Frequency and Indications of Primary Cesarean Section

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ABSTRACT

Objective — *To determine the frequency and indications of primary cesarean section among women presenting to a tertiary care hospital.*

Study design — *Cross sectional study.*

Place & Duration of study — *Department of Obstetrics and Gynecology Unit II, Dow University of Health Sciences Karachi, from January 2018 to June 2018.*

Methodology — *Data collection was started after taking an approval from the REU of College of Physicians & Surgeons Pakistan. Women, irrespective of age and parity were enrolled after taking an informed consent. Women with previous history of uterine surgeries like myomectomy and diagnosed case of placenta previa were excluded. Brief history was taken and examination was done. Demographic details of participants and indications of cesarean section were noted on self design questionnaire. Data were analyzed on SPSS version 20.*

Results — *The mean age of the women was 25.84±4.42 year. Frequency of primary cesarean section was 34.38% (55/160). Breech presentation was the most frequent indication of primary cesarean section while prolonged labor, meconium staining, fetal distress and twin pregnancy were other reasons.*

Conclusion — *Frequency of primary caesarean section was 34.38% and breech presentation was found as a significant indication of primary cesarean section.*

Key words — *Primary cesarean section, Maternal death, Breech presentation.*

INTRODUCTION:

Cesarean delivery has a higher rate of maternal complications than the vaginal delivery. Risk of uterine rupture, placenta accreta, hemorrhage, hysterectomy and maternal death is also increased in subsequent pregnancies with cesarean delivery. The primary cesarean rate is defined as the percentage of cesarean deliveries out of all births to women who have not had a previous cesarean delivery. Similar to the total cesarean rate, the rate of primary cesarean section has also increased. In 1996, the United States primary cesarean rate was 14.5%, in 2007 it reached 23.4%, an increase of more than 60%.[1]

Community and patients should be educated and made aware about the increase risk of maternal morbidity and mortality with the primary cesarean delivery. The risk of re-hospitalization due to surgical site infection is greater in women with cesarean birth and the cost of treatment of cesarean related surgical site infection is in millions of dollars. It is important for the patients to recognize risk factors that can lead to an increase risk for primary cesarean section.[2]

Over the last several years, the rate of cesarean section (C-section) has dramatically increased worldwide.[3] The rate of cesarean section has

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increased in many European and developing countries from 13% to 25%.[4] In Iran the national study of multiple indicators of health and population in the year 2010 has reported that the rate of cesarean section was 35% of all deliveries in year 2000.[5] The causes of increased frequency of C-section are not completely known. It has been shown that 50% of nulliparous women, and more than 25% of women aged over 30 years had C-sections. In addition, more than 85% of breech presentations terminated with the cesarean section.[6-8]

The purpose of this study was to determine the frequency and indications of first time cesarean section. The indications of first cesarean section remained uncertain. Due to rising trends of increasing cesarean rates in primigravida it is important to study the subject. This study provides local data to develop guidelines for appropriate use of cesarean section.

METHODOLOGY:

This cross Sectional study was conducted at the Department of Obstetrics and Gynecology Unit II, DUHS, Civil Hospital Karachi, from January 2018 to June 2018. Data collection started after taking an approval from REU of College of Physicians & Surgeons Pakistan. Women, irrespective of age and parity, were enrolled after taking an informed consent. Women with previous history of uterine surgeries, and diagnosed cases of placenta previa were excluded.

Demographic details of participants and indications of cesarean section were noted on a form. Data were analyzed by SPSS version 20. Mean and standard deviation was calculated for age, gestational age, height, weight and BMI. Frequency and percentage was calculated for parity, primary cesarean section, prolonged labor, meconium staining, fetal distress, breech presentation, twin pregnancy, socio economic status and educational status. Stratification with respect to age, gestational age, parity, socio economic status, income status and BMI was done. Post stratification Chi-square test was applied. P-value less than or equal to 0.05 was taken as significant.

RESULTS:

A total of 160 pregnant women underwent cesarean section during the study period. The mean age of the women was 25.84±4.42 year. Mean gestational age, weight, height and BMI of the women are given in table I. Of the total 88 (55%) of the women were nulliparous, 42 (26.3%) primiparous and 30 (18.85%) multiparous. Education and socio economic status of the women are presented in table II.

