

## Analysis of Rates and Indications for Caesarian Section: A Hospital Based Observational Study

Madhu Patil\*, Rashmi Patil\*\*

### Abstract

*Background:* Caesarian section is the one of the most commonly performed operation worldwide. LSCS is the most commonly used type of caesarian section. The increase in LSCS rate has been a global phenomenon. In a developing country like India there is an increasing trend of caesarian section with increase in the institutional deliveries and growing access to obstetric care. *Material & Methods:* A Retrospective observational study was conducted in the department of OBG at the Raichur institute of medical sciences, Raichur from 1<sup>st</sup> January 2015 to 30<sup>th</sup> June 2015. During this period 1352 deliveries were conducted and among these 362 who underwent LSCS were selected for the study. *Results:* The maximum incidences of caesarian section were in the age group of 20-25 years (43.5%). Maximum patients belonged to primigravida (50.3%). Majority of the study group were booked patients (60.5%). Previous LSCS was the leading cause of caesarian section in 28.4% of cases followed by CPD in 13.6% of cases. *Conclusion:* Previous caesarean section was the leading indication for a caesarean delivery in this study group. Therefore a careful individualization of every case, meticulous clinical examination and use of intensive intrapartum foetal maternal surveillance could probably reduce the rates of caesarean section.

**Keywords:** Caesarian Section; Foetal Distress; CPD.

### Introduction

Caesarian section is the one of the most commonly performed operation worldwide. LSCS is the most commonly used type of caesarian section. World Health Organization advise that Caesarean Section rates should not be more than 15% [1] with evidence that CS rates above 15% are not associated with additional reduction in maternal and neonatal mortality and morbidity [2].

The increase in LSCS rate has been a global phenomenon. LSCS rate in U.S.A is 29.1% [3], England 21.5% [4] and in Latin American countries 40% [5]. The steadily increasing global rate of caesarean section have become one of the most debated topics in maternity care as its prevalence has increased alarmingly in the last few years [6,7]. In a developing country like India there is an increasing trend of caesarian section with increase in the institutional deliveries and growing access to obstetric care. A study by Indian Council of Medical Research (ICMR) in 33 tertiary care institutions noted that the average caesarean section rate increased from 21.8 percent in 1993-1994 to 25.4 percent in 1997-1998 [8].

As such there are no definite protocols for the indications of LSCS in country but it mainly depends on the individualized decision making of treating obstetrician. The high rate in increase may be due to wide variety of factors such as economic, social, medicolegal factors, fear of litigation, hospital system factors which are complex and non separative.

\*Assistant Professor,  
Department of Obstetrics  
and Gynecology, Azeezia  
Medical College,  
Meeyyanoor, Diamond  
Hill, Kollam, Kerala  
691537, India.

\*\*Assistant Professor,  
Dept. of Obstetrics &  
Gynecology, Raichur  
Institute of Medical  
Sciences, Raichur,  
Karnataka 584102, India.

**Corresponding Author:**  
**Madhu Patil,**  
Assistant Professor,  
Department of Obstetrics  
and Gynecology, Azeezia  
Medical College,  
Meeyyanoor, Diamond  
Hill, Kollam, Kerala  
691537, India.  
E-mail:  
madhupatil74@gmail.com

Received on 11.01.2018,  
Accepted on 22.01.2018

The present study was an effort to determine the changing trends, rate and indicators of caesarian section in a tertiary care hospital.

### Materials and Methods

This retrospective observational study was conducted in the department of OBG at the Raichur institute of medical sciences, Raichur from 1<sup>st</sup> January 2015 to 30<sup>th</sup> June 2015. During this period 1352 deliveries were conducted and among these 362 who underwent LSCS were selected for the study. A structured proforma was filled up for every case and results were recorded on excel sheet, which included information on age, gravidity, weeks of pregnancy, booking status and indication of LSCS were all recorded from departmental statistics records.

### Statistical Methodology

The results were analyzed using Statistical Software Package SPSS version 20. Statistical analysis was done for frequencies, percentages, proportions & ratios and results were interpreted.

### Results

A total of 1352 deliveries were conducted during the study period Jan 2015 - Jun 2015, among them 362 cases underwent LSCS while 990 underwent vaginal deliveries.

