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TO STUDY THE RECENT TRENDS AND DETERMINANTS OF CAESAREAN SECTION RATE AT INDIRA GANDHI MEDICAL COLLEGE & HOSPITAL, SHIMLA

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ABSTRACT: The steady rise in caesarean section rate is an emerging area of concern in mother and child health care and a matter of international attention, which has been referred as a "global epidemic". **MATERIAL AND METHODS:** This was prospective study carried out in the department of Obstetrics and Gynaecology at IGM, Shimla, from 1st May 2010 to 30th April 2011. All pregnant women were categorized according to Robson's Ten Group classification system (RTGCS) 2001. **RESULTS:** overall caesarean section rate was 21.86%. Majority of the births 35.30% occurred in group 1 and 11.20% in group 2. Maximum CS rate in each group was in group 9 (88.23%) followed by group 6 (79.63%) and group 7 (71.22%). Contribution made by each group to overall CS rate was maximum by group 1 (6.28%) and group 5 (5.26%). Postpartum haemorrhage (Atonic) occurred in 1.60% subjects belonged to group 2,3,4,8. Two had caesarean hysterectomy. Uterine rupture occurred in one (0.08%) subject during VBAC-TOL. **CONCLUSION:** Robson's Ten Group classification system provides a framework for auditing and analyzing caesarean section rate and allowing comparisons to be made over time in one unit and between different units. The groups with higher caesarean section rate (Groups 5, 6, 7, 8, 9) can be targeted and attempt can be made to reduce and rationalize the rate.

KEYWORDS: RTGCS, ROBSON'S TEN GROUP CLASSIFICATION SYSTEM, CS, CAESAREAN SECTION.

INTRODUCTION: The Robson's Ten Group classification system (RTGCS¹) divides women in ten groups based on the category of pregnancy, previous obstetric records, course of labour and delivery and gestational age. Caesarean section rates within each group and contribution of each group to total caesarean section rate is calculated, hence this classification was used to determine and analyze the indications and contributing factors leading to caesarean sections at a tertiary care hospital. The steady rise in caesarean section rate is an emerging area of concern in mother and child health care and a matter of international attention.

Concern has been expressed at the growing rate of caesarean section which has been referred as a "global epidemic".² This escalating caesarean rate is a major health problem because caesarean section increases the health risk for mothers and newborn as well as the cost of health care when compared with normal deliveries. In 1985, the World Health Organization in a consensus statement suggested that there may be no health benefits from caesarean section rates exceeding 10-15%.²

MATERIAL AND METHODS: This was prospective study carried out in the department of Obstetrics and Gynaecology at (Kamla Nehru State Hospital for Mother and Child), IGM Shimla, from 1st May 2010 to 30th April 2011 which is the apex institute of the Himachal Pradesh.

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All pregnant women booked or unbooked and referred patients (including those admitted in emergency) for whom caesarean sections were indicated later on, were included. For uniformity, all patients were categorized according to Robson's Ten Group classification system (RTGCS)¹ 2001. Ten groups have been formulated using obstetric concepts rather than medical indications for caesarean section. This classification is as follows:

Group 1-Nulliparous, single cephalic, ≥ 37 weeks in spontaneous labour.

Group 2-Nulliparous, single cephalic pregnancy, at ≥ 37 weeks, induced or caesarian section before labour.

Group 3-Multiparous, excluding previous caesarean section, single cephalic, ≥ 37 weeks, in spontaneous labour.

Group 4-Multiparous, excluding previous caesarean section, single cephalic, ≥ 37 weeks, induced or caesarean section before labour.

Group 5-Previous caesarean section, single cephalic, ≥ 37 weeks.

Group 6- All nulliparous breech.

Group 7-All multiparous breeches including previous caesarean section.

Group 8-All multiple pregnancies, including previous caesarean section.

Group 9-All abnormal lie including previous caesarean section.

Group 10-All single cephalic ≤ 36 weeks including previous caesarean section. Clinically diagnosed cases of ruptured uterus proved on laparotomy and abdominal pregnancy proved on Laparotomy were excluded from the study. The data was tabulated and statistically analyzed by using independent samples 't' test, 'chi square test' & 'multiple logistic regression'.

