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Bhavya HU
Department of Obstetrics & Gynecology, KVG Medical College & Hospital Sullia, D.K, Karnataka, India

Umashankar Borkar
Department of Obstetrics & Gynecology, KVG Medical College & Hospital Sullia, D.K, Karnataka, India

Correspondence
Bhavya HU
Department of Obstetrics & Gynecology, KVG Medical College & Hospital Sullia, D D.K, Karnataka, India

Original Article

Prevalence of cesarean section and its associated factors in a tertiary care centre

Bhavya HU and Umashankar Borkar

Abstract
Introduction: Cesarean section (CS) is one of the oldest and most commonly done surgeries throughout the world. CS rates have raised dramatically over the last two decades worldwide which is an alarming concern for public health and obstetrician due to increase in financial burden and risk to health of the mother in comparison to vaginal delivery. The present study aims to study the prevalence of CS in a tertiary care hospital and its indications.
Methods: A cross sectional study conducted in a tertiary care in south India from August 2017 to July 2018. All the pregnant women who got admitted for delivery and gave consent were included in the study. If patient underwent CS then indications for the same and complications if any were recorded and data was entered and analysis was done using Microsoft SPSS software.
Results: Out of 476 deliveries conducted during the study period, 316 were normal vaginal deliveries, 138 were CS and 22 were instrumental deliveries. The CS rate was 28.99%. Incidence of CS is more in multigravida than primigravida. 62.31% had emergency LSCS and 37.69% had elective LSCS. Most common indication is previous LSCS seen in 30.43%. Other indications like Cephalo pelvic disproportion, arrest of labour, failed induction, oligohydramnios and fetal distress contributes in the range of 7% to 13% each for LSCS.
Conclusions: Cesarean section rate and its trend is increasing worldwide and its judicious employment can improve maternal and fetal outcome when genuinely indicated, avoiding unnecessary surgeries should be the ideal approach.

Keywords: Caesarean section, emergency, elective, repeat caesarean section

Introduction

Cesarean section (CS) is one of the oldest and most commonly done surgeries throughout the world [1]. It defines the birth of a fetus via laparotomy and then hysterotomy. There are two general types of cesarean delivery. Primary refers to a first-time hysterotomy. Secondary denotes a uterus with one or more prior hysterotomy incisions. Neither definition includes removal of the fetus from the abdominal cavity in the case of uterine rupture or with abdominal pregnancy [2].

Caesarean section rates have risen dramatically over the last two decades worldwide as it has become a relatively safe and common procedure with the advent of modern anaesthesia, availability of improvised surgical techniques and prophylactic antibiotics. WHO advises that LSCS rates should not be more than 15% [3]. There exists evidence that LSCS rates above 15% are not associated with additional reduction in maternal and neonatal morbidity [4]. Increasing rate of cesarean section worldwide is an alarming concern for public health and obstetrician due to increase in financial burden and risk to health of the mother in comparison to vaginal delivery.

The caesarean delivery rate has gone up steadily from 4.5% in 1965 to 17.9% in 1981, 23.5% in 1993. A review done by WHO from nine countries in Asia during 2007-2008 showed 27% births were delivered by C-section. China had highest rate of CS of 46% whereas in India the CS rate was 18%. In 2014, the cesarean delivery rate in China was 34.9%, with geographic variation ranging from greater than 60% in some super cities to less than 10% in some rural areas [5].

Worldwide, CS rates increased from 6.7% in 1990 to 19.1% in 2014, which represents a 12.4% absolute increase. According to the most recent estimates, the average global rate of CS is 18.6%, ranging from 6.0% to 27.2% in the least and more developed regions, respectively. The region with the second largest absolute increase was Asia going from a CS rate of 4.4% in 1990 to 19.5% in the latest estimates [6].

