

Cesarean Section profile at a tertiary center

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Received: March 31, 2020

Accepted: May 5, 2020

ABSTRACT

Aim: To determine the incidence and indication of caesarean section.

Method: It is a retrospective cross sectional study conducted at Paropakar Maternity and Women's Hospital for three months. The data was retrieved from the medical record of operation theatre.

Results: During the study period, 31.1% (1,592 out of 5,120) of women underwent caesarean section. Eighty eight percent (n-1,402) of them were emergency caesarean section while 12 % were elective (n-190). Majority of the women (70.3%) belonged to 20-29 years and half of them were primigravida. Around 89.2% caesarean sections were performed at 37-42 weeks of gestation. The four leading indications were fetal distress (31.5%), previous caesarean section (19.7%), cephalo -pelvic disproportion (13.4%) and abnormal presentation (7.9%).

Conclusions: In this study, incidence of caesarean section is more than WHO recommendation. It may be mainly due to the referral of complicated cases from the periphery of the country.

Key words: caesarean section, indication

Citation : Shrestha M, Shrestha S. Cesarean Section profile at a tertiary center. Nep J Obstet Gynecol. 2020;15(30):68–71. DOI: 10.3126/njog.v15i1.29345

INTRODUCTION

Caesarean section (CS), when indicated, saves the life of both mother and baby. For this purpose, WHO recommends to keep its rate between 10-15%.¹ However, from last decade there has been tremendous increase in its rate worldwide without the reduction of maternal and neonatal morbidity as well as mortality.² Changing maternal and fetal risk profile, older primipara, maternal request for CS, non reassuring fetal heart rate tracing, fear of complication for the child and previous traumatic birth are thought to be responsible for increased CS.³ Safe and better surgical techniques, improved anesthesia, effective antibiotics and availability of blood transfusion also contribute indirectly to its increasing rate.⁴

The increasing trend of CS has been seen worldwide while the rate varies in between the institutions and regions. In African countries it varies from 3% (in Sub Saharan countries) to 27.6% (in Ethiopia).⁴ According to the WHO report, incidence in USA is

32.2% while it is 24% in England, 27% in China and 50% in Brazil.⁵ In Nepal also, the incidence of CS varies from one facility to another one. It is reported to be 9.5% at Okhaldhunga Community Hospital, 18.8% at Mid-Western Regional Hospital, Surkhet, 45.8% at Kathmandu Medical College, 50% at Kirtipur hospital and 63.27% at Pachimanchal community hospital.^{1, 6-9}

Regarding the indication of CS, labor dystocia, fetal distress, malpresentation and previous caesarean delivery are the leading indications of caesarean delivery.¹⁰ Other common indications are cephalo-pelvic disorder (CPD), intra-uterine growth restriction (IUGR), placenta previa, small for gestational age, macrosomia and severe preeclampsia.¹¹ Caesarean delivery on maternal request (CDMR) is planned CS in the absence of any medical or obstetric contraindication for vaginal delivery which is one of the emerging important reason for increased caesarean rate.³ Its incidence is also different in

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different countries ranging from 4-18% and mainly related with tocophobia and previous bad experience of labor.¹² In a study done by Ji H et al, the incidence of CDMR was 13% to 17% in the second and third trimester.¹³ In Brazil, a population based study found that there was a growing preference for CS among women. This study also observed that lower rate in nulliparous (15.4%) in public based hospital and increased rate (73.2%) among multiparous with previous CS in private health care.¹⁴ In addition, another reason for increasing CS rate is elective repeat CS which is related with the sense of security to both physician and mother.³ Though life saving, unnecessary CS may result into maternal as well as neonatal morbidity and mortality. It is also associated with increased health expenditure for families and exerts additional pressure upon overburdened health system, particularly in low and middle income countries like ours.¹⁴ This study aims to explore the incidence and indication of caesarean at this tertiary government hospital.

METHOD

This is a retrospective study of 1,592 women who had undergone caesarean sections at Paropakar Maternity Women’s Hospital from mid January to mid April 2019. The data was retrieved from the register of Operation Theater and analyzed according to the maternal age, gravidity, parity, gestational age and indication of caesarean section.

RESULT

During the study period 5,120 women had delivered in this facility while 1,592 (31.1%) of them underwent CS. Eighty eight percent (n=1,402) of them were emergency CS while 12% were elective CS (n=190). The women who underwent caesarean section ranged from 15 to 49 years while majority of them (n=719, 70.3%) were between 20-29 years [Table-1].

Table-1: Distribution according to the age (n=1592)

Age in years	Number	Percentage
15-19	124	7.8
20-24	578	36.3
25-29	541	34.0
30-34	220	13.8
35-39	105	6.6
40-44	22	1.4
≥45	2	0.1

Around half of caesarean section occurred in primigravida (n=796) while 55.5% of women (n=884) who underwent CS were nulliparous [Table-2].

Table-2: Distribution according to Gravidity and Parity (n=1592)

Gravidity or Parity	Frequency by Gravidity (%)	Frequency by Parity (%)
0	NA	884 (55.5)
1	796 (50)	498 (31.3)
2	499 (31.3)	151 (9.5)
3	200 (12.6)	36 (2.3)
4	64 (4)	8 (0.5)
≥5	33 (2.1)	15 (0.9)

Majority of women (n=1420, 89%) underwent caesarean section at 37 to 42 gestational weeks of gestation while 0.6% underwent CS (n=10) at less than 30 weeks of gestation [Table-3].