OBSERVATIONS:

Events		Study group	Percentage
Age	≤ 20 yrs	74	05.84%
	21-30yrs	984	79.09%
	31-40yrs	182	14.64%
	≥ 40 yrs	5	0.43%
Residence	Rural	943	75.74%
	Urban	302	24.26%
Booking	Booked	1081	86.82%
	Un booked	164	13.18%

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Gravidity	Primi	609	48.92%
	Multi	547	43.93%
	Grandmulti	89	7.15%
SES	Upper	139	11.17%
	Middle	919	73.81%
	Lower	187	15.02%

TABLE 1: SOCIO DEMOGRAPHIC PROFILE

Table 1 shows that out of 1245 subjects maximum 984(79.09%) belonged to 21-30 years of age group. There were 943(75.74%) subjects belonged to rural area and 1081(86.82%) were booked. Six hundred and nine 48.92% were primigravidae. Majority of subjects belonged to middle socioeconomic status ($p<0.05$).

Prev. LSCS	None	977	78.48%
	One	239	19.19%
	Two	29	2.33%
Modes of CS	Emergency	1063	85.38%
	Elective	182	14.62%

Table 2: LOWER SEGMENT CAESAREAN SECTION

Table 2 shows that 977(78.48%) CS were performed in primiparous women and 239(19.19%) in previous one CS whereas 29 (2.33%) were performed in women with previous two CS. One thousand and sixty three 85.38% women underwent emergency CS while 182 (14.62%) done as elective CS ($p<0.05$).

Sl. No.	VBAC-TOL n=397	Number of cases	Percentage
1.	Failed (VBAC-TOL)	127	31.99%
2.	Successful (VBAC-TOL)	270	68.01%
3.	Total	397	100%

TABLE 3: VAGINAL BIRTH AFTER CAESAREAN SECTION-TRIAL OF LABOUR (VBAC-TOL) ACCORDING TO (RTGCS¹ Group 5).

Three hundred and ninety seven (397) subjects with previous LSCS underwent vaginal birth, trial of labour (VBAC-TOL). Out of these, 270 (68.01%) had successful VBAC-TOL. One hundred and twenty seven (31.99%) subjects had failed VBAC-TOL and these were delivered by emergency caesarean section.

All the subjects with lower segment caesarean sections were classified according to Robson's ten group classification (RTGCS).¹

Total number of CS (N) = 1245, Total number of vaginal deliveries (D) = 4450.

Total births (N+D=5695).

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RTGCS Groups ¹	Relative size of each group (%) n+d/N+D	Caesarean section in each group (n)	Contribution made by each group to overall CS rate
1	2016(35.30%)	358(17.75%)	358/5695 (6.28%)
2	640(11.20%)	93(14.46%)	93/5695(1.64%)
3	1600(28.09)	176(11%)	176/5695(3.09%)
4	338(5.93%)	17(5.02%)	17/5695(0.29%)
5	569(9.98%)	299(52.54%)	299/5695 (5.26%)
6	126(2.21%)	100(79.36%)	100/5695(1.75%)
7	139(2.44%)	99(71.22%)	99/5695(1.74%)
8	82(1.43%)	37(45.12%)	37/5695(0.65%)
9	17(0.29%)	15(88.23%)	15/5695(0.27%)
10	166(3.42%)	51(30.90%)	51/5695(0.89%)

TABLE 4: CAESAREAN SECTION ACCORDING TO ROBSON'S TEN GROUP CLASSIFICATION SYSTEM (RTGCS)

There were 4450 normal vaginal deliveries and 1245 caesarean section deliveries during the study period. Overall caesarean section rate was 21.86%. Majority of the births 2016 (35.30%) occurred in group 1 and 643 (11.20%) in group 2. In group 3 and 4 there were 1600 (28.76%) and 5.93% (338) deliveries respectively whereas group 5 contributed 569 (9.98%) to total deliveries. One hundred and twenty six (2.21%) births were in group 6, 139 (2.21%) were in group 7 and 82 (1.43%) were in group 8. The smallest group was group 9, with only 17 (0.26%) subjects. Group 10 included 197 (3.42%) subjects.

