Cesarean Delivery and its Indication: A Cross Sectional Study in a Tertiary Care Hospital, Pokhara, Nepal

Singh D[1], Regmi RP[1], Gurung T[1], Sunar L[1]
[1]Department of Obstetrics and Gynaecology, Pokhara Academy of Health Sciences, Western Regional Hospital, Pokhara, Nepal
Received: *5-Nov-2017;* **Accepted:** *15 Dec-2017*

Aims: This is to find out proportion and indication of cesarean section.

Methods: It is a retrospective cross sectional study on cesarean sections at Western Regional Hospital Pokhara from August to October 2017. Data collected on a structured observational checklist and analyzed at alfa less than 0.05.

Results: Out of 2250 deliveries 562 (25%) were cesarean delivery with the indication of cephalopelvic disproportion (32.21%) followed by previous scar (21.88%) and fetal distress (13.87%).

Conclusions: Every one in four underwent cesarean section due mainly to cephalopelvic disproportion, previous uterine scar and fetal distress. There was no partograph in routine practice.

Keywords: cesarean section, emergency, indications

DOI: 10.3126/njog.v12i2.19960

INTRODUCTION

Cesarean delivery is defined as the delivery of a fetus by surgical incisions through the abdominal wall (laparatomy) ande uterine wall (hysterotomy). Emergency cesarean delivery is defined as the one that is done in an emergency situation either for maternal or fetal indications. Planned cesarean delivery is defined as those done prior to onset of labor and with prior planning and preparation. Previously it was said that "once a cesarean always a hospital delivery, twice a cesarean always a caesarean". Nowadays "once a ceasarean always a cesarean" is gradually becoming a obstetric norm.[1] This has led to the rapid increase in the cesarean delivery rate globally over the past three decades.[2]

Since 1985, the international healthcare community stated the ideal rate of cesarean delivery between 10-15%. About 20 million of cesarean delivery is performed annually making it the most frequently performed surgical operation in the adult females worldwide.[3] Since 1970s, there is a rapid increase in the cesarean delivery rate in most of the developed countries.[4,5,6] In England, it has increased from 9%in 1980 to 24.6% in 2008-2009.[7,8,9] There is rapid increase in cesarean delivery rate in United States also from 20.7% in 1996 to 32.2% in 2014 without subsequent decrease in the maternal and neonatal morbidity and mortality, thus indicating it as overused.[10,11]

A study in BPKIHS revealed a cesarean delivery rate of 28.6% in 2006 and 33.7% in 2017.[12] Pokhara Academy of Health Science, Western Regional Hospital is the regional hospital and the largest referral site in the western part of Nepal. There are 110 beds in the Department of Obstetrics and Gynaecology with delivery rate of 9000-10000 annually. The cesarean delivery rate in last consecutive three years since 2014 was 24.3%, 24% and 33%.

Increasing maternal age at first pregnancy, previous cesarean section, safety of the procedure, cesarean delivery on maternal request are the common reasons for the rapid increase in cesarean delivery.[13,14] In 85% of cesarean delivery, the common indications are previous cesarean section, breech presentation, labor dystocia and fetal distress.[15]

Cesarean delivery is mainly done for maternal and fetal indications. But recently, in the developing countries, private health sector has also played a prominent role in the rapid increase in the cesarean delivery rate in an educated and upper class group.[16]

WHO recommended that cesarean delivery rate above 15% is not associated with additional decrease in both maternal and neonatal morbidity and mortality.

CORRESPONDENCE

Dr Dela Singh,
Western Regional Hospital, Pokhara, Nepal.
Phone: +977-9846022302
Email: drdelasingh@gmail.com

This study aims to look into the different indications of cesarean delivery and probe into the reasons of alarming rise in its rate and to identify the measures to decrease its rate.

METHODS

This is a retrospective cross sectional study from medical records at western Regional Hospital Pokhara for 3 months from August to October 2017. A total of 562 cesarean sections were taken by excluding uterine rupture. Data were collected on structured checklist and analyzed from MS Excel and SPSS 22 with α=0.05.

