

An attempt to control the increasing trend of caesarean section

Abstract

Objective: To determine the groups using Robson classification within the obstetric population in our institute contributing substantially to the Caesarean section (CS) rate.

Methods: All the women delivered in this hospital from January 2012 to January 2014 in were included in this study. The relative contribution of each group to the overall CS rate, relative size of group, and CS rate were calculated for the parturients according to Robson's Ten group classification.

Results: The caesarean section rate in our study was 33.1%. Group 5 contributed the most (11.9%) (Previous CS). Group 1 (Nulliparous, Spontaneous Labor) had the second highest contribution that of 6.37% and Group 2 (Nulliparous, Induction) and group 3 (Multiparous, Spontaneous Labor) had almost similar contribution of 3.6% and 3.46%, respectively. On further analysis of group 5, 43.6% women had caesarean section because of previous scar (including not willing for VBAC, scar tenderness, and more than 2 scars). In our study group 10 (Preterm) constitutes 9.1% of all deliveries.

Conclusion: Ten Group classification allows us to determine which target groups to investigate further to learn more about the underlying reasons for the differences in CS rates over time and potentially different places. In our study highest contribution of caesarean section came from group 5, which can be taken care of by avoiding primary caesarean sections.

Keywords: Caesarean Section, Robson classification, Target group, Quality improvement

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Introduction

Caesarean section (CS) rates continue to increase worldwide, particularly in middle- and high-income countries without evidence indicating substantial maternal and perinatal benefits from the increase and some studies showing negative consequences for maternal and neonatal health.¹⁻³ Over the past three decades, the World Health Organization expert panel proposed cesarean delivery rate of 10–15 percent was used as a doctrine for an optimal rate of cesarean delivery despite the lack of concrete evidence. The lack of a standardized internationally-accepted classification system to monitor and compare CS rates in a consistent and action-oriented manner is one of the factors preventing a better understanding of this trend and underlying causes. Robson proposes a system that classifies women into 10 groups based on their obstetric characteristics (parity, previous CS, gestational age, onset of labour, fetal presentation and number of fetuses) without any mention regarding indication for CS.⁴ The simplicity, robustness, reproducibility and flexibility of the classification and the fact that this classification is clinically relevant and categorizes women prospectively which in turn allows the implementation and evaluation of interventions targeted at specific groups.⁵⁻⁷ The classification itself can be used as an intervention to reduce CS rates and help to analyze the contribution of inductions to the overall CS rate.⁸ An inherent advantage of the classification is that it allows self-validation since some groups can act as controls. For instance, group 9 (women with a fetus in a transverse or oblique lie) is expected to represent less than 1% of all women admitted for delivery and to have a CS rate of close to 100%. Numbers that differ significantly from these values indicate the possibility of problems with data collection.

Materials & methods

This is a retrospective cohort chart review study conducted for a

period of 2 years from January 2012 to January 2014 in NEIGRIHMS, an Autonomus Institute under the Ministry of Health and Family Welfare Govt. of India, a tertiary care centre. All the women delivered in this period in the labor ward were included. All relevant obstetric information were entered in a questionnaire and entered in to Microsoft Excel and analyzed. Robinson's 10 Group Classification is shown in Figure 1.⁸

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| 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) |

Figure 1 Robson's 10-Group Classification.

Results

Overall Caesarean section rate of 33.1%. Total number of delivery in this 2 year period was 4392 of which 1456 women had lower segment caesarean section (33.1%). Group 5 contributed the most (11.9%). Group 1 had the second highest contribution that was (6.37%) and Group 2 and Group 3 had almost similar contribution that was 3.6% and 3.46% respectively. Group 5 which contributed the most were analyzed according to indication. Of 524, 272 women

had an emergency caesarean section. Here, fetal distress was the commonest indication (48.1%), followed by scar tenderness (32.4%) and 24 (8.8%) women, in the emergency group, declined the option for VBAC, even after counseling. Recurrent indication in the emergency group was (7.7%) whereas 252(48.1%) women went for an elective caesarean section. In the elective caesarean section group, 130 (51.5%) women opted for elective caesarean section after counseling for VBAC.