Table 1 show the age wise distribution of cases. Maximum no of C-sections was in the age group of 20-25 years (43.5%) followed by 29.5% patients in the

**Table 1:** Distribution of patients according to age

Age group (yrs)	Number of patients	Percentage
<19yrs	30	8.3%
20-25yrs	157	43.5%
26-30yrs	107	29.5%
31-35yrs	49	13.5%
>35 yrs	19	5.2%

**Table 2:** Distribution of patients according to gravida

Type of bleeding	Number of patients	Percentage
Primigravida	182	50.3%
2ndgravida	143	39.5%
>3rdgravida	37	10.2%

**Table 3:** Distribution of patients according to weeks of pregnancy

Weeks of pregnancy	Number of patients	Percentage
<38	12	3.4%
38-42	325	89.7%
>42	25	6.9%

**Table 4a:** Distribution of patients according to booking status

Booking status	Number of patients	Percentage
Booked	219	60.5%
Unbooked	143	39.5%

**Table 4:** Distribution of patients according to indication of LSCS

Indications Study	This Prashant Bade et al	Nikhil A et al	G Singh et al	
Previous C section	28.4%	24.80%	42.09%	29.70%
Obstructed labour	8 %	16.60%	10.94%	25.40%
CPD	13.6%	17.60%	6.32%	5.10%
Foetal distress	12.4%	11.70%	10.94%	12.1%
Malpresentation	3.8%	6.80%	8.26%	11.3%
Oligohydroamnios	4.2%	4.00%	3.89%	-
NPOL	10.3%	2.90%	-	-

**Table 5:** The changing trends in caesarean deliveries

Indications	Number of patients	Percentage
Previous LSCS	103	28.4%
CPD	49	13.6%
PPROM & PROM	12	3.4%
PIH	23	6.4%
Oligohydramnios	15	4.2%
Foetal distress	45	12.4%
NPOL	37	10.3%
BOH	7	1.9%
Malpresentation	14	3.8%
Primary infertility conceived with treatment	8	2.2%
Twins	7	1.9%
Placenta praevia	5	1.3%
Medical disorders	6	1.7%
Obstructed labour	29	8%
On request	2	.5%

age group of 26-30 years. These two groups constituted nearly 70% of total C-Sections. Only 5.2% of the cases belonged to the elderly age group of above 35 years.

Table 2 shows the patient distribution according to gravida. It shows that the maximum patients belonged to primigravida (50.3%) followed by 2<sup>nd</sup> gravida (39.5%).

Table 3 shows the gestational age of pregnancy. Majority of the study group were term patients (89.7%).

Table 3 shows the booking status. Majority of the study group were booked (60.5%) patients.

Table 4 shows the main indications of caesarean delivery. Previous LSCS was the leading cause in 28.4% of cases followed by CPD in 13.6% of cases.

### Discussion

Today there is a concern over the rising trends in caesarian delivery in both developed and developing

countries across the world. In the above study the maximum number of caesarian sections was done with history of previous LSCS (28.4%).

There has been a changing trends in caesarian section in both developed and developing countries (Table 5) [9-14]. The reasons for the increased caesarean are multifaceted. Commonly cited causes are [12,15,16]:

- a. Increased institutional deliveries
- b. Avoiding difficult manipulative or instrumental vaginal deliveries.
- c. Foetal distress detected especially with the use of continuous electronic foetal monitoring.
- d. Liberal use of caesarean in high risk cases like Breech presentation, previous caesarean delivery, growth retarded foetus, multiple pregnancy, preterm baby.
- e. Improved safety of C-section with better surgical techniques, anaesthesia, better availability of blood and its products, advanced antibiotics.

**Table 5:** The changing trends in caesarean deliveries

Study Place of Study Trends observed	G Singh et al Agroha, Haryana 2007-31.0%	2012-51.1%
R.Subhashini et al Visakhapatnam, Andhra Pradesh 2004-16.14%	2009-20.33%	2014-25.66%
Manjulatha B et al Tirupati, Andhra Pradesh 2002-16.60%	Yadav RG Vadodara, Gujarat 2004-23.48% 2007-18.20%	2013-28.87% 2012-22.40%
	Shabnam S Kolkata	West Bengal 1973-9.50%
		Mittal Shiba et al Mumbai, Maharashtra 2001-17.15%
	2012-40.10%	
	2006-23.47%	
Study Place of Study Trends observed	G Singh et al Agroha, Haryana 2007-31.0%	2012-51.1%
R.Subhashini et al Visakhapatnam, Andhra Pradesh 2004-16.14%	2009-20.33%	2014-25.66%
	Yadav RG Vadodara, Gujarat 2004-23.48%	2013-28.87%

- f. Fear of the patient for labour pain.
- g. Busy schedule of the obstetrician specially those working in private sector and also an apprehension of the obstetrician regarding the fear of poor neonatal outcome.