RESULTS

There were 562 (25%) cesarean sections out of 2250 deliveries with 386 (69%) emergency and 176 (31%) planned surgeries (Figure 1).

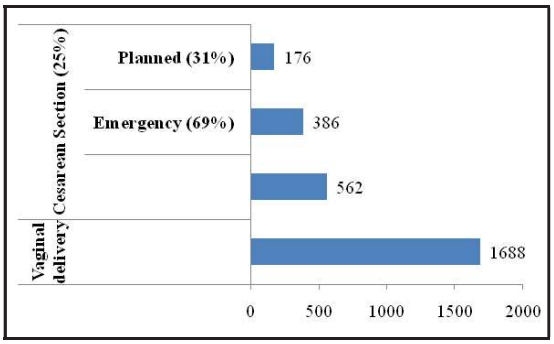

Figure-1. Mode and type of deliveries (n=2250)

The highest rate of emergency CS was observed in the age group 20-24 years (41%) for emergency and 25-29 years (37%) for planned surgery. Proportion of emergency CS was more on women from rural area whereas planned CS were more to urban women (Table 1).

Table 1. Demographic parameters of cases

Details	n (%)	Planned (%)	Emergency (%)
Age in year (mean±SD):			
13-19 (18.08±0.82)	37 (6.58)	14 (7.95)	23 (5.96)
20-24 (22.34±1.24)	204 (36.29)	46 (26.14)	158 (40.93)
25-29 (26.76±1.41)	202 (35.94)	65 (36.93)	137 (35.49)
30-34 (31.41±1.48)	90 (16.01)	38 (21.59)	52 (13.47)
≥35 (36.65±1.73)	29 (5.16)	13 (7.39)	16 (4.15)
Ethnicity:			
Dalit	85 (15.12)	29 (16.48)	56 (14.51)
Janajati	140 (24.91)	41 (23.30)	99 (25.65)
Brahmin/Chettri	282 (50.17)	91 (51.70)	191 (49.48)
Madeshi	12 (2.13)	4 (2.27)	8 (2.07)
Muslim	10 (1.77)	4 (2.27)	6 (1.55)
Others	33 (5.87)	7 (3.98)	26 (6.74)
Education:			
Illiterate	54 (9.60)	13 (7.39)	41 (10.62)
Primary	32 (5.69)	15 (8.52)	17 (4.40)
Secondary	95 (16.90)	29 (16.48)	66 (17.10)
Intermediate	245 (43.59)	95 (53.98)	150 (38.86)
Bachelor	113 (20.10)	17 (9.66)	96 (24.87)
Doctorate	23 (4.09)	7 (3.98)	16 (4.15)
Address:			
Urban	197 (35.05)	101 (57.39)	96 (24.87)
Rural	365 (64.94)	75 (42.61)	290 (75.13)
Parity:			
Primi gravida	248 (44.12)	44 (25.00)	204 (52.85)
Multi gravida	314 (55.87)	132 (75.00)	182 (47.15)
Antenatal care:			
Booked	253 (45.01)	97 (55.11)	156 (40.41)
Un-booked	309 (54.98)	79 (44.89)	230 (59.59)
Total	562	176	386

Past uterine scar was the most common indication and significantly higher for planned surgery followed by cephalopelvic disproportion whereas it is the third indication in emergency. Surgical indication as oligohydramnios was found significantly higher in emergency CS (Table 2).

