Study of Caesarean Section using Robson's Classification at Provincial Public Hospital

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ABSTRACT

Aims: To categorize all pregnant women admitted for delivery at Provincial Public Hospital Janakpurdham according to Robson's ten group classification and to assess the caesarean section rate and identify the indications contributing to the same.

Methods: This is a prospective study conducted at Provincial Public Hospital Janakpurdham for 3 months from 15th April to 15th July 2020 .Total of 1536 participants admitted for delivery including 257 undergoing caesarean section were included in the study and were classified according to the Robson's classification. For each group, demographic and obstetric profile, relative size and its contribution to the overall caesarean rate was calculated.

Results: The overall caesarean section rate was 16.7% (257 among 1536 total deliveries). Robson's Group 5(Previous caesarean section, singleton cephalic, ≥37 weeks) was the major contributor (46%) to the overall caesarean section rate followed by Group 2b (nullipara, singleton cephalic, ≥37 weeks, caesarean section before labor) (15.6%).

Conclusion: Induction of labor for Group 2a and 4a should be done and trial for vaginal delivery in previous Cesarean section for Group 5 should be promoted to reduce the caesarean section rate. Study result is limited by lack of labor induction facility at the study site.

Keywords: Cesarean section; Robson's classifications

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INTRODUCTION

Cesarean Section (CS) delivery is defined as the birth of a viable fetus through incision in the abdominal wall (laparotomy) and the uterine wall (hysterotomy).[1] CS is one of the most commonly performed surgeries in obstetric practice.[2] A CS can be a life-saving intervention when medically indicated, but it can also lead to short-term and long-term health effects for women and newborn.[3] Therefore it's an international public health concern.[4] However, WHO have stated that CS rate over 10-15% at population level cannot be justified.[5]

Robson's classification or Ten group classification system (TGCS) was created to prospectively identify well-defined, clinically relevant groups of women admitted for delivery and to investigate differences in CS rates within these relatively homogeneous groups of women (Table 1).[6] It helps to create and implement effective strategies specifically targeted to optimize the CS rates.[7]

METHODS

This was a prospective study at Provincial Hospital Janakpurdham for 3 months from 15th April 2020 to 15th July 2020. After approval from Ethical review board of Nepal health research Council (NHRC) all pregnant women at or more than 22 weeks gestation admitted for delivery at this hospital were included in the study. Data were collected according to the Robson's classification (Table-1).[6] Group size, Overall CS rate, Group CS rate, absolute group contribution and relative group contribution to overall CS rate were calculated. Also demographic profile (age and address) and obstetric profile (parity and period of gestation) of women undergoing CS were entered and analyzed in MS Excel.

Table-1: Robson's Classification of cesarean section by Group number

1: Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour

2: Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who had labour in-

duced (2a) or were delivered by CS before labour (2b)

3: Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour

4: Multiparous women without a previous CS, with a single cephalic pregnancy, ≥37 weeks gestation who had labour induced (4a) or were delivered by CS before labour (4b)

5: All multiparous women with at least one previous CS (5a) or more than one previous CS (5b), with a single cephalic pregnancy, ≥37 weeks gestation

6: All nulliparous women with a single breech pregnancy

7: All multiparous women with a single breech pregnancy including women with previous CS(s)

8: All women with multiple pregnancies including women with previous CS(s)

9: All women with a single pregnancy with a transverse or oblique lie, including women with previous CS(s)

10: All women with a single cephalic pregnancy < 37 weeks gestation, including women with previous CS(s)

RESULTS

Out of total hospital deliveries (1536) in 3 months, majority belonged to Group 3(51%) while no cases were admitted for labor induction in Group 2a and 4a [Figure-1].
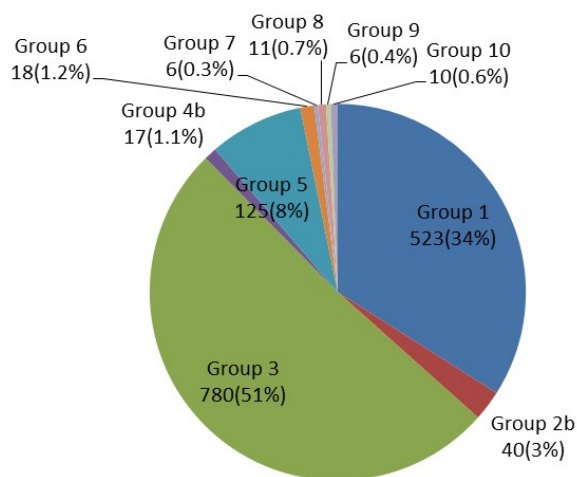

Figure-1: Robsons Group size of participants admitted for delivery (N=1536)

Among the woman undergoing CS, half of participants (50.5%) belonged to age group 20-24 years and majority (38.1%) were from Dhanusa district. Majority participants were multiparous (61.47%) with gestational age >37 weeks (98.8%) [Table-2].

