



Trends and Indications for Caesarean Section in a tertiary care Obstetric Hospital in Coastal South India.

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REVIEW

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Abstract

An increase in the Caesarean Section (CS) rates is a concern in the health care systems all over the world. In a developing country, an increase in the CS rate has major implications on the limited health care resources. A hospital based retrospective study was carried out in a tertiary government-run hospital specializing in Obstetrics & Gynaecology & all deliveries conducted from Jan 1st 2009 to Dec 31st 2009 were included. There were 7543 deliveries in the study period, with 1756 being CS, giving a rate of 23.27%. There is an increasing trend of caesarean section from 2005 (20.24%) to 2009 (23.27%) in our hospital. Most of the CSs were performed with previous CS as the indication. Foetal distress, breech presentation and failed induction was the other non-absolute indications. Placenta praevia and malpresentations were the most common absolute indications of CS.

Key Words

Caesarean Section, Indication, South India

Background

The rising rate of Caesarean section (CS) in modern obstetric practice is not only a topic of controversy, but also a cause for concern in the health-care system. CS rates vary worldwide with rates ranging from 21.5%¹ in Britain to 29.1%² in USA with some Latin American countries going as high as 40%³. Similar trends have also been documented in India, according to ICMR study conducted in 30 teaching hospitals in India; there is an increase in CS rates from

21.8% in 1993 -1994 to 25.4% in 1998 – 1999⁴. According to WHO, though there is no ideal CS rate, CS rates above 10-15% does not confer additional health benefits in terms of foetal and maternal morbidity and mortality⁵.

The Caesarean Section (CS) rates have been increasing over the last ten to fifteen years; however, the major indications for CS have not changed. These remain foetal distress, prolonged labour, breech presentation, multiple gestations, previous CS and CS on demand. The increasing trend of CS rates may indicate a trend towards a more costly medical delivery systems and lowered threshold of abnormality detection among the health care providers⁶.

In a developing country an increase in the CS rate has major implications on the limited health care resources.

Furthermore, current available data from developed countries reveals that morbidity and mortality for both mother and baby arising from CS are higher when compared with vaginal delivery⁷.

This present study was conducted to find out the frequency and indications for CS in our setup. This may help in adopting suitable measures to reduce the CS rate and the problems associated with it.

Method

This study is a hospital-based retrospective study. It was conducted in a tertiary government health care set up specializing in Obstetrics and Gynaecology in Mangalore, Karnataka, India. All the patients who underwent Caesarean Section in the period Jan 1st 2009 to Dec 31st 2009 were included in the study. Demographic and clinical data (gestational age in weeks, indications for CS and complications) were recorded in a semi structured pro forma. The data was collected from the Medical Records Department (MRD) of the hospital & data analysis was done using SPSS v11.5.

Results

Table 1 shows the trend of CS in the hospital over the past 5 years and the general trend show an increase in the total no of deliveries between 2005 and 2009 and the CS rates from 20.2% in 2005 to 23.2% in 2009.

Table 1. Rates of CS in the hospital over the years

Year	Caesarean Sections	Total Delivery
2005	1229 (20.24%)	6071
2006	1416 (20.35%)	6957
2007	1482 (21.99%)	6738
2008	1740 (21.57%)	8066
2009	1756 (23.27%)	7543



As Table 2 indicates, a majority (87.5%) of the CS's were performed on booked cases and 47.1 % (839) were primigravida.

Table 2. Baseline Characteristics of the Study population and the Caesarean Sections (n=1756)

Characteristic	Number	Percentage
Age		
<20	67	3.8%
21-30	1434	81.7%
31-40	253	14.4%
>41	2	0.1%
Parity		
Primi	839	47.8%
Multi	818	46.6%
Period of Gestation		
<37 weeks	553	31.5%
>=37 weeks	1203	68.5%
Booked/Unbooked		
Booked	1536	87.5%
Unbooked	220	12.5%
Type of Caesarean		
Elective	619	35.3%
Emergency	1137	64.7%

Among the indications for CS, absolute indications constituted a 7.74% and non-absolute indications were 92.26%. Grade 3 or 4 placenta previa (42.64%) & malpresentation (40.45%) were the predominant indications. Among the non-absolute indications, previous CS was the leading indication amounting to 32.7 % (table 3). 68.55% of the pregnancies continued for >37 weeks while 31.5 % of the pregnancies had to be terminated before completing 37 weeks period of gestation. Among the pregnancies terminated before 37 weeks of gestation, major placenta praevia (7.6%) was the most frequent of the absolute indications while previous CS (35.6%) was the important non absolute indication. 64.7% of the CS's were emergency while 35.3 % were done for an elective indication (table 4).

