

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20183791>

## Original Research Article

# A clinical study of effect of standard labour protocols on rates of primary caesarean section at a tertiary care centre, Madurai, India

Shanthi C., Mahalakshmi N.K.\*

Department of Obstetrics and Gynecology, Government Madurai Medical College, Madurai, Tamil Nadu, India

**Received:** 10 July 2018

**Accepted:** 02 August 2018

**\*Correspondence:**

Dr. Mahalakshmi N.K.,

E-mail: [mduogs@gmail.com](mailto:mduogs@gmail.com)

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### ABSTRACT

**Background:** Caesarean section rates are on the rise all over the world. Primary caesarean section usually determines the future obstetric course of any woman and therefore should be avoided whenever possible. WHO recommended that caesarean rates should not be more than 15 %. In this view we started our study on how to reduce the rate of Primary caesarean section in Tertiary Care Centre, Madurai, India. The objective of the present study was to evaluate how the implementation of universally acceptable standards affects rates of primary caesarean section rates without compromising maternal and foetal safety

**Methods:** This a comparative study on the effect of standard labour protocols and guidelines devised after audit of cases from January 2017 to June 2017, on the rate of primary caesarean section rates, induction of labour, failed induction, maternal and fetal outcomes before and after the implementation of the guidelines.

**Results:** Primary caesarean section rates from 52.85% to 45.02% noted in the induced cases. There were no significant adverse maternal and perinatal outcomes.

**Conclusions:** Implementation of standard labour protocols can reduce primary caesarean section rate without compromising maternal or foetal safety.

**Keywords:** Audit, Implementation of labour, Protocols, Primary Caesarean section,

### INTRODUCTION

Caesarean section can be life saving for the foetus, the mother and both. But higher caesarean section rates are an issue of international public health concern. WHO recommended that caesarean rates should not be more than 15 %. Scar over the uterus changes the obstetric future of woman and hence it is necessary to use primary caesarean section judiciously.

In this view, a complete audit cycle of all the primary sections performed in Madurai, government medical college was conducted, and new labour management guidelines were implemented after the first audit.

Strategies implemented for obstetric clinical practice are:

- For postdatism, non-severe preeclampsia, severe preeclampsia without end organ damage: if bishop score is 0,1,2 – Foley induction is done prior to PGE2 gel. Instead of 6 hours interval, PGE2 gel is repeated after 24 hrs if bishop score is < 4
- Pre-induction and post induction CTG monitoring
- Training and retraining in CTG interpretation in order to reduce the interobserver variation.
- Lung maturity (inj dexamethasone 6mg 12<sup>th</sup> hourly 4 doses prior to 39 weeks) is given.
- Drills in instrumental deliveries to reduce the rate of 2<sup>nd</sup> stage LSCS.

- Partograph is plotted for all cases in active phase of labour.
- All government primary health centres are instructed for early referral by training programmes.
- Promoting assisted breech deliveries in multiparous women for spontaneous onset of labour, if there is no contraindication for ABD.
- (Criteria for nonprogress of labour should be fulfilled as follows:
- Nullipara: 6 hours of active labour with no cervical change for 4 hours.
- Multipara: 4 hours of active labour with no cervical change for 2 hours.)<sup>1</sup>

**METHODS**

This is a comparative study on the effect of standard labour protocols on the rates of primary caesarean section rates. Sources of data: All primary section cases either primigravida or multigravida in the department of Obstetrics and Gynaecology, Government Medical College, Madurai. Methods of collection of data: Open label, comparative, prospective study. Study period: 6 months

**Inclusion criteria**

- Age 18-35,
- All primigravida except major degree CPD
- Except malpresentations
- Except malrotations
- All multiparous women with previous normal labour
- all postdated women with reassuring ctg,
- Preeclampsia
- Eclampsia patients without end organ damage

**Exclusion criteria**

- Age <18 and >35,
- Primi with major CPD,
- Malpresentations,
- Malrotations,
- Non-reassuring CTG
- Preeclampsia
- Eclampsia patients with end organ damage.

