

# Analysis of Cesarean Section Rate According to Robson's 10-group Classification System at a Tertiary Care Hospital



## Medical Science

KEYWORDS : Caesarean section, VBAC

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### ABSTRACT

*Objectives: The aim of this study is to investigate Cesarean Section Rate at a tertiary care centre, Smt Kashibai Navale Medical College & General Hospital, Pune & make analysis based on the Robson's 10-group Classification system.*

*Methods: Study was conducted for a period of 8 months from November 2012 to June 2013. All the women delivered during this period in the labour ward were included and Robson's system was used to classify them into 10 groups. CS rate in each groups were calculated.*

*Result: Previous CS group made the greatest contribution to the total CS rate. Nullipara, term with spontaneous onset of labour (Group 1) had the second highest contribution and nullipara, term, elective CS or CS after failed induction (Group 2) were third main cause of caesarean section.*

*Conclusion: Overall CS rate in this study is 29.09%. Contribution of repeat CS in previous LSCS group is the highest been 15.86%.*

### INTRODUCTION

High caesarean birth rates are an issue of international public health concern. The Caesarean section rate has been increasing during the last 50 years. The rate was 5% in the 1940s and 1950s and remained unchanged for 10 to 15 years. In the late 1970s, the rate rose to 15% and remained unchanged for the next 10 years. In the last decade there has been a dramatic increase in the Caesarean section rate worldwide, which now exceeds 30% in some regions.

Worries over such increasing CS rates have led the World Health Organization to advise that Cesarean Section (CS) rates should not be more than 15%,<sup>2</sup> with some evidence that CS rates above 15% are not associated with additional reduction in maternal and neonatal mortality and morbidity.<sup>3</sup> Analyzing CS rates in different institutes, including primary vs. repeat CS and potential reasons of these, provide important insights into the solution for reducing the overall CS rate.

Dr Michael Robson<sup>4</sup> has proposed a new classification system, the Robson Ten-Group Classification System to allow critical analysis of CS rates according to characteristics of pregnancy (Table 1). The characteristics used are:

- (i) single or multiple pregnancy
- (ii) nulliparous, multiparous, or multiparous with a previous CS
- (iii) cephalic, breech presentation or other malpresentation
- (iv) spontaneous or induced labor
- (v) term or preterm births.

**Table 1: Robson' 10-Group Classification.**

| No. | Groups  |
|-----|---|
| 1   | Nulliparous, single cephalic, >37 wks in spontaneous labor                                  |
| 2   | Nulliparous, single cephalic, >37 wks, induced or CS before labor                           |
| 3   | Multiparous (excluding previous CS), single cephalic, >37 weeks in spontaneous labor        |
| 4   | Multiparous (excluding previous CS), single cephalic, >37 weeks, induced or CS before labor |
| 5   | Previous CS, single cephalic, >37 weeks   |

- 6 All nulliparous breeches
- 7 All multiparous breeches (including previous CS)
- 8 All multiple pregnancies (including previous CS)
- 9 All abnormal lies (including previous CS)
- 10 All single cephalic, <36 wks (including previous CS)

This classification system has been used in single-institution studies, national registries and recently with international comparisons.<sup>5,6</sup>

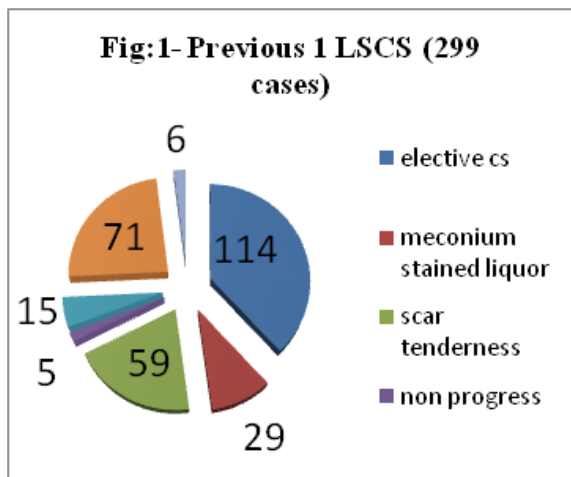
We have also used this classification system in our study. The aim of this study is to investigate CS rates at Smt Kashibai Navale Medical College & General Hospital, pune and make analysis based on the 10-group classification.

**Methods:** This cross sectional study was conducted for a period of 8 months from November 2012 to June 2013. All the women delivered during this period in the labor ward were included in the study. All relevant obstetric information like parity, gestational age, onset of labour, spontaneous or induced, mode of delivery, indication of CS was entered in a Performa and into Microsoft excel. Results were calculated at the end of this period.