Table 1 Classified caesarean section

Robson's 10-group classification	No. Of cs over total no. Of women in each group	Relative size of group (%)	Cs rate in each group (%)	Contribution made by each group to overall cs rate
Group 1	280/1628	1628/4392(37%)	17.1%	6.37%
Group 2	164/548	548/4392(12.4%)	29.9%	3.7%
Group 3	152/604	604/4392(13.7%)	25.1%	3.46%
Group 4	96/396	396/4392(9%)	24.2%	2.1%
Group 5	524/632	632/4392(12.8%)	82.9%	11.9%
Group 6	40/40	40/4392(0.9%)	100%	0.9%
Group 7	60/84	84/4392(1.9%)	71.4%	1.3%
Group 8	28/44	44/4392(1%)	63.6%	0.6%
Group 9	12/12	12/4392(0.2%)	100%	0.2%
Group 10	100/404	404/4392(9.1%)	24.7%	2.2%

Table 2 Reclassified Group 5

Type of LSCS	Indications			Not willing for vbac	Previous 2 or more lscs	Obstetric indication
	Fetal distress	Scar tenderness	Recurrent			
Emergency 272 (51.9%)	131 (48.1%)	88 (32.4%)	21 (7.7%)	24 (8.8%)	3 (1.1%)	5 (1.8%)
Elective-252 (48.1%)	NIL	NIL	61 (16.5%)	130 (51.5%)	31 (11.3%)	30(11.9%)

Discussion

Discussion on caesarean section rates, efforts to prevent its continuous increase and the possibility to allow patients choose their delivery route has been a matter for concern globally. WHO goals (10-15%) seem no longer achievable, both in developed and developing countries. In our study we had caesarean section rate of 33.1%. Sanjivani A Wanjari et al.⁹ in their study found the rate of caesarean section was 37.8%.⁹ In WHO global survey the rate of caesarean section in Asian countries was 27.3%.¹⁰ Another study from Iran had caesarean section rate of 35-40%.¹¹ The United States caesarean section rate has been reported to be 31.1%.¹² Therefore, the caesarean section rate varies from country to country, state to state and from institute to institute. Research on this topic looks at variations across geographic areas--states and counties--rather than among health care facilities, and existing research on hospital-level variations in caesarean rates uses a non representative sample.^{13,14}

While analyzing the CS rate, the number of CS performed should be simple to determine but the indications will be more difficult to standardize. There should be one main indication rather than a list of indications, using an agreed standard hierarchical system.¹⁵ The 10-group classification has made possible comparisons of CS over time in one unit and between different units, in different countries.⁸ In our study majority of contribution to caesarean section had come from group 5 (previous CS), and 276(43.6%) women had caesarean section because of previous scar (including declining VBAC, scar tenderness, and more than 2 scars). In this group 82.9% women had caesarean section. In the study by Anagha A. Jinturkar and Dipti Dongaonkar, of previous caesarean, 74.4 % had repeat caesarean section.¹⁶ In our study Group 1 had highest number of deliveries, in contrast to the study by Sherrie Kelly et al.¹⁷ that showed Group 1 had 23.6% but we

had highest proportion of cases in group 1. It may be due to more than 50% women come to labour room directly who were unscheduled cases. In the same Canadian study they had 9.1% contribution of caesarean section from Group 5 and in Group 5, 80.8% women had repeat caesarean section. In our study we had 11.9% of contribution of caesarean section from group 5 and in group 5, 82.9% had caesarean section. Tahira Kazmi et al.¹⁸ in their study had maximum contribution of caesarean section from group 5.¹⁸ In our study, group 10 constitutes 9.1% of all deliveries but study by Sherrie Kelly et al.¹⁷ and Tahira Kazmi et al.¹⁸ showed group 10 constitutes only 5.6% and 1.8% respectively.¹⁸ It may be because ours is a tertiary care well equipped centre with good Neonatal Intensive Care Unit facility. Also, we get many high risk pregnancy cases that might be induced for maternal or fetal interest.

In our study as well as other relevant studies, maximum contribution of caesarean section was from group 5. To restrict that we should be determined to prevent primary caesarean section including group 1-4. In our study, the caesarean section rate in these 4 groups was 15.63%. Study by Kelly et al.¹⁷ it was 10.6% with caesarean section rate of 28.5 percent. In our study in group 5, women who were not willing to have VBAC were counselled in the best possible way to undergo VBAC. In case of primary caesarean with non reassuring NST, it should be further analysed with STAN to reduce the caesarean section rates due to fetal distress. Also, women with mild degree of Cephalopelvic Disproportion should be given adequate trial of labour before proceeding for caesarean section. Again, in breech presentation, External Cephalic Version should be performed with adequate counselling.

The Robson 10-group Caesarean section classification system is a simple, standard tool to identify groups making the most significant

contribution to the overall rate of CS. These classification findings will allow us to determine which target groups to investigate further to help us learn more about the underlying reasons for the differences in CS rates over time. In our study highest contribution of caesarean section was from group 5. Therefore, to prevent that we are to avoid primary caesarean sections as far as possible. We strongly emphasize that all hospitals and health authorities use this standardized classification system, to put a check on the growing CS rates and also for global quality improvement of the same.

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None.

Conflicts of interest

None.

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