Table-3: Distribution by gestational age (n=1592)

Gestational age in weeks	Number (%)
<30	10 (0.6)
31-33	31 (1.9)
34-36	95 (6.0)
37-39	769 (48.3)
40-42	651 (40.9)
>42	36 (2.3)

The commonest indications of caesarean delivery were fetal distress (n=497, 31.5%), previous caesarean section (n=313, 19.7%), cephalo-pelvic disproportion (n=214, 13.4%) and abnormal presentation (n=133, 7.9%) respectively. The other indication of CS include extreme maternal age, short stature, obesity, bad obstetric history, Diabetes, pregnancy after sub-fertility treatment, multiple medical complications, history of 3rd and 4th degree perineal tear, reduced fetal movement and fetal macrosomia [Table-4].

Table-4: Indications of caesarean delivery (n=1592)

Indication	Number	Percentage
Fetal distress	497	31.5
Previous caesarean section	313	19.7
Cephalo-pelvic disproportion	214	13.4
Abnormal presentation	133	7.9
Abnormal liquor volume	97	6.1
Non reassuring CTG	76	4.8
Hypertensive disorder	68	4.3

Indication	Number	Percentage
Non-progress of labor	42	2.6
Failed induction of labor	38	2.4
APH	33	2.1
IUGR	9	0.6
Twin	9	0.6
Others	58	3.6

Majority of repeat caesarean sections were done for refusal to attempt vaginal delivery (n= 105, 33.4%), followed by post-dated pregnancy (n=40, 12.8%) and advanced maternal age (n=38, 12.1%) respectively [Table-5].

Table-5: Indication of repeat caesarean section (n=313)

Indication	Number	Percentage
Refused VBAC	105	33.4
Post dated pregnancy	40	12.8
Advanced maternal age	38	12.1
Previous 2 caesarean section	20	6.4
Medical complications	18	5.8
Scar tenderness	16	5.1
PPROM	16	5.1
Oligohydrnios	15	4.8
Breech presentation	12	3.8
Non-reassuring CTG	10	3.2
Short spacing	9	2.9
BOH	6	2.0
Fetal distress	6	2.0
Twin	2	0.6

DISCUSSION

The incidence of caesarean section in this study is 31.1% which is higher compared to the WHO recommendation.¹ However, it is similar to the incidence in USA (32.2%) as reported by National Center for Health Statistics.² Within the country, other studies had much higher CS rates than this study ranging from 45.8% to 63%.^{1,8,9} However, it is higher than the finding of Okhaldhunga Community Hospital (9.5%) and Mid-Western Regional hospital (18.8%).^{6,7} Compared to other countries, it is more than in Ethiopia (27.6%) and Libya (23.2%) but less than India (56%).^{4,11,15} Such difference may be due to difference in the referred in cases with multiple medical complications, department's policies regarding management of

cases like dystocia, breech, fetal distress, reduced fetal movement, previous CS, medico-legal aspect and maternal choice.

The elective CS rate of 12% (n-190) is lower than in studies done by Dhakal et al (17%) and Prasad et al (23.4 %).^{7,8} In Ethiopia, the incidence of primary CS was 68.7% and elective CS was 9.6% which is comparable to this study.⁴ Eljzahaf et al observed that the incidence of elective CS was 23.3% in Libya whereas Pandya et al reported its incidence in India to be 42.8%.^{11,16}

Similar to this study majority of women who underwent CS belonged to 20-29 year age group in other studies (84%-70.5%).^{4,7,17} Pradhan et al and Prasad et al reported that majority of women (44.4%, 42.8% respectively) belonged to 25-29 years.^{1,7} In contrast, Eljzahaf et al found that the 46.6% women belonged to 30-40 years age group.⁸ As in this study similar higher incidence of CS (55%) was seen in nullipara in studies done by Samdal et al, Pradhan et al, and Dhakal et al (59.3%,65% and 88.5% respectively).^{1,6,7} Majority of the women (89.2%) had CS at term which is similar to other studies.^{4,8,17}

Highest number of CS was performed for fetal distress (31.5%) in this study which is similar to other studies (40.2%, 20.7% and 19.5% respectively).^{1,7,8} However, in other studies it was the second leading cause.^{4,6,11,17} Previous CS is second leading indication in this study (19.7%) which is similar to the findings of Moges et al and Dhakal et al.^{4,7} In contrast to this, Mascarello et al, Pandya et al and Badge et al found it to be the first leading indication for CS^{12,15,16} In this study, CPD is the third most common indication of CS (13.4%) which is comparable to the findings of Prasad et al (10.8%).⁸ In contrast, Moges et al reported very high incidence (38.1%) of CPD in Ethiopia.⁴ Abnormal presentation is the fourth commonest indication (7.9%) for CS in this study. Similar observation (8.5%) was also reported by Prasad et al at Kathmandu Medical College.⁸ In contrast to this, Dhakal and Samdal et al reported its higher incidence in their studies (15.8% and 25.3% respectively).^{6,7} Leitch et al also observed that number of CS has been raised for breech presentation in both in primigravida and multiparous women.¹⁸

CONCLUSIONS

In this study, higher incidence of caesarean section may be mainly due to the referral of complicated cases from the periphery of the country. As fifty percent of women in this study were primigravida, there may be more caesarean sections in future because of prior

caesarean delivery. Along with this there can be more complications in future related with uterine scar, like abnormal placentation, haemorrhage, uterine rupture, scar pregnancy, peripartum hysterectomy as well as increased maternal and perinatal mortality.

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