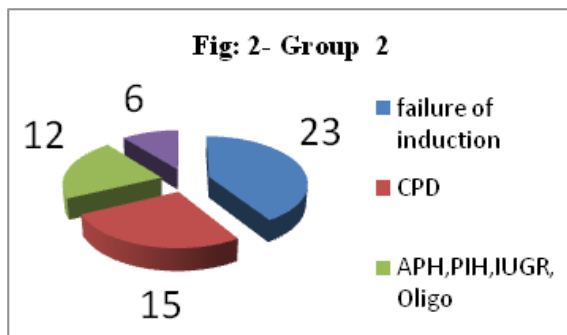
**Results:** The total number of women delivered for the period of 8 months was 2093, out of which CS deliveries were 609. Overall, CS rate calculated for SKNMC hospital in this specified period was 29.09% (Table 2). On analysis of CS according to Robson's classification, different rates of each group are shown separately.

Group 5 (previous CS group) made the greatest contribution to the total CS rate. Group 1 (Nullipara, term with spontaneous onset of labour) had the second highest contribution to the CS rate and then group 2 (Nullipara, term, elective CS or CS after failed induction) placed third.

Group 5 was further analyzed according to the indications of CS. Total cases of previous CS > 37 wks admitted were 381 out of which Vaginal birth after caesarean (VBAC) were 49(12.86%) & number of patient with repeat LSCS were 332. There were 34 cases with previous 2 LSCS and 299 cases with indication of previous 1 LSCS (Fig:1) .



(41%). Fig:2



**Discussion**

For the last 30 years, there has been a public concern about increasing CS rates.<sup>5</sup> The increase has been a global phenomenon, the timing and rate of the increase has differed from one institute to another, and marked differences in rates persist.<sup>7</sup> In our institute CS rate was ~30% and previous LSCS group made the highest contribution. It is important that efforts to reduce the overall CS rate should focus on reducing the primary CS rates and also encouraging VBAC in patients with previous LSCS.

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In Group 1 (nulliparous,>37wks in spontaneous labour) out of total 663 cases, 130 (19.6%)women underwent LSCS. The main causes of CS was fetal distress, meconium stained liquor in 73 (56%) cases, non reassuring NST in 10 (8%) patients and non-progress of labour in rest 47 (36%) patients.

In Group 2 (nulliparous >37 wks, induced or CS before labour) out of total 113 women,56 (49.55%) women underwent LSCS. The main cause of LSCS in this group was failure of induction

**Table 2:**

| SR NO | Robson's 10 group classification   | No. of CS over total no. of women in each group | CS rates in each group (%) | Relative size of group | Contribution made by group to overall CS 29.09% |
|-------|--|---|----------------------------|------------------------|---|
| 1.    | Nulliparous,single cephalic,>37 wks in spontaneous labour.                               | 130/ 663  | 19.6%                      | 31.67 % (663/ 2093)    | 6.21 % ( 130/2093 )                             |
| 2.    | Nulliparous,single cephalic,>37 wks induced or CS before labour                          | 56/ 113   | 49.55%                     | 5.39 % ( 113/2093 )    | 2.67 % ( 56/2093 )                              |
| 3.    | Multiparous (excluding previous CS),single cephalic, >37 wks in spontaneous labour       | 37/760  | 4.86%                      | 36.31 % ( 760/2093 )   | 1.76 % ( 37/2093 )                              |
| 4.    | Multiparous (excluding previous CS),single cephalic, >37 wks induced or CS before labour | 3 / 45  | 6.66%                      | 2.15 % ( 45/2093 )     | 0.14% ( 3 /2093 )                               |
| 5.    | Previous Caesarean Section ,single cephalic, >37 wks                                     | 332/381   | 87.28%                     | 18.2% (381/2093)       | 15.86% (332/2093)                               |
| 6.    | All nulliparous with term breeches   | 25/28   | 89.23%                     | 1.33% (28/2093)        | 1.19% (25/2093)                                 |
| 7.    | All multiparous breeches (including previous CS)   | 7/13  | 53.8%                      | 0.62% (13/2093)        | 0.33% (7/2093)                                  |
| 8.    | All multiple pregnancies (including previous CS)   | 8/15  | 53.3%                      | 0.71% (15/2093)        | 0.38% (8/2093)                                  |
| 9.    | All abnormal lies (including previous CS except breech)                                  | 6/6   | 100%                       | 0.28% (6/2093)         | 0.28% (6/2093)                                  |
| 10.   | All single cephalic, <37 wks (including previous CS )                                    | 5/69  | 7.24%                      | 3.29% (69/2093)        | 0.23% (5/2093)                                  |

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