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Trends of Caesarean Sections at A Tertiary Care Teaching Hospital in South India

KEYWORDS: Caesarean section, trends, indications of CS, India

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ABSTRACT *Background: The rising trend of caesarean sections (CS) is a major concern in health care system all over the world. Assessing the trends of CS and its major indications would be useful in adopting suitable measures to reduce the CS rate and the problems associated with it.*

Methodology: This retrospective study was conducted at Pondicherry Institute of Medical Sciences, Puducherry. Data were collected on caesarean delivery and indications from the medical records of women delivered over a 5-years period (January 2010 - December 2014).

Results: A total of 5445 deliveries occurred during study period among them 31.2% were caesarean sections. The year-wise CS rates ranges from 29.6% to 32.6%. Since year 2011, a decreasing trend was observed for CS deliveries. Overall, 60.6 % of the section deliveries were primary CS. The primary CS rate was 16%-22% and repeat CS rate was 9%-15%. Fetal distress, failure of progress of labour, cephalo-pelvic disproportion and mal-presentation were the major indicators for CS. The primary CS deliveries due to fetal distress showed a continuous increase from 39% during year 2010 to 54% during 2014.

Conclusion: Although the CS deliveries are showing a decreasing trends but the decrease is minimal. There is need to address the increasing CS due to fetal distress.

INTRODUCTION

The rising trend of caesarean sections (CS) is a major concern in health care system all over the world. From 1996 to 2007, the caesarean rate raised by 53%, reaching 32%, the highest rate ever in the United States.[1] In other developed countries also the rate of CS is almost doubled in last decade.

According to an ICMR study conducted in 30 teaching hospitals in India, an overall increase of approximately 2.7% in caesarean section rates was observed during a period of 7 years in the same set of hospitals, from 25.4% in 1998-99 to 28.1% in 2005-06.[2] National wide survey conducted by the NFHS revealed increased rate from 2.9% of the childbirth in 1992-93 to 7.1 in 1998-99 and further to 10.2 in 2005-06. This means a constant acceleration of annual 16.7% rate in caesarean delivery.[3]

The prevalence of c-section is generally more in the southern states of India. Kerala has the highest percentage of c-section with 25.7% of all births. A five-year study from a teaching hospital in Kolkata showed a caesarean section rate of 49.9%.[4] Another study in Chennai showed an alarming caesarean section rate of 50 per cent.[5] It was further observed that when controlled for demographic variables, the odds for CS were about 1.7 times more likely to occur in private health institutions in Kerala.[6]

The reasons for the dramatic increase in CS rates are somewhat complex. The indications for performing CS have changed a lot in recent years. Originally performed in interest of the mother, CS is now frequently done for foetal indication. Some common and important indications for CS include fetal distress, prolonged labour, breech presentation, multiple gestations, previous section, and CS on demand. Previous CS is the most frequent indication for CS in most of the countries.

In a developing country like India, an increase in the CS rates has major implications on the limited health care resources. This present study was conducted to find out the trend of CS in our setup. This will help in adopting suitable measures to reduce the CS rate and the problems associated with it.

METHODOLOGY

This retrospective study was carried out at Pondicherry Institute of Medical Sciences (PIMS), a tertiary care hospital in Puducherry. All the women delivered at PIMS over a 5-years period (January 2010 - December 2014) were included in the study.

The study protocol was approved by the Institute Ethics Committee of PIMS and permission was taken from medical records department to review the birth records. A semi-structured questionnaire was used to collect the data. Data regarding total number of deliveries during each year, caesarean section deliveries and their indications, number of

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previous deliveries, indication for CS, type of CS, maternal age, prenatal care, pregnancy complications, previous caesarean delivery etc. were collected. When there were multiple indications for CS, the most important indication was assigned as primary indication to that patient and was documented.

Data was entered in Microsoft excel 2010 and SPSS version 17 was used to analyse the data. Proportions of CS deliveries during study years including their indications were calculated and chi-square test for trends was applied.

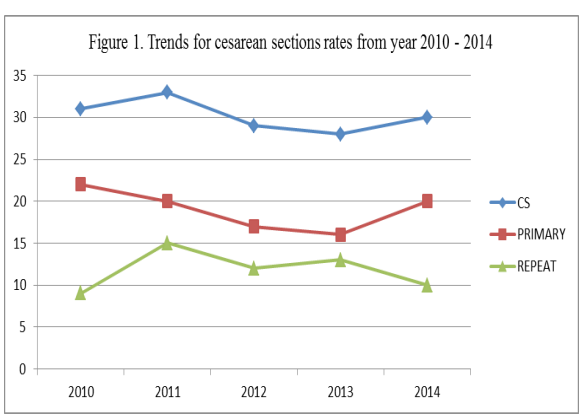
RESULTS

During the study period, a total of 5445 deliveries were conducted and among them 1697 were through caesarean section. Table 1 is showing the year-wise total number of deliveries as well as the CS deliveries for 5 years.