Table-2: Demographic and Obstetric Profile of women undergoing caesarean section (N=257)

Variables		Number (%)
Age group in years	<19	30 (11.6%)
	20-24	130 (50.5%)
	25-29	80 (31.1%)
	30-34	12 (4.7%)
	>35	5 (2%)
District address by increasing distance	Dhanusa	98 (38.1%)
	Mahottari	86 (33.4%)
	Sarlahi	60 (23.3%)
	Siraha	8 (3.1%)
	Sindhuli	5 (2%)
Parity	Nulliparous	88 (34.2%)
	Multiparous	158 (61.4%)
Period of gestation	<37 weeks	3 (1.2%)
	≥37 weeks	254 (98.8%)

According to Robsons classification, the overall caesarean section rate was 16.7 % (257 among 1536). Group 5 (Previous CS) was the major contributor (46%) to the overall CS rate followed by Group 2b (15.6%) and Group 1(13.6 %) [Figure-2].
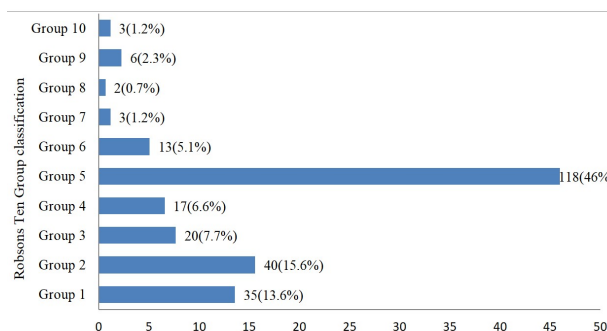

Figure-2: Robson Ten group Classification of women undergoing Caesarean section (N=257)

Group CS rate was highest (100%) for Group 2,4 and 9 while least (2.6%) for Group 3 [Table-3].

DISCUSSION

This study included 1536 participants who delivered in Provincial hospital in 3 months. Lockdown due to COVID 19 pandemic might have affected the case load. Overall CS rate was 16.7 % at this hospital during this period which is higher than that stated by WHO (10-15%) and Karnali Academy of health sceinces (KAHS) (9%).[4,5] However, CS rate at this hospital is lower than Paropakar Maternity and Womens Hospital, a central referral hospital in kathmandu (31.1%)[8] and most of other public and private hospital in Nepal.[4]

In this study Robsons's Group 3 and 1 were the largest groups representing 85% of all obstetric population which is similar to the finding of Bar

Table-3: Group CS rate and absolute group contribution to overall CS rate

Column 1	Column 2	Column 3	Column 5	Column 6
Group	Total CS in Group (A)	Total Group number (B)	Group CS rate (A/B*100%)	Absolute group contribution to overall CS rate (A/Y*100%)
1	35	523	6.7	2.3
2	40	40	100	2.6
2a	-	-	-	-
2b	40	40	100	2.6
3	20	780	2.6	1.3
4	17	17	100	1.1
4a	-	-	-	-
4b	17	17	100	1.1
5	118	125	94.4	7.7
5a	99	104	95.2	6.5
5b	19	21	90.5	1.2
6	13	18	72.2	0.8
7	3	6	50	0.2
8	2	11	18.2	0.1
9	6	6	100	0.4
10	3	10	30	0.2
Total	257(X)	1536(Y)		16.7

caite et al[9] where majority of participant were nulliparous or multiparous with single cephalic ≥37weeks admitted in spontaneous labor for delivery.

In this study Robson Group 5 (46%), 2b (15.6%) and 1 (13.6%) were the major contributor in overall CS rate. This finding is similar to the finding of Reddy AY et al[10] where most CS (18.6%) was done in Group 5 (Previous CS). Malla RV et al[11] and Poudel R et al[12] had different finding where majority of the CS belonged to Robsons Group 1 (nulliparous). This disparity could be the result of various factors like rising maternal age at first pregnancy, technological advances that have improved the safety of the procedure, changes in women's preferences, increasingly sedentary lifestyle and poor tolerance to pain.[5,13] Even though, contribution to overall CS is different in various studies but Robson Group 5, 2 and 1 are major contributors at most of the centers.

Group CS rate for Robson's Group 9 (all abnormal lies including Previous CS) was 100% which seems very logical and is similar to other studies conducted by Reedy et al[10] and Gomathy et al[14] but as observed in this study Group CS rate for Robson Group 2 and 4 was also 100% which is unusual and is result of lack of induction facility at this hospital. None of the cases were admitted in Group 2a and 4b for labor induction. Unavailability of labor induction has increased pre labor CS without giving trial for vaginal delivery. It has set background for further study and administrative analysis to make proper arrangements for labor induction and labor monitoring.

All these studies reflect the need to formulate strategies to reduce the incidence of medically unnecessary primary caesarean section[15] which will decrease the rate of CS for previous CS in future. Similarly Dhakal et al[3] has brought in the concept of Too Little Too Late (TLTL) referring to poor, lowly educated and vulnerable women who are in need have less or non- access to emergency obstetric care in rural areas due to limited provision of safe and timely CS procedure. Whereas,Too Much Too Soon (TMTS) refers to easily available private hospitals and education of women have been suggested as factors for rising of rates of CS in urban settings. Therefore, efforts should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate.[16]

CONCLUSIONS

Caesarean section at Provincial Hospital Janakpurdham is comparatively lower than other hospitals in Nepal. Arrangement of labor induction for Robson's Group 2a and 4a and promoting vaginal delivery in nullipara and facilitating VBAC are the most relevant areas of intervention. This study finding is limited by lack of induction of labor.

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