Assessment of Caesarean Section Rates at Kathmandu Model Hospital Using the Robson's Ten Group Classification System

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ABSTRACT

Background: Aims of this study was to assess the caesarean section rate and identify the indications contributing to the same using the Robson's Ten Group Classification System at Kathmandu Model Hospital.

Methods: This was a retrospective study conducted at Kathmandu Model Hospital among women who underwent caesarean section from 1 January to 31 December, 2018 and were grouped according to Ten Group Classification System. The overall caesarean section rate and the contribution of each group was calculated.

Results: The overall caesarean section rate was 66.1% (494 among 747 total deliveries) in 2018. Nullipara, singleton cephalic, >= 37 weeks, spontaneous labor (Group 1) was the major (24.2%) contributor to the overall caesarean section rate followed by previous caesarean section, singleton cephalic, >=37 weeks (Group 5, 22.6%) and nullipara, singleton cephalic, >=37 weeks, induced or caesarean section before labor (Group 2, 18.8%). Also, the caesarean section rate was 49.5% in nullipara, thus increasing the trend of caesarean section for previous caesarean section in future.

Conclusions: Efforts must be focused more on Group 1, 2 and 5 to decrease the increasing trend of caesarean section Promoting vaginal delivery in nullipara and facilitating vaginal birth after caesarean are the most relevant areas of intervention.

Keywords: Caesarean section; Robson ten group classification system; vaginal birth after caesarean.

INTRODUCTION

Caesarean section is one of the most commonly performed surgeries in obstetric practice.[1] In 1985, WHO stated that there was no justification for caesarean section (CS) rates higher than 10-15% at population-level.[2] The sustained increase in the CS rate worldwide in the last 25 years[1] and its alarming rate in urban Nepal[3] has raised concern about the validity of the 1985 landmark statement.[2] It is as high as 35% in private facility in Nepal.[4] 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 children.[5]

In 2001, Robson presented the Ten Group Classification System (TGCS) with obstetric concepts of category of pregnancy, previous obstetric history, course of labor and delivery and the gestational age(Table 1).[6] It has been appreciated by World health organization and International federation of gynecology and obstetrics for the optimization of caesarean section rate.

TGCS most importantly helps to create and implement effective strategies specifically targeted to optimize the CS rates.[7]

METHODS

This was a hospital based retrospective study conducted at Department of Obstetrics and Gynaecology at Kathmandu Model Hospital among women undergoing CS over a period of 12 months from 1 January to 31 December, 2018. Approval was obtained from the Institutional Review Committee of phect-NEPAL/ Kathmandu Model Hospital. Chart review was done and women undergoing CS were grouped according to Robson's TGCS (Table 1) and overall CS rate and the contribution of each group was calculated. Also, the demographic profile (age, parity, periods of gestation) of women undergoing CS was analyzed. Data was entered into Excel and analyzed

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using Statistical Package for Social Sciences version 25.0.

| Table 1. Robson's ten group classification system.[6]	
1	Nulliparous, single cephalic, ≥37 weeks, in spontaneous labor
2	Nulliparous, single cephalic, ≥37 weeks, induced or CS before labor
3	Multiparous (excluding prev. CS), single cephalic, ≥37 weeks, in spontaneous labor
4	Multiparous (excluding prev. 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 weeks (including previous CS)

RESULTS

Out of the total hospital deliveries, the overall caesarean section rate was 66.1% (494 among 747 total deliveries) in 2018. Among the women undergoing caesarean, age of the participants ranged from 15-44 years and majority (42.3%, n=209/494) belonged to age group 25-29 years. Almost half (49.5%, n=245/494) of them were nullipara followed by primipara (35.2%, n=174/494).Majority (94.3%, n=466/494) were done for term pregnancy and 53% (n=262/494) of the indications were emergency (Table 2).

Table 2. Age, parity and period of gestation of women undergoing caesarean section (n= 494).		
Variables		**Number (%)**
Age-group	15-19	4 (0.8%)
	20-24	99 (20.0%)
	25-29	209 (42.3%)
	30-34	139 (28.1%)
	35-39	38(7.6%)
	40-44	5 (1.0%)
Parity	Zero	245 (49.5%)
	One	174 (35.2%)
	Two	56 (11.3%)
	Three	17 (3.4%)
	Four	2 (0.4%)
Period of gestation	28-32	2 (0.4%)
	32-36	26 (5.2%)
	37-42	466 (94.3%)