It is also possible that caesarean section rates were overestimated since vaginal deliveries at home may have been underreported.

There has been a increase in caesarian section rate in both developed and developing countries (Table 6) [9-12,14,17,18]. In this study the rate of caesarean section observed is 26.8% which is almost double the accepted upper norm of WHO i.e 15%.The present study is conducted in a tertiary care hospital attached to medical college. As such, the most of the cases attending the OPD and also those availing the emergency services are basically referred cases from the nearby and also some of the distant PHC (Primary Health Centre), CHC (Community Health Centre), 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.

The indications of caesarean section in the present study can be compared with the following studies (Table 9) [9,17,19]. In the present study, the most common indication was previous caesarean section (28.4%). Similar results were found in studies conducted by G Singh et al [9] (29.7%), Prashant Bade et al [17] (24.8%) and Nikhil A et al [19] (42%). CPD was the next leading indication for performance of a caesarean section in the present study series which was consistent with the study conducted by Prashant Bade A et al [17] (17.6%) but was not in consistent with the study done by and G Singh et al [9] (5.1%) and Nikhil et al [19] (6.32%). Foetal distress accounted for 12.4%, NPOL (10.3%) and Obstructed labour (8%).

### Conclusion

Greatest emphasis attached to fetal welfare intoday's small family norm has changed the delivery practices in favor of Caesarian section. This attitude has lead to the emergence of anew set of indications

**Table 6:** The caesarean section rates

The caesarean section rates Study Place Study Period CSR %	G Singh et al Agroha, Haryana Jan 2012-Dec 2012 51.1	R.Subhashini et al Visakhapatnam, Andhra Pradesh Jan 2014-Dec 2014 25.66
Yadav RG Vadodara, Gujarat Jan 2013-Dec 2013 28.87	Manjulatha B et al Tirupati, Andhra Pradesh Jan 2012-Dec 2012 22.20	MittalShiba et al Mumbai, Maharashtra Jan 2011-Dec 2011 28.93
Prashant Bade et al Latur, Maharashtra Mar 2013-Aug 2013 23.97	Padmaleela K et al Andhra Pradesh Apr 2011-Mar 2012 31.00	This study Raichur, Karnataka Jan 2015-June 2015 26.8%
The caesarean section rates Study Place Study Period CSR %	G Singh et al Agroha, Haryana Jan 2012-Dec 2012 51.1	R. Subhashini et al Visakhapatnam, Andhra Pradesh Jan 2014-Dec 2014 25.66
Yadav RG Vadodara, Gujarat Jan 2013-Dec 2013 28.87	Manjulatha B et al Tirupati, Andhra Pradesh Jan 2012-Dec 2012 22.20	Mittal Shiba et al Mumbai, Maharashtra Jan 2011-Dec 2011 28.93
Prashant Bade et al Latur, Maharashtra Mar 2013-Aug 2013 23.97	Padmaleela K et al Andhra Pradesh Apr 2011-Mar 2012 31.00	This study Raichur, Karnataka Jan 2015-June 2015 26.8%
The caesarean section rates Study Place Study Period CSR %	G Singh et al Agroha, Haryana Jan 2012-Dec 2012 51.1	R. Subhashini et al Visakhapatnam, Andhra Pradesh Jan 2014-Dec 2014 25.66
Yadav RG Vadodara, Gujarat Jan 2013-Dec 2013 28.87	Manjulatha B et al Tirupati, Andhra Pradesh Jan 2012-Dec 2012 22.20	MittalShiba et al Mumbai, Maharashtra Jan 2011-Dec 2011 28.93
Prashant Bade et al Latur, Maharashtra Mar 2013-Aug 2013 23.97	Padmaleela K et al Andhra Pradesh Apr 2011-Mar 2012 31.00	This study Raichur, Karnataka Jan 2015-June 2015 26.8%
The caesarean section rates Study Place Study Period CSR %	G Singh et al Agroha, Haryana Jan 2012-Dec 2012 51.1	R. Subhashini et al Visakhapatnam, Andhra Pradesh Jan 2014-Dec 2014 25.66

**Table 7:** The caesarean section indications

Indications Study	This Prashant Bade et al	Nikhil A et al	G Singh et al	
Previous C section	28.4%	24.80%	42.09%	29.70%
Obstructed labour	8 %	16.60%	10.94%	25.40%
CPD	13.6%	17.60%	6.32%	5.10%
Foetal distress	12.4%	11.70%	10.94%	12.1%
Malpresentation	3.8%	6.80%	8.26%	11.3%
Oligohydroamnios	4.2%	4.00%	3.89%	-
NPOL	10.3%	2.90%	-	-

for adopting caesariansection as a preferred mode of delivery. The rate of Cesarean section has increased from 2004 to 2011 with primary and repeat caesarian sectionequally contributing to this rise.