**RESULTS**

**Table 1: Types of deliveries during audit cycle.**

	January to march	April to June	P value
Total deliveries	1037	915	
Primary LSCS	600	412	<0.001 significant
Repeat LSCS	437	503	<0.001 significant

Overall caesarean section rates after the implementation of standard labour protocols reduced from 57.85% to 45.02% respectively. Approximately 45.02% of women had primary caesarean which is a significant reduction from 57.85%. There were no adverse maternal and perinatal outcomes. Non-progress of labour and suboptimal Cardiotocography were the two main indications for emergency caesarean sections-soliman et al. whereas breech presentation was the indication commonest for elective sections.

**Table 2: Types of LSCS-during the audit cycle.**

Type of LSCS	January to march	April to June	p value
Elective	413	386	0.185 insignificant
Emergency	624	529	0.185 insignificant

There was objective evidence to justify the need for caesarean section including correctly maintained partograms, proper documentation, well selected cases for induction of labour and hundred percent involvement of senior personnel (consultant level) in decision making.

**Table 3: Indications for LSCS during the audit cycle.**

Indication for LSCS	January to March	April to June
Breech	62	43
Obstructed labour	13	10
APH	18	14
Fetal distress	302	186
Failed induction	62	36
Deep transverse arrest	4	6
Cephalopelvic disproportion	262	51
Ap eclampsia	14	12
Severe preeclampsia	16	13
IUGR with doppler changes	17	17
Long period of infertility	44	36

**Table 4: NICU admissions during the audit cycle.**

	January to March	April to June	P value
NICU admissions	984	710	<0.001 significant

Assessment of maternal outcome was made on the need for high dependency unit monitoring and number of postoperative complications. large number women shifted to HDU for observation due to an underlying medical condition were signed out to the ward within 24 to 48 hours of the delivery.

There was no difference in the rate of postoperative complications including puerperal pyrexia, wound infection and postpartum haemorrhage.

## DISCUSSION

Can caesarean section rates be safely reduced? our audit was conducted with the objective to answer this question. A single cut off for defining a high or an ideal caesarean section rate (CSR) is very difficult as it may vary in different maternity units according to the clinical practice and setup. In 1985, world health organization had suggested that there were no additional health benefits associated with a caesarean section rate above 10-15% acceptable rates for caesarean sections were determined by departmental consensus, keeping RCOG guidelines in mind. We shared the results of our audit with all the consultant obstetricians working in our unit and implemented the acceptable strategies. This step proved to be fruitful at the end of the audit cycle and resulted in a marked improvement in the quality of obstetric care, reduction in the number of primary caesarean sections and more justified indications for induction of labour. Robson et al reported an overall decrease in the caesarean section rates successfully by applying principles of early diagnosis and treatment of dystocia in multiparous women.<sup>1,2</sup> Despite a significant reduction in the number of primary caesarean sections, we failed to reach the proposed benchmark. The lower effect on the overall caesarean section rate (CSR) is possibly related to large number of elective caesarean sections performed on patients informed choice in the case of one previous caesarean and breech presentation. Soliman et al have reported labour induction as the most important predictor of primary caesarean section.<sup>3</sup> Literature supports the routine induction of labour at 41 weeks in uncomplicated pregnancies.<sup>4,5</sup> After changing our policy for postdate inductions to 41 weeks, there was a significant reduction in the number of induced cases with poor bishops score.

Majority of women presented in spontaneous labour resulting in prevention of unnecessary emergency caesarean sections. Aim of modifications in obstetric care management should not jeopardize maternal and foetal safety. Gleishcer et al report safe lowering of caesarean section rate with no increase in maternal and perinatal morbidity and mortality.<sup>6-8</sup> In present study, there was no adverse effect of the introduced strategies on the maternal and perinatal outcomes and the number of high dependency units' admissions postoperatively. Almost all of these women had underlying medical problems and were transferred electively to the HDU for observation and monitoring. Perinatal outcome was also favourable without any perinatal death and fewer NICU admissions. To conclude safe lowering of the rate of primary caesarean sections is possible without compromising maternal and perinatal outcomes. we strongly recommend the introduction of evidence-based strategies to reduce the number of primary sections on a national level rather than on an individual basis as a first step towards safe motherhood.<sup>9,10</sup>

## CONCLUSION

Implementation of standard labour management strategies can reduce primary caesarean section rates without compromising maternal or foetal safety.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Shanthi C, Mahalakshmi NK. A clinical study of effect of standard labour protocols on rates of primary caesarean section at a tertiary care centre, Madurai, India. *Int J Reprod Contracept Obstet Gynecol* 2018;7:3766-8.