In Asia, an increase in cesarean delivery rates has been observed in a number of countries, including India, Nepal, China, and Bangladesh [7]. The reasons for this increase are multifactorial and not well-understood. Changes in maternal characteristics and professional practice styles, increasing malpractice pressure, as well as economic, organizational, social and cultural factors have all been implicated in this trend [8-10]. The increasing rates may be attributed to a number of factors like reduced vaginal breech deliveries, instrumental deliveries and vaginal birth after caesarean (VBAC) in the recent years. The other major contributors include increase in the number of inductions, repeat caesarean sections. Increase in the average maternal age, increased prevalence of obesity & maternal risk factors like pre eclampsia and increase in the caesarean section at maternal request have also contributed to the rise. The present study aims to study the CS rates in a tertiary care hospital and its indications.

Materials and Methods

This was a cross sectional study conducted in a tertiary care in south India. Study was carried out from August 2017 to July 2018 after obtaining institutional ethical committee clearance. All the pregnant women who got admitted for delivery during the study period and who gave consent for participation were included in the study. Patient who did not consent were excluded. Patient's demographic details, general history, obstetric history, pregnancy outcome, newborn profile were recorded. If patient underwent CS then indications for the same and complications if any were recorded and data was entered in Microsoft excel sheet and analysis was done using Microsoft SPSS software. Data was expressed in frequency and percentages.

Results

A total of 476 deliveries were conducted in the hospital during the study period. Out of which 316 were normal vaginal deliveries, 138 were caesarean sections (CS) and 22 were instrumental deliveries. The CS rate was 28.99%.

Among 138 pregnant women who underwent LSCS, majority i.e., 62 (44.92%) were in the age group of 26 to 30years followed by 37 (26.81%) in the age group of 21 to 25 years and least number of patients, 5.79% were in the age group of <20years. Age distribution of CS patients is shown in table 1. Majority of the women who underwent LSCS were multigravida (62%) followed by primigravida in 38%. Incidence of CS is more in multigravida than primigravida which is evident as the most common indication for LSCS being Previous LSCS. Gravida distribution among CS patients is as shown in Figure 1.

Table 1: Age distribution of patients who underwent CS

Age in years	Number of patients (LSCS)	Percentage
<20	8	5.79%
21-25	37	26.81%
26-30	62	44.92%
31-35	20	14.49%
>35	11	7.97%
Total	138	100%

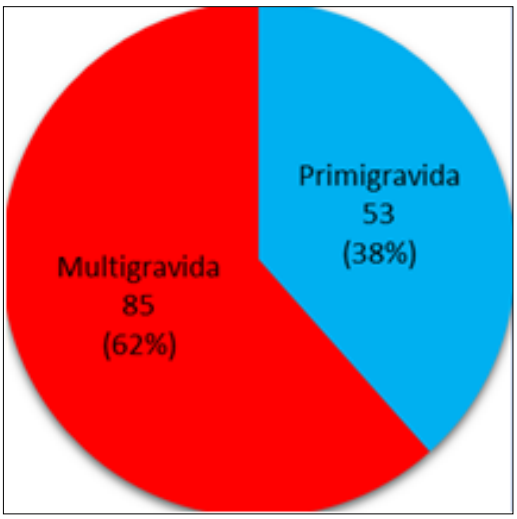

Fig 1: Gravida distribution among CS patients

At the time of LSCS, most of them were term patients, i.e., 53.62% were more than 38weeks of gestation and very few of them (8.69%) were preterm LSCS. Distribution according to gestational age is as shown in Table 2.

Table 2: Distribution of CS patients according to gestational age

Gestational age in weeks	Number of patients	Percentage (%)
<34w+0d	12	8.69
34w+1d to 37w+6d	52	37.68
38w+0d	74	53.62

Out of 138 women who underwent LSCS, 86 (62.31%) had emergency LSCS and the remaining 52 (37.69%) had elective LSCS. Most common indication for LSCS is previous LSCS which is seen in 30.43% of the patients irrespective of the indication for first CS. Other indications like Cephalo pelvic disproportion, arrest of labour in 1st and 2nd stage, failed induction, oligohydramnios and fetal distress contributes in the range of 7% to 13% each for LSCS. Few indications like malpresentation, multiple pregnancy with 1st twin non vertex presentation, placenta previa, severe pre ecclampsia and others contribute <5% each for LSCS. Distribution of indication for LSCS is shown in Table 3.

