JRMI
Journal of Rehman Medical Institute

Volume 4, No. 2
April - June 2018
www.jrmi.pk

ORIGINAL ARTICLE

Trends of normal delivery versus caesarian section, its common types & indications in a tertiary care hospital of Peshawar, Pakistan

Muhammad Shah Fahad, Omer Nasim, Sikander Zai, Muhammad Daud Khalil, Zainab Rustam, Fatima Afaq Banoori

Submitted
March 16, 2018
Accepted
April 25, 2018

Author Information
From: Rehman Medical Institute (RMI), Peshawar, Khyber Pakhtunkhwa, Pakistan.

Dr. Muhammad Shah Fahad
House Officer
(Corresponding Author)
Email:
shah.fahad-12@rmi.edu.pk

Dr. Omer Nasim
House Officer

Dr. Sikander Zai
House Officer

Dr. Muhammad Daud Khalil
House Officer

Ms Zainab Rustam
Third Year MBBS student,
Rehman Medical College,
Peshawar

Ms Fatima Afaq Banoori
Final Year MBBS student,
Rehman Medical College,
Peshawar

Citation: Fahad MS, Nasim O, Zai S, Khalil MD, Rustam Z, Banoori FA. Trends of normal delivery versus Caesarian section, its common types & indications in a tertiary care hospital of Peshawar, Pakistan. J Rehman Med Inst. 2018 Apr-Jun;4(2):12-5.

ABSTRACT

Introduction: Rising Caesarean section (C-section) rates create likelihood of negative impact on mother and fetal health. In some countries, C-section procedures are done more regularly than is medically required.

Objectives: To document trends in Cesarean Section versus Normal Deliveries, its common indications, and to determine the frequency of females opting for a C-section procedure.

Materials & Methods: An observational cross-sectional study was conducted in the Obstetrics and Gynecology Department of Rehman Medical Institute (RMI) Peshawar, from January to June 2016 based on retrospective data (January 2011 to December 2015) collected through systematic sampling on women admitted for normal and caesarean deliveries to RMI. Data were collected through a structured Performa and analyzed in SPSS 21 for descriptive statistics.

Results: In total 5142, live births, 2579(50.1%) were delivered by C-section at Rehman Medical Institute from January 2011 to December 2015. Primary cesarean deliveries accounted for 56.7% of the increase in the cesarean delivery rate from 2011-15. Based on 300 samples collected through systematic sampling, among the top five indications were dystocia 131(43.6%), cord around the neck 53(18.9%), fetal distress 30(10.7%), malpresentation 26(9.3%), and maternal comorbidities 20(6.6%). Only 2.7% of the C-sections were performed on maternal request.

Conclusion: Primary cesarean deliveries contribute to increasing C-section rates in a tertiary care hospital setup, in relation to specifically identifiable maternal and fetal indications.

Keywords: Delivery, Obstetric; Cesarean Section; Dystocia; Fetal Distress.

The authors declared no conflict of interest. All authors contributed substantially to the planning of research, data collection, data analysis, and write-up of the article, and agreed to be accountable for all aspects of the work.

INTRODUCTION

Caesarian Section (CS), generally known as C-section, is a surgical procedure in which an incision is made over the abdomen to deliver one or more babies from the uterus. It is usually performed when a normal vaginal delivery might put the mother's or baby's life or health in danger.[1] The WHO recommended that C-section should be considered merely on a medical need[2] or when condition markedly requires it.[3] But at present, this method has become a means of fleeing from labour pain. People have a common faith that C-section is safer, less agonizing and healthier than vaginal delivery.[4] However like all surgeries, C-sections are associated with complications in short term and future pregnancies.

In 2007, around 1.4 million women had a C-section, accounting for 32% of all births, the highest rate noted in United States history and an increased rate compared to majority of other developed countries.[5] Around 23 million caesarian sections were carried out globally in 2012.[6] In the developed world who are at minimum risk, the risk of dying from C-section is 13 per 100,000 compared to vaginal delivery (3.5).[7] Women having a previous C-section would have more chances of difficulties with their second birth.[7]