Maximum CS rate in each group was in group 9 (88.23%) followed by group 6 (79.63%) and group 7 (71.22%) whereas in group 5 (52.54%).

Contribution made by each group to overall CS rate was maximum by group 1 (6.28%) and group 5 (5.26%) followed by group 3, group 6, group 7 (3.09%, 1.75%, 1.74% respectively).

There were no maternal complication in groups 1, 2, 6 and 10. Postpartum haemorrhage (atonic) occurred in 1.60% subjects belonged to RTGCS¹ group 2,3,4,8. Two had caesarean hysterectomy. Uterine rupture occurred in one (0.08%) subject during VBAC-TOL. There was no maternal death during the study period. Ninety two neonates 7.38 % were admitted in NICU for observation, improved and shifted to mother side whereas 12 (0.963%) neonates died due to RDS, birth asphyxia, prematurity, pulmonary haemorrhage, necrotizing enterocolitis.

DISCUSSION: The steadily increasing global rates of caesarean section have become one of the most debated topics in maternity care as its prevalence has increased alarmingly in past few years. In present study maximum number of the caesarean sections were performed in patients in the age group of 21 -30 years.^{3,4,5} Majority of the subjects were housewives and were from rural area. Majority of subjects were primigravidae and 86.82% were booked. Emergency CS was performed in 85.38% subjects as most the subjects were referred from peripheral institutions. No elective CS done in group 1, 3.

The most common maternal indication for caesarean section in present study was repeat caesarean section and fetal indication for caesarean section in present study was fetal distress in the form of non-reassuring fetal heart rate with thick meconium stained liquor.

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The dictum 'once a caesarean always a caesarean' espoused by Craigin in 1916 but VBAC-TOL was proposed as an attempt to reduce caesarean section rates. Successful VBAC-TOL was 68.1% which was almost consistent with other studies.^{4,6,7}

Maximum number of subjects belonged to group 1 followed by group 3, group 5, group 4. Least number of subjects belonged to group 9 in all studies.^{2,8,9} Primiparous subjects have always been compared to "untried horse" as the course of labour is not predictable.

CS rate in multiparous subjects (group 3 and group 4) who had previously delivered vaginally were 11% and 5.02% respectively, which was lower than those previously delivered by CS (Group 5) 55.47% and also lower than in nulliparous subjects (Group 1 and 2, 17.7%, 14.4% respectively), who had similar obstetrical characteristics.

In the present study CS rates in Group 6 and 7 were 79.3% and 71.2% respectively, which is similar to study.⁷ The CS rates in group 8 and group 10 were 45.12%, 26.15% respectively which are comparable to studies.^{2,7,8} In group 9 (transverse/oblique presentations) caesarean section rate was 88.20% which was comparable to study⁸ (80%) whereas it was 100% in studies.^{2,7} This could be attributed to fact that more external cephalic version (ECV) for transverse/oblique lie was practiced. Group 1 and 5 contributed highest to over-all CS rate because of inherent risk of vaginal delivery in these groups.

CONCLUSION: The interpretation of caesarean section data can be done in a standardized manner by the Robson's Ten Group classification system (RTGCS¹). This provides a framework for auditing and analyzing caesarean section rate and allowing comparisons to be made over time in one unit and between different units.

The prevalence of caesarean section in present study was 21.86% which is higher than WHO recommendation² (15%).

To bring down caesarean section rate in our institution the RTGCS¹ groups with higher caesarean section rate (Groups 5, 6, 7, 8, 9) can be targeted. An attempt can be made to reduce and rationalize the rate. This highlights the importance of keeping the caesarean section rate low in nulliparous women and facilitating the judicious use of VBAC-TOL (Group 5) in tertiary care centers where facilities for continuous intra partum monitoring and 24 hours caesarean section and blood transfusion are available.^{10,11}

Practicing the external cephalic version at term in properly selected cases (Groups 6, 7, 9) can also help in bringing down the caesarean section rate. Judicious use of management protocol will decrease the maternal complication such as postpartum haemorrhage, uterine rupture in VBAC-TOL during labour and probably also result in better neonatal outcome. It is suggested that RTGCS¹ should be used uniformly in all centers. The results can then be compared and analyzed in a better way. This would also help to formulate a strategy to reduce the caesarean section rate.

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