Table 3. Indications of CS

Non-Absolute Indications	Number (%)
1. Previous Caesarean delivery	575 (32.7%)
2. Foetal distress	345 (19.6%)
3. Breech presentation	181 (10.3%)
4. Failed induction	155 (8.8%)
5. Severe preeclampsia or eclampsia	113 (6.4%)
6. Failure to progress in labour	67 (3.8%)
7. Maternal medical disease	63 (3.6%)
8. Prolonged labour	44 (2.5%)
9. Maternal request	25 (1.4%)
10. Twins	24 (1.3%)
11. Precious pregnancy	14 (0.8%)
12. Abruptio placenta	6 (0.3%)
13. Cord prolapse	6 (0.3%)
Absolute Indications	
1. Grade 3 or 4 Placenta Previa	58 (3.3%)
2. Malpresentation	55 (3.1%)
3. Obstructed labour	9 (0.5%)
4. Antepartum hemorrhage	8 (0.4%)
5. Uterine rupture	6 (0.3%)
Total	1756



Table 4. Comparison of Indications of CS v/s the period of gestation

Absolute Indications	Period Of Gestation	
	< 37 Weeks N (%)	>= 37 Weeks N (%)
1. Grade 3 Or 4 Placenta Previa	42 (7.6%)	16 (1.3%)
2. Malpresentation	13 (2.3%)	42 (3.4%)
3. Obstructed Labour	5 (0.9%)	4 (0.3%)
4. Antepartum Haemorrhage	3 (0.5%)	5 (0.4%)
5. Uterine Rupture	3 (0.5%)	3 (0.2%)

Non-Absolute Indications	Period Of Gestation	
	< 37 Weeks N (%)	>= 37 Weeks N (%)
1. Previous CS	197 (35.6%)	378 (31.4%)
2. Fetal Distress	78 (14.1%)	267 (22.1%)
3. Breech Presentation	62 (11.2%)	119 (9.9%)
4. Severe PIH	49 (8.8%)	64 (5.3%)
5. Failed Induction	26 (4.7%)	129 (10.7%)
6. Maternal Medical Diseases	24 (4.4%)	39 (3.2%)
7. Twins	15 (2.7%)	9 (0.7%)
8. Maternal Request	13 (2.3%)	12 (0.9%)
9. Failure To Progress In Labor	12 (2.1%)	55 (4.5%)
10. Prolonged Labor	6 (1.0%)	38 (3.1%)
11. Cord Prolapse	3 (0.5%)	3 (0.2%)
12. Precious Pregnancy	1 (0.2%)	13 (1.0%)
13. IUGR	1 (0.2%)	2 (0.1%)
14. Abruptio Placenta	0 (0%)	6 (0.4%)

Table 5. Comparison of Indications of CS v/s the Parity

	Parity		
	Primi	Multi	Grand Multi Para
Malpresentation	40 (5.0%)	13 (1.5%)	2 (2%)
Grade 3 or 4 Placenta Previa	19 (2.4%)	38 (4.3%)	1 (1%)
Antepartum Haemorrhage	4 (0.5%)	4 (0.4%)	0 (0%)
Obstructed Labour	4 (0.5%)	2 (0.2%)	3 (3%)
Uterine Rupture	3 (0.3%)	3 (0.3%)	0 (0%)

	Parity		
	Primi	Multi	Grand Multi Para
Fetal Distress	245 (31.1%)	83 (9.5%)	17 (17%)
Breech Presentation	120 (15.2%)	52 (5.9%)	9 (9%)
Failed Induction	113 (14.3%)	36 (4.1%)	6 (6%)
Severe PIH	70 (8.9%)	36 (4.1%)	7 (7%)
Previous Caesarean	0 (0%)	525 (60.2%)	50 (50%)
Failure To Progress In Labor	47 (5.9%)	20 (2.2%)	0 (0%)
Maternal Medical Diseases	39 (4.9%)	23 (2.6%)	1 (1%)
Prolonged Labor	32 (4.0%)	12 (1.3%)	0 (0%)
Maternal Request	15 (1.9%)	10 (1.1%)	0 (0%)
Twins	12 (1.5%)	9 (1.0%)	3 (3%)
Precious Pregnancy	11 (1.3%)	3 (0.3%)	0 (0%)
Abruptio Placenta	6 (0.7%)	0 (0%)	0 (0%)
Cord Prolapse	5 (0.6%)	1 (0.1%)	0 (0%)
IUGR	1 (0.1%)	2 (0.2%)	0 (0%)