Table 2. Indication of cesarean section

Details	n (%)	Planned (%)	Emergency(%)	P value
CPD	181 (32.21)	62 (35.23)	119 (30.83)	0.300717
Fetal distress	78 (13.87)	-	78 (20.21)	-
Previous LSCS	123 (21.88)	68 (38.64)	55 (14.25)	0.00000
PIH	13 (2.30)	4 (2.27)	9 (2.33)	0.96565
Oligohydraminos	54 (9.60)	8 (4.55)	46 (11.92)	0.005957
Breech	38 (6.76)	9 (5.11)	29 (7.51)	0.29343
IUGR	4 (0.71)	4 (2.27)	-	-
Failed induction	46 (8.18)	10 (5.68)	36 (9.33)	0.143817
Polyhydraminos	1 (0.17)	-	1 (0.26)	-
BOH	5 (0.93)	5 (2.84)	-	-
Twin pregnancy	5 (0.93)	-	5 (1.30)	-
APH	14 (2.49)	6 (3.41)	8 (2.07)	0.34575
Total	562	176	386	

Fetal outcome on either group was not significantly different (Table 3).

Table 3. Fetal outcome

Gender	n (%)	Planned (%)	Emergency(%)	P value
Male	308 (54.80)	95 (53.98)	213 (55.19)	0.79024
Female	254 (45.19)	81 (46.02)	173 (44.81)	
Fetal weight				
<2.5	37 (6.58)	11 (6.25)	26 (6.73)	0.829492
2.5 - <4	505 (89.85)	157 (89.20)	348 (90.16)	0.729108
≥4	20 (3.55)	8 (4.55)	12 (3.11)	0.393872
Apgar score at 1min				
0-3	13 (2.31)	3 (1.70)	10 (2.60)	0.516906
4-6	281 (50.00)	83 (47.16)	198 (51.29)	0.363069
7-10	268 (47.68)	90 (51.14)	178 (46.11)	0.268913
Total	562	176	386	

DISCUSSION

There is a continuous rise in the rate of cesarean delivery globally and has become a concern and most debated topic in the obstetric world.[18,19]

The cesarean delivery during our study period of 3 months was around 25% with planned and emergency in 1:2 ratio (31%:69%). Similarly, a study done in tertiary care referral hospital in India[20] and South Korea[19] revealed even much higher CS rate of 34.4% and 40% respectively. But the observed CS rate in this study is much higher than that recommended by WHO which is 10-15%.[5] It could be because of referrals.

Surgical indication as cephalopelvic disproportion is surprisingly lower (3%) in a center at Pakistan than this study (32%).[21] This high rate of CS for CPD in our study could be because the partograph was not used routinely and most of the cases were decided in latent phase of labor.

Past uterine scar as the indication (21.88%) is comparable to the rate in another hospital (21.25%) in Nepal.[22] This high rate could be because of reluctance for giving a trial of labor for vaginal birth for fear of litigation because of scar dehiscence or because of patients preference. Similarly, a study done in Ethiopia showed that only one third of women with previous one CS were offered a option for vaginal delivery and they were more likely to have a repeat CS when compared with their counterparts.[23]

The third common indication in our study was fetal distress (13.87%) whereas it was 22.7% and 30.4% in two centers in Nepal[12] and Pakistan,[21] respectively. Antenatal coverage seems to be low as there were around 55% unbooked cases and 60% of unbooked had CS.

CS is planned for primigravida with breech at 39 weeks period of gestation unless they present in second stage of labour with an average size fetus and adequate pelvis. External cephalic version (ECV) is not done in our setup. Breech presentation (6.8%) is comparable to other studies (10%) as indication for CS. [22,24]

CONCLUSIONS

The propotion of CS in this study is higher than that recommended by WHO as 10-15%. The most common indication for cesarean delivery was cephalopelvic disproportion followed by previous scar and fetal distress. Partograph could be a help in reducing CS rate.