Frequency of primary cesarean section was 34.38% (55/160). Prolonged labor, meconium staining and fetal distress were the commonest indications of cesarean section as shown in table III. Breech presentation was significant indication of primary cesarean section while others were not. Stratification of confounding variables is presented in table IV. Influence of parity was observed while age, gestational age, BMI, socio economic status and education status were not associated with primary cesarean section.

DISCUSSION:

The causes of increased frequency of C-section are not completely known. It has been shown that 50% of nulliparous women, and more than 25% of women aged over 30 years had C-sections. Moreover, more than 85% of breech presentations terminated with the C-section.[9] Worldwide there are several causes for the rise in the C-section rates. Number of methods can be used to prevent this trend. There are studies that report maternal benefits of the cesarean sections.[10]

In present study the mean age of the women was 25.84±4.42 years and 55% were nulliparous. In Najarkolaei et al study the mean age of the participants was 27.7±4.67 year.[11] In our study frequency of primary cesarean section was 34.38%.

Table I: Descriptive Statistics of Characteristics of Patients

Variables	Mean	Std. Deviation	95% Confidence Interval for Mean	
			Lower Bound	Upper Bound
Age (Years)	25.84	4.42	25.15	26.53
Gestational Age (Weeks)	37.72	0.75	37.60	37.84
Weight (kg)	62.76	7.12	61.65	63.88
Height (cm)	152.13	5.12	151.32	152.9
BMI (kg/m^2)	27.12	2.84	26.67	27.56

Table II: Socio Demographic Variables

Variables	n=160	Percentage (%)
Parity		
Nulliparous	88	55.0%
Primiparous	42	26.3%
Multiparous	30	18.8%
Education		
Illiterate	47	29.38%
Primary and secondary	48	30.00%
Matric and intermediate	37	23.13%
Graduate and above	28	17.80%
Socioeconomic (Rupees)		
<20000	119	74.38%
21000-50000	26	16.25%
>50000	15	9.38%

Table III: Indication of Primary Cesarean Section

Variables	Primary Cesarean Section		P-Value
	Yes (n=55)	No (n=105)	
Prolong Labor	16 (29.1%)	42 (40%)	0.173
Meconium Staining	11 (20%)	35 (33.3%)	0.077
Fetal Distress	14 (25.5%)	15 (14.3%)	0.082
Breech Presentation	11 (20%)	7 (6.7%)	0.011
Twin Pregnancy	3 (5.5%)	6 (5.7%)	0.764

Breech presentation was the only significant indication of primary cesarean section. A study conducted in Iran reported prolonged labor as a reason for cesarean section in 35.2% cases and breech presentation in 9.3% cases.[8] Kolas et al investigated the indications for cesarean deliveries in Norway. Fetal distress was noted in 21.9%, failure to progress in 20.7%, and breech presentation >34 weeks of gestation in 8.4% cases. Of the total deliveries in that study 64.3% were emergency operations.[12]

Meconium staining of the amniotic fluid is a common complication during labor. The second cause for the caesarean section in our study was meconium staining. Meconium-stained liquor during labor affects 5%–25% of all deliveries.[13] When facilities like electronic monitoring are available for women in labor, it is not difficult to decide whether labor should be allowed to continue or cesarean section be performed. However, even when cesarean section is performed, meconium aspiration syndrome (MAS) can occur and cause considerable morbidity and mortality in newborn.

The third common reason for the first cesarean section in our study was fetal distress. Monitoring is a part of routine care of women in labor especially for high risk pregnancies. There is a possibility of over diagnosing the fetal distress leading to unnecessary C-sections with fetal indication.

Intrapartum hypoxia complicates about 1% of labors and results in death in about 0.5 in 1000 pregnancies and cerebral palsy in 1 in 1000 pregnancies.[14] Uteroplacental vascular disease, reduced uterine perfusion, fetal sepsis, reduced fetal reserves, and cord compression are among multifactorial causes of intrapartum hypoxia.[15] The clinicians should expedite delivery when the diagnosis of fetal distress is made as the severity of hypoxia is unpredictable.