Table 3: Indications for LSCS

Indications	Number of patients	Percentage (%)
Previous LSCS	42	30.43
Cephalopelvic disproportion	11	7.97
Arrest of descent & dilatation	17	12.31
Failed Induction	12	8.69
Second stage arrest	10	7.24
Fetal distress	12	8.69
Oligohydramnios	13	9.42
Malpresentation	3	2.17
Multiple pregnancy	2	1.44
Placenta previa	2	1.44
Severe Preeclampsia	3	2.17
Thick MSL	5	3.62
Others	6	4.34
Total	138	100

Among those who had emergency LSCS, majority were primary LSCS (62.71%) and the remaining 37.21% were repeat CS done on emergency basis whereas those who underwent elective CS, most of them were repeat CS (73%) as shown in Figure 2.

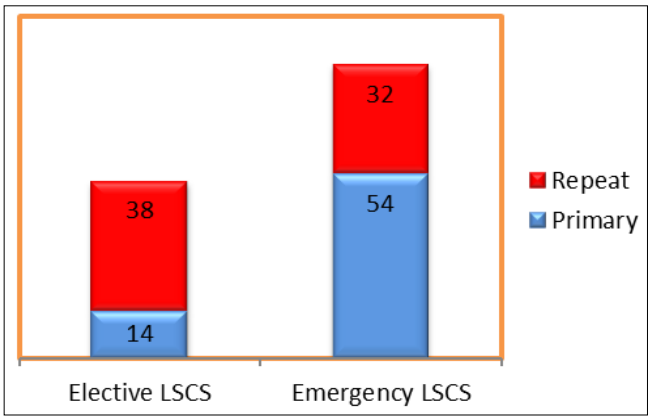

Fig 2: Distribution of patients according to types of LSCS

Discussion

Based on a panel of reproductive health experts at a meeting organized by the World Health Organization (WHO) in 1985 in Brazil, the international healthcare community considered the ideal rate for caesarean sections (CS) to be between 10% and 15% but there is a rise in caesarean section rates all over the world, both developing and developed countries [3]. Major concerns in the rise of caesarean section, especially in primigravidae, include high chances of repeat caesarean apart from other morbidities associated with a major surgery.

The prevalence of CS in our study was 28.99% which was almost similar to study by Tsega F *et al.* where overall prevalence of CS is 34.3% [11]. Studies done by Prasad A *et al.* and Pradhan B, *et al.* showed CS rate of 45.8% and 41.9% respectively which is more than our study whereas Nigeria, a developing country like us have a CS rate of only 11.8% [12-14]. This discrepancy could be due to the geographical variation and also variation in the distribution of population across the world.

In the present study majority of them were in the age group of 26 to 30yrs which was similar to studies done by Begum T and Desai G in Bangladesh and India respectively [15, 16]. Study done by K. Dhakal in Nepal shows age distribution more in 20- 24 years, which is different from the present study [17]. This may be due to geographical and cultural variation for age of marriage in Nepal. Most patients who underwent CS were multi-gravida in our study which is consistent with the studies done in Nigeria [18].

Emergency CS was more than Elective CS in the present study which is similar to study by Radhakrishnan K [19]. While comparing the primary and repeat CS, our study showed high primary CS rate among those who had emergency LSCS and repeat CS in case of elective cases which indicates that practice of VBAC is less and also CS on patient's request has increased nowadays.

In our study the maximum number of caesarean sections was done for previous LSCS (30%). In a study conducted at Lahore showed similar results with previous LSCS being the most common indication accounting for 56.3% of cases followed by fetal distress (17.5%).[20] Similar study done in Mymensingh medical college showed the most common indication for LSCS was previous LSCS (16%), followed by fetal distress (15%) [21].

Conclusion

The most common indication for CS being previous CS as there is low threshold for vaginal birth after caesarean (VBAC) in most of the centers due to fear of complications. As the percentage of caesarean section is on the rise it is essential to critically analyse each determining factors before decision is taken and its judicious employment can improve maternal and fetal outcome when genuinely indicated, avoiding unnecessary surgeries. Also to facilitate assessment and monitoring of caesarean section rates worldwide, a uniform classification system as recommended by the WHO would be a helpful tool.

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