Discussion

This tertiary government-run hospital provides health-care service free of cost & most of the patients attending these hospitals belong to the low socio-economic group with minimal; if any, formal education. The Caesarean Section rate in our hospital in 2009 was 23.3 %. This is comparable to the rates in tertiary hospitals in Raipur, India (26.2%)⁸ and other South-East Asian countries like The Philippines (22.7%), Malaysia (19.1%) and Indonesia (29.6%)⁹. The high CS rate in this hospital may be partially attributed to the fact that this being a referral hospital gets a larger proportion of complicated pregnancies. It has been hypothesized that the rising trend in CS rates may be due to caesarian performed at “a lower threshold of abnormality”, i.e., with foetal heart rate changes less severe or for a shorter duration or after a few hours of variation compared to the normal progress of labour to” be on the safe side”^{10,11}.

The most common overall indication for CS worldwide¹² and in our set up was found to be previous CS. This can be minimized by routine practice of a trial of labour of Vaginal Birth After Caesarean (VBAC). In the UK, the rate of VBAC is high at 33%¹⁴. We were unable to obtain proper documentation of attempted VBAC. There is no consensus about the safety of VBAC. One study by McMahon et al noted that higher rates of maternal and foetal morbidity exist with VBAC as compared to elective caesarian¹³. However, the study by Gonen¹⁵ found that VBAC with a well defined protocol was found to safe for the mother and infant as a planned caesarean delivery and can be encouraged. Doctors, in general, should be encouraged to take time to provide adequate counselling to the patients about the short comings and advantages of VBAC and help



them make informed decisions about opting for CS or vaginal delivery.

In our study, foetal distress accounted for 19.6% of the indications for CS while in a study conducted in South Africa, the rates were lower at a rate of 9.1%¹². The accurate method for establishment of foetal distress is to perform foetal scalp blood pH estimation which is considered the gold standard for the assessment of foetal well-being; but is not performed in our setup. Cardiotocographic (CTG) monitoring is known to overestimate the foetal distress¹⁶. Many gestational and antepartum factors and uteroplacental vascular disease, fetal sepsis, reduced fetal reserves, reduced uterine perfusion and cord compression can be involved singularly or in combination to influence the fetal response in a CTG¹⁷. Methods of screening and diagnosing the condition thus have limitations¹⁸.

Judicious use of oxytocics in cases of failure to progress will help reduce the rate of CS resulting from cases of failure of vaginal delivery to progress which were 3.8% in our setup. Maintenance of a partogram is also found to be beneficial¹⁹. Foley²⁰ found that active management of the spontaneous first labour remains the effective for promoting vaginal delivery. In a study by Singh²¹, it has been shown that though delivery interval was shortest with PGE1 tablet, the induction failure rate was 30%; while PGE2 gel showed an induction failure rate of 7% only. In our setup, failure of induction accounted for 9.6% of the non-absolute indications.

Breech presentation accounted for a significant percentage of the non absolute indications for CS. External Cephalic Version (ECV) has been suggested as an intervention to reduce high CS rates at 37 weeks' gestation. However, ECV has its drawbacks; it requires skill and might not be successful.

Among the absolute indications, major degree of placenta praevia was the most common indication amounting to 3.35% of the total CS's. Placental abruption, a non-absolute indication amounted for another 0.3%; in all, antepartum haemorrhage accounted for 3.7% of the total CS's. Malpresentations like transverse lie or oblique lie accounted for 3.13% of the CS. Obstructed labour made up 0.5% of the indication for CS. Minimising the injudicious use of oxytocics & prostaglandins, proper assessment of the pelvis & diagnosis of the presentation, position and stage of labour can help to bring down the rate of obstructed labour and uterine ruptures.

Conclusion

Our study found a CS rate of 23.27% for the year 2009 as compared to a rate of 20.24% in 2005. A caesarean section may have serious implications on the health of the mother with a 3.6 times greater risk of postpartum and neonatal death than with vaginal delivery²². Neonatal mortality rate associated with caesarean section was 1.77 per 1000 live births is also higher than that with vaginal delivery (0.62 per 1000 live births)²³.

The major indication was previous caesarean section, as is the case worldwide. This is a vicious cycle that needs to be put to a stop which is possible only if Caesarian section is undertaken only after careful consideration and when the obstetric risks outweigh those of the procedure itself. In other cases, a supervised vaginal delivery after CS needs to be encouraged by promoting the trial of labour. The retrospective nature of the study limited the information which could be collected from the hospital records.

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CONFLICTS OF INTEREST

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