CONCLUSIONS:

Frequency of primary caesarean section was 34.38%. Prolonged labor, meconium staining and fetal distress were the common indications of

Table IV: Frequency of Primary Cesarean Section With Respect To Stratified Variables (n= 160)

Stratified Variables	Primary Cesarean Section		Total	P-Value
	Yes	No		
Age groups				0.289
= 20 Years	8(44.4%)	10(55.6%)	18	
21 to 25 Years	27(39.7%)	41(60.3%)	68	
26 to 30 Years	13(25%)	39(75%)	52	
>30 Years	7(31.8%)	15(68.2%)	22	
Gestational Age (Weeks)				0.987
37 to 38	46(34.3%)	88(65.7%)	134	
>38	9(34.6%)	17(65.4%)	26	
BMI (kg/m^2)				0.628
<26	21(36.2%)	37(63.8%)	58	
26.1 to 29.9	26(31.3%)	57(68.7%)	83	
>30	8(42.1%)	11(57.9%)	19	
Parity				0.004
Nulli	40 (45.5%)	48 (543.5%)	88	
Primi	10 (23.8%)	32 (76.2%)	42	
Multi	5 (16.7%)	25 (83.3%)	30	
Socio economic (Rupees)				0.079
<20,000	42 (35.3%)	77 (64.7%)	119	
21,000 to 50,000	5 (19.2%)	21(80.8%)	26	
>50,000	8 (53.3%)	7 (46.7%)	15	
Education				0.711
Illiterate	17 (36.2%)	30(63.8%)	47	
Primary and Secondary	18 (37.5%)	30(62.5%)	48	
Metric and Inter	13 (35.1%)	24(64.9%)	37	
Graduation and above	7 (25%)	21(75%)	28	

cesarean section and breech presentation was found as significant indication of primary cesarean section.

DISCLOSURE:

This is a dissertation based article.

REFERENCES:

1. Boyle A, Uma MR, HJ, Huang CC, RW, KS. Primary cesarean ddelivery in the United States. Obstet Gynecol. 2013;122:33-40.

2. Brown HL. Informing the patient and the community about the implications of primary cesarean. Semin Perinatol. 2012;36:403-6.

3. Haider G, Zehra N, Munir AA, Haider A. Frequency and indications of cesarean section in a tertiary care hospital. Pak J Med Sci. 2009;25:791-6.

4. Hafeez M, Yasin A, Badar N, Pasha MI, Akram N, Gulzar B. Prevalence and

indications of caesarean section in a teaching hospital. JIMSA. 2014;27:15-6.

5. Lui T, Chen C, Lin H. Does elective cesarean section increase utilization of postpartum maternal medical care? Med Care. 2008;46:440-3.

6. Mohammadbeigi A, Tabatabaee HR, Salehi M, Yazdani N. Factors influencing cesarean delivery method in Shiraz hospital. Iran J Nurs. 2009;21:37-45.

7. Yvangi M, Sohrabi MR, Alishahi Tabriz A. Effect of Iranian Ministry of Health protocols on cesarean section rate: A quasi-experimental study. J Res Health Sci. 2013;3:48-52.

8. Shakeri M, Mazloomzadeh S, Mohammadian F. Factors affecting the rate of cesarean section in Zanjan maternity hospital in 2008. J Zanjan Uni Med Sci. 2012;20:91-104.

9. Taffel SM, Placek PJ, Moien M, Kosary CL. 1989 US cesarean section rate studies. VBAC rises to a nearly one in five. Birth. 1991;18:73-7.

10. National Institutes of Health. State of the Science Conference Statement. Cesarean delivery on maternal request March 27-29, 2006. Obstet Gynecol. 2006;107:1386-97.

11. Rahmati-Najarkolaei F, Eshraghi T, Dopeykar N, Mehdizadeh P. Influencing factors to delivery selection in pregnant women; a case study in Tehran. J Health Policy Sust Health. 2014;1:85-8.

12. Kolas T, Hofoss D, Daltveit AK, Nilsen ST, Henriksen T, Hager R, et al. Indications for cesarean deliveries in Norway. Am J Obstet Gynecol. 2003;188:864-70.

13. Sasikala A, Raghavan S, Mishra N, Khatoon S, Bupathy A, Rani R. Perinatal outcome in relation to mode of delivery in meconium stained amniotic fluid. Indian J Pediatr. 1995;62:63-7.

14. Gaffney G, Sellers S, Flavell V, Squier M, Johnson A. A case control study of intrapartum care, cerebral palsy, and perinatal death. BMJ. 1994;308:74350.

15. James D. Caesarean section for fetal distress. The 30 minute yardstick is in danger of becoming a rod for our backs. BMJ. 2001;322:1316-7.

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Rabia Jamil: Conceived the idea, helped in synopsis and discussion writing and data analysis.
Lubna Ali: Helped in discussion writing.
Fiza Ali Khan: Helped in data collection and data analysis.

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