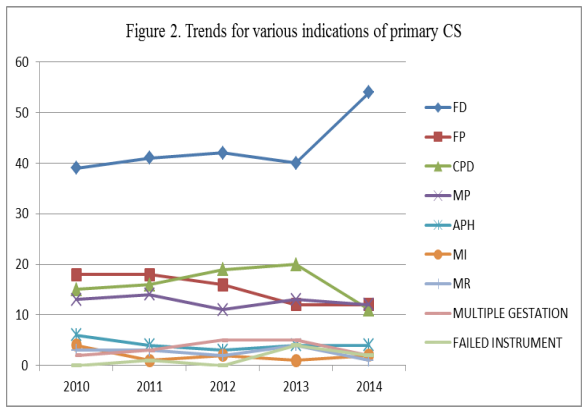
Table 1. Year-wise distribution of cesarean section deliveries (2010 - 2014)

Year	Total deliveries	Cesarean section deliveries	
	n	n	%
2010	1052	338	32.1
2011	1123	367	32.6
2012	1091	334	30.6
2013	1065	316	29.6
2014	1114	342	30.7
Total	5445	1697	31.1

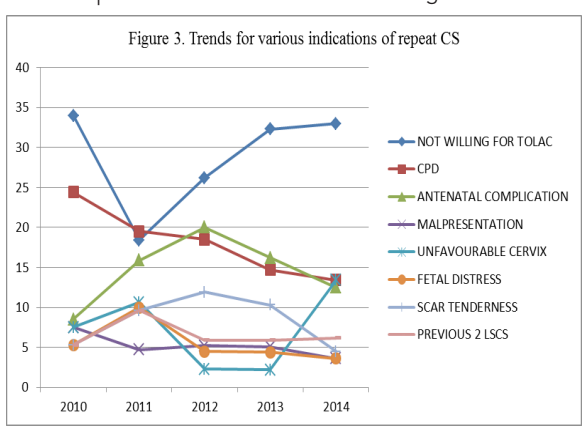
The overall CS rate was 31.2%. Figure 1 is showing the trends of CS deliveries conducted during the study period. The CS rate ranges from 29.6% to 32.6%. During the year 2010, CS rate was 32.1% and it rises to 32.6% during year 2011. After year 2011, a decreasing trend is observed for CS deliveries. Overall, 60.6 % of the sections were primary CS. The primary CS rate was 16%-22% and repeat CS rate was 9%-15%. Except for year 2014, it was observed that the primary CS rate is decreasing whereas the repeat CS rate is increasing.



Among various indications for CS, foetal distress (FD), failure of progress of labour (FP), cephalo-pelvic disproportion (CPD) and mal-presentation (MP) were the major indicators. The trends for these common indications for the CS deliveries are shown in Figure 2. The proportion of primary CS deliveries due to FP and MP is showing a decreasing trend whereas CS due to CPD shows an intermediate increase followed by decreasing trends. But the proportion of deliveries due to fetal distress showed a continuous increase from 39% during year 2010 to 54% during 2014.



During the study period, 39.4 % of sections were repeat CS. Among various indications for repeat CS, not willing for TOLAC, cephalo-pelvic disproportion (CPD), antenatal complications, scar tenderness and previous 2 CS were the major indicators. The trends for these common indications for the repeat CS deliveries are shown in Figure 3.



The proportion of repeat CS deliveries due to CPD, previous 2 CS and fetal distress are showing decreasing trends whereas CS due to antenatal complication shows an intermediate increase followed by decreasing trends. The proportion of repeat CS deliveries due to the woman not willing for TOLAC was increasing from 18% during 2011 to 33% during 2014.

DISCUSSION

The overall CS rate in our hospital for 5 years was 30%. Similar high rates were observed in study by Wanjari SA[7] of around 37%, Patel RV[8] around 40% and 25.7% by Katke RD[9] from various hospitals in India. Similar high rates were also observed in other South-East Asian countries like the Philippines (22.7%), Malaysia (19.1%) and Indonesia (29.6%) in another study done by Mario R Festin.[7] The high CS rate in our hospital is partially attributed to the fact that being a referral hospital, we get a larger proportion of complicated pregnancies.

Among all the CS deliveries in our study, 38% were in the women having a previous CS. This was in concurrence with the observation from other studies across India and worldwide. According to a study done by Unnikrishnan B[9] repeat CS accounted for 32.7% of all CS. Similar results were also obtained by Wanjari SA (32.6%)[7] in Maharashtra. The rea-

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sons for caesarean section in women with one prior caesarean section were, not willing for TOLAC, cephalo-pelvic disproportion (CPD), antenatal complications and scar tenderness. In our hospital trial of labour in women with prior scar is given only to those who came in active phase of labour, induction of labour is not done. Trial of labour is also not given to women with antenatal complications. All these factors lead to a rise in repeat sections.

Among the remaining 62% women, CS was done for the first time. The leading cause of CS in this group of women was foetal distress. Similar observations were made in the study by Unnikrishnan B[9] where foetal distress accounted for 19.6% of the indications for CS. Wanjari SA[7] and Katke RD[8] also made similar observation.

The primary CS deliveries due to FP are showing a decreasing trend. Judicious use of oxytocics in cases of failure to progress helps in reducing the need for CS. Studies have shown that maintenance of a partogram and timely action is also beneficial.[10]

In a study done by Anderson et al previous one caesarean, foetal distress and dystocia accounted for most of the cases of caesarean section.[11] Similarly in a study conducted in Pakistan at Nawaz Sharif social security hospital 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 %).[12]

CONCLUSION

There is an urgent need to curtail the rate of primary caesarean sections. A more careful assessment of the woman and establishing a definite obstetric indication for caesareans section can help us in achieving this. CTG tracings should be accurately interpreted. Oxytocin should be used judiciously and partograms should be maintained. To reduce the number of repeat CS, more number of women with prior one scar should be given the option of trial of labour after careful assessment.

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