REFERENCES

1. Ethisham S, Hashmi HA. Determitants of caesarean section in a tertiary hospital. J Pak Med Assoc. 2014;64(10):1175-8.
2. Badakhsh M, Seifodd M, Khodakarami N, Gholami R, Moghimi S. Rise in cesarean section rate over a 30 year period in a public hospital in Tehran, Iran. Arch Iran Med. 2012;15(1):4-7.
3. Torloni M, Betran A, Mohotilla P, Scolaro E, Seuc A, Mazzoni A, et al. Do Italian families prefer cesarean section. BMC Pregnancy Childbirth. 2013;1:78.
4. Belizan JM, Althabe F, Barros FC, Alexander S. Rates and indications of cesarean sections in Latin America: ecological study. BMJ. 1999;319:1397-407.
5. World Health Organisation. Appropriate technology for birth. Lancet.1985;2:436-7.
6. Althabe F, Sosa C, Belizan JM, Gibbons L, Jacquerioz F, Bergel E. Cesarean section rates and maternal and neonatal mortality in low, medium and high income countries: an ecological study. Birth. 2006;33:270-7.
7. National Collaborating Centre for Women and Children's Health. National Institute for Clinical Excellence. 2004.
8. Paranjothy S, Frost C, Thomas J. How much variation in CS rates can be explained by case mix differences? BJOG. 2005;112:658-66.
9. Information Centre.NHS maternity statistics .England:2008-09.Department of Health.2009.
10. Centre for Disease Control and Prevention. Births-Method of Delivery. July 6.2016. [Available from: http://www.cdc.gov/nchs/fastats/delivery.htm. Accessed: Sep 22, 2016].
11. CDC NCHS data brief. Centre for Disease Control and Prevention. [Available from:www.cdc.gov/nchs/data/databriefs/db 35.htm. Acessed:May 7,2010].
12. Chettri S. Cesarean section: it's rates and indications at a tertiary referral centre in Eastern Nepal. 2011;9(3):179-83.
13. Porreco RP, Thorp JA. The cesarean birth epidemic: trends, causes and solutions. Am J Obstet Gynecol. 1996;175:369-74.
14. Churchill H. Savage W, Francome C. Cesarean birth in Britain.2nd ed Middlesex University Press. 2006.
15. Notzon FC, Cnattingius, Bergsjo P. Cesarean section delivery in the 1980s: international comparisons by indications. Am J Obstet Gynecol.1994;170(2):495-504.
16. Naeem M, Khan MZ, Abbas SH, Khan A, Adil M, Khan MU. Rate and indications of elective and emergency cesarean section: a study in a tertiary care hospital of Peshawar. J Ayub Med Coll. 2015;27(1):151-4.
17. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willian AR. Planned ceaserean section versus planned vaginal birth for breech presentation at term: a randomized multicenter trial. Term Breech Trial Collaborative Group. Lancet. 2000;356(9239):137-83.
18. Tampakoudis P, Assimakopoulos E, Grimbizis G, Zafrakas M, Tampakoudis G, Mantalenakis S, et al. Cesarean section rates and indications in Greece: data from 24 year period in a teaching hospital. Clin Exp Obstet Gynecol. 2004;31:289-92.
19. Lee SI, Khang YH, Lee MS. Women attitude towards mode of delivery in South Korea: A society with high cesarean section rates. Birth. 2004;31(2);108-16.
20. Bhargava S, Hooja N, Aseri S, Sharma A, Kumawat B, Sihag SC. Analysis of Cesarean Sections in a Tertiary Care Hospital: According to Robson's 10-group Classification. JSAFOG. 2017;1:17-9.
21. Sultana A, Faisal M, Iqbal R, Javaid K, Khalid MB, Khalid MA. Indications of Emergency versus Elective Cesarean Section: Cross-sectional Study done at Holy Family Hospital, Rawalpindi, Pakistan. JSAFOG. 2017;1:9-12.
22. Subedi S. Rising Rate of Cesarean Section-A Year Review. Journal of Nobel Medical College. 2012;1(2):72-6.
23. Abebe FE, Gebeyehu AW, Kidane AN, Eyassu GA. Factors leading to cesarean section delivery at Felegehiwot referral hospital, Northwest Ethopia: a retrospective record review. Reprod Health. 2016;13(1):6.
24. Wilkinson C, Mcllwaine G, Boulton-Jones C, Cole S. Is a rising cesarean section rate inevitable? BJOG.1998;105(1):45-52.