Previous caesarean section was the leading indication for a caesarean delivery in this study group. Therefore a careful individualization of every case (VBAC), meticulous clinical examination and use of intensive intrapartumfoetomaternal surveillance (Partogram, Active management of labour, To confirm foetal acidosis by foetal blood sampling, Assisted vaginal delivery of breech in selected cases) could probably reduce the rates of caesarean section. Unnecessary caesarian delivery poses strain on family and complicates the maternal and child health. Therefore the decision to perform caesarian section should be chosen carefully.

*Funding:* No funding sources

*Conflict of Interest:* None declared

*Ethical Approval:* The study was approved by the institutional ethics committee

## References

1. World Health Organization. Monitoring emergency obstetric care: a handbook. Geneva, Switzerland. 2009.
2. Althabe F, Belizán JM. LSCS: the paradox (comment).Lancet; 2006;368(9546):1472-1473.
3. Hamilton BE, Ventura SJ, Martin JA; Sulton PD. Preliminary births for 2004: Infant and maternal health. Health E – Stats. Released Nov 15, 2005.
4. Thomas J, Paranjothy S; Royal College of Obstetrician and gynecologist: Clinical effectiveness support unit. The Nation Sentinel LSCS Audit report London. RCOG press, 2001.
5. Belizan JM, Althabe F; Barros FC; et al. Rates and implications of LSCS in latin America: ecological study. BMJ 1999;319:1397-402.
6. Tampakoudis P, Assimakopoulos E, Grimbizis G, Zafarakas M, Tampakoudis G, Mantalenakis S, et al. Caesarean section rates and indications in Greece: data from 24 year period in a teaching hospital. ClinExpObstetGynecol. 2004;31:289-92.
7. Lee SJ, Khang YH, Lee MS. Women’s attitudes towards mode of delivery in a society with high caesarean section rates. Birth. 2004;31:108-16.
8. Patel A et al. Int J ReprodContraceptObstet Gynecol. 2016 Aug;5(8):2744-2751.
9. Singh G, Gupta ED. Rising incidence of caesarean section in rural area in Haryana, India: a retrospective analysis. Internet J GynecolObstetr. 2013;17(2):1-5.
10. Subhashini R, Uma N. Changing trends in Caesarean delivery. IAIM. 2015;2(3):96-102.
11. Yadav RG, Maitra N. Examining cesarean delivery rates using the Robson’s ten group classification. J ObstetGynecol India. 2016;66(Suppl 1):1.
12. Manjulatha B, Sravanthi TP. Caesarean section rates in a Teaching Hospital: a ten year review. IOSR J Dent Med Sci. 2015;14(8):1-5.
13. Shabnam S. Caesarean section delivery in India: causes and concerns, international union for the scientific study of population, session 221, assessments of facility-based delivery services.
14. Shiba M, Sachin P, Niranjana M, Janki M. Trends in cesarean delivery: rate and indications. J Obstet Gynecol. 2014;64(4):251-4
15. TollaÚnes MC. Increased rate of Caesarean sections – causes and consequences. TidsskrNorLaegeforen. 2009;129(13):1329-31.
16. WHO Statement on caesarean section rates; 2015, WHO reference number: WHO/RHR/15.02. Available at [http://www.who.int/reproductivehealth/publications/maternal\\_perinatal\\_health/cs-statement/en/](http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/).
17. Bade P, Kendre V, Jadhav Y, Wadagale A. An analysis of indications for caesarean section at government medical college, Latur. Intern J Recent Trends Sci Technol. 2014;11(1):6-8.
18. Padmaleela K, Thomas V, Prasad KV. An analysis of the institutional deliveries and their outcomes in government teaching hospitals ofAndhra Pradesh, India. IJHSR. 2013;3(5):76-81.
19. Nikhil A, Desai A, Vijay K, Bhumika K, Riddhi P. Analysis of trends in LSCS rate and indications of LSCS: a study in a Medical College Hospital GMERS, Sola, Ahmedabad. Int J Pharm Bio-Sci. 2015;2(1):1-5.