According to the Robson's ten group classification system, Group 1 was the major (24.2%) contributor to the overall CS rate followed by Group 5 (22.6%) and Group 2 (18.8%).
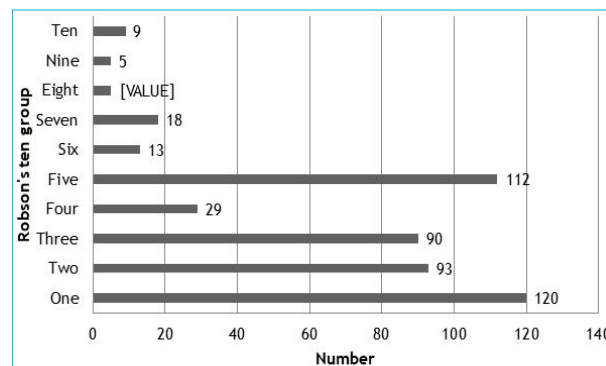
Most common indications for caesarean section (n=494) was previous caesarean delivery (25.3%) followed by fetal distress (20%) and non-progress of labor (8%). Caesarean delivery was done on maternal request in 30 women (6%).

DISCUSSION

Though CS is a life-saving intervention, its unprecedentedly escalating rate is not associated with better perinatal outcome.[8] Instead, it has been a matter of international public health concern.[9] It could be linked to negative consequences in maternal and child health.[10] In the series paper data from 169 countries, it was depicted that 21.1% births occurred through CS in 2015, which was almost double the number of births by this method in 2000 and the national CS use varied from 0·6% in South Sudan to 58.1% in the Dominican Republic.[11]

In our study, CS rate was 66.1% which is quite high with major contributors (65.6%) from Robson's Group 1, 5 and 2.

Barčaitė et al[7] found that the CS rate was 26.4% (6697 among 25,373 deliveries) in 2012 in Luthuania among which women in Groups 1, 2 and 5 were the largest contributors (67.7%; similar to our study).

Tura et al[12] found that the CS rate was 25.7% with Groups 3, 5 and 1 as major contributors (61.8%).

Kant et al[13] in 2018 in India found that the CS rate was 53.8% with major contributors (73%) as group 2 and 5; group 5 (previous CS group) being the greatest

contributor to the total CS rate.

In a study done at tertiary level hospital in Nepal by Malla et al[14] over a period of five years, CS rate was 22.57%; most common indication being previous CS (25.4%)and Robson's Group 1 (28%) , 5 (26.8%) and 3(15.5%) were the highest contributors.

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. Factors responsible for this increase are rising maternal age at first pregnancy, technological advances that have improved the safety of the procedure, changes in women's preferences, a growing proportion of women who have previously had a caesarean, increasingly sedentary lifestyle and poor tolerance to pain.[13,16]

Dhakal et al[5] has brought in the concept of Too Little Too Late and Too Much Too Soon referring to incidence of caesarean section in rural Nepal and urban Nepal respectively. However, effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate.[17]

In a study done in remote community hospital in Nepal by Sabdam et al,[8] CS rate was 9.5%. It was when the two-thirds of the birth were conducted at home in rural Nepal.Now, the institutional births in Nepal have increased from 35% in 2011 to 57% in 2016.[5] And, overall CS rate in Nepal was found to be 9% (7.1% in rural as compared to 19% in urban) in the same year.[5]

Laxmi et al[9] in their study has found the CS rate to be as high as 81% urban Nepal.CS rate in our hospital is also high; major reasons being established as a referral centre for high risk cases from nearby districts, unavailability of procedures such as fetal scalp blood sampling to identify true fetal distress, non-practice of vaginal birth after caesarean section, maternal request despite repetitive counselling and practice of defensive medicine due to present litigation issues.

As CS are more likely to be performed by for-profit hospitals than non-profit ones[18], healthcare financial system should be reviewed[8] so that CS is not economically beneficial compared to a vaginal delivery in a for-profit hospital and its doctors.As stated by American College of Obstetrics and Gynecology, caesarean delivery on maternal request should not be motivated.[9] It needs to be properly addressed at our centre, too. As a clinician, we must provide the best evidence-based counselling to the pregnant woman and respect her autonomy and decision-making capabilities when considering the route of delivery.[19]

CONCLUSIONS

Cesarean section rate at our hospital is high. Hence, there should be efforts on decreasing the incidence, more focus must be given on Group 1 (Nullipara, singleton cephalic, >= 37 weeks, spontaneous labor, 24.2%), Group 5 (previous CS, singleton cephalic, >=37 weeks, 22.6%), Group 2 (nullipara, singleton cephalic, >=37 weeks, induced or CS before labor,18.8%). Promoting vaginal delivery in nullipara and facilitating VBAC are the most relevant areas of intervention.

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