase in grievous complications particularly related to that of placentation like placenta previa and placenta accrete which in turn increases the maternal morbidity and even mortality. Foetal distress and hypertensive disorders of pregnancy were the other indication of CS in our study which is similar to a study published by Dinas et al.²¹ and also Similar results were reported in a study by Liu et al. (11.81 %)²² This could be attributed to very liberal use of cardiotocography (CTG) and intense fetal monitoring. A small proportion of CS in our study was due to maternal request which indicates the case of rising operation in whom operations are performed in the absence of medical indication.

This particular trend has been observed in a study conducted in Connecticut, wherein indications exhibiting large annual percentage increases including maternal request.²³ The operation performed in our study were predominantly due to emergency indication which is similar to the finding of Bukar et al.²⁴ who reported (72.4 %) of the patients had emergency Caesarean delivery. Also, Daniel et al.²⁵ reported an emergency CS rate of 57.1 %. In our study percentage of patients with hypertensive disorders in pregnancy undergoing emergency CS was 6.7 %, similarly a study done by Sangamesh Matapathi et al²⁶ showed 73 % and also a study by Varsha Kosee et al. showed 7.3 %.²⁷ In our study male babies were marginally more than the females which was similar to the finding of Dinas et al.²¹ We found 25 % of the new-borns to be having bad neonatal outcome in which is similar to finding of Nakimuli et al. reported high incidence of neonatal mortality on their study. There was no maternal or neonatal mortality noted in our current study.

CONCLUSIONS

Vaginal delivery is and will always be the better mode of delivery compared to Caesarean section because it has lesser

morbidity and mortality for both the mother and the newborn. As such, the obstetricians throughout the world must encourage mothers in labour for vaginal delivery as far as possible. Caesarean section due to maternal / foetal indication is inevitable in emergency situations as a rescue procedure. Proper counselling during antenatal period can reduce elective sections done for maternal request. The results indicate high rates of Caesarean section in both urban and rural population. The common indications were previous Caesarean section, cephalopelvic disproportion, hypertensive disorders of pregnancy and request of patient. The increased rate of Caesarean section in multigravida may be due to the changes in physician's perspective of practice in various social and medico-legal issues. Being a tertiary care hospital, a high rate of Caesarean deliveries was observed. Although indication for Caesarean sections were individualised and careful evaluation of the patients was done by following standardized guidelines, but due to multiple and unavoidable factors Caesarean rates are still increasing.

Audit and feedback are the best way to judge clinical practice and to reduce the frequency of Caesarean section in any tertiary setup. Hence, more stringent measures must be adopted to reduce the rate of primary Caesarean section by avoiding the non-medical indication of CS for the interest of wellbeing of the women in both physiological and financial facets.

Data sharing statement provided by the authors is available with the full text of this article at jemds.com.

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