The international healthcare community has considered the optimal rate for C-section should be in between 10% to 15%.[8] In Pakistan, maternal healthcare is not that satisfying but in urban areas, the growing rate of caesarian deliveries is worrisome and is about 25%.[9] Reasons for this increase in the trend includes a decline in vaginal birth and rise of maternal request for opting a C-section.[10,11] In addition to medical rationale, for instance excessive birth weight, prematurity, breech birth, older age at first pregnancy, predilection in the absence of medical reasons[12,13] have assisted to the increased C-section rate[14] The WHO statement states that “Every effort should be made to provide CS to women in need, rather than striving to achieve a specific rate”, and based on the finding that compared to NVDs, the mortality rate associated with C-sections is 3 times higher,[15] it is

recommended to go against CS on maternal request. To reduce the rates of unnecessary C-section, where possible, WHO has guidelines and recommendation on non-clinical interventions.[16]

Some obstetricians even went all the way to suggest elective C-section as an admissible first choice procedure of delivery with normal pregnancy.[17] But the intervention should be evidence-based as mortality and morbidity due to unessential intervention could be highly dangerous.[18]

This study was conducted to find out trends of Normal Deliveries (ND) versus C-sections and physician documented common indications as well as to determine the frequency of females opting for a C-section procedure in a tertiary care hospital of Peshawar, KP, Pakistan.

MATERIALS & METHODS

An observational cross-sectional study was conducted in the Obstetrics and Gynecology Department of Rehman Medical Institute (RMI) Peshawar, from January to June 2016. After obtaining ethical approval, retrospective data were collected through systematic sampling using a check-list formatted sheet (Performa). The study population included women admitted for normal and caesarean deliveries in Obstetrics and Gynaecology Department, RMI, from January 2011 to December 2015. Included subjects were all women admitted for normal delivery and Cesarean section.

For each year primary and repeat C-section rates were calculated. The number of C-section deliveries were divided by total live births and C-section rates were determined.

Another sample of three hundred (300) women was collected separately from the total database through systematic random sampling to assess the type of Cesarean delivery (emergent or elective) and its common indications leading to C-section.

To examine the low-frequency indications, indications were merged into wide distinctive categories. The ultimate categories included Repeat C-section, Labour dystocia, Cord around the neck, Fetal distress, Maternal comorbidities, Preeclampsia/eclampsia, Malpresentation, Multiple gestations, Elective per maternal request, Abnormal amniotic fluid, Post-term pregnancy, Fetal conditions and Obstetrical Conditions.

Maternal indications were those that could intricate the delivery (e.g. tuberculosis, COPD, maternal hepatitis, HIV and cardiac disease). Fetal indications included antenatal difficulties prior to the intrapartum period (e.g. intra-uterine growth restriction and other fetal anomalies) Malpresentation denoted transverse lie, brow and breech presentations. Obstetric indications were those related to current intrauterine pregnancy (e.g. Placental Abruption, Accreta, Previa, and Cord Prolapse). Preeclampsia / Eclampsia were represented as a distinct category.

Statistical analysis was computed using SPSS software (version 21; SPSS, Chicago, IL, USA). For quantitative variables data were presented in the form of frequency and percentages plus graphical representation through charts. Significance level was demarcated as a two-tailed p-value ≤0.05.

RESULTS

In total 5142, live births, 2579 (50.1%) were delivered by C-section at Rehman Medical Institute from January 2011 up till December 2015. Primary cesarean deliveries accounted for 57.5% of the increase in the cesarean delivery rate from 2011-15.

Trends in Normal versus C-section deliveries were analyzed during the study period with regards to the total number of live births in the last five years preceding this period. (Figure 1).

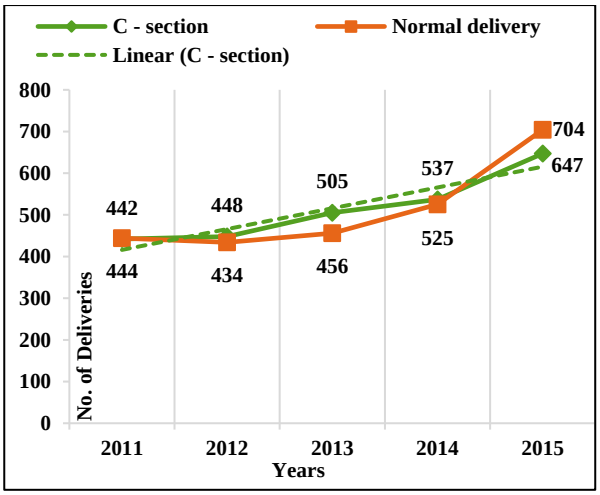

Figure 1: Normal and Cesarean deliveries trends 2011-2015. More cesareans were performed than normal deliveries in 2012-14 while in 2011 and 2015 it was reversed.

Trends in Cesarean section were investigated during the study period in regards to the total number of live births in the last five years before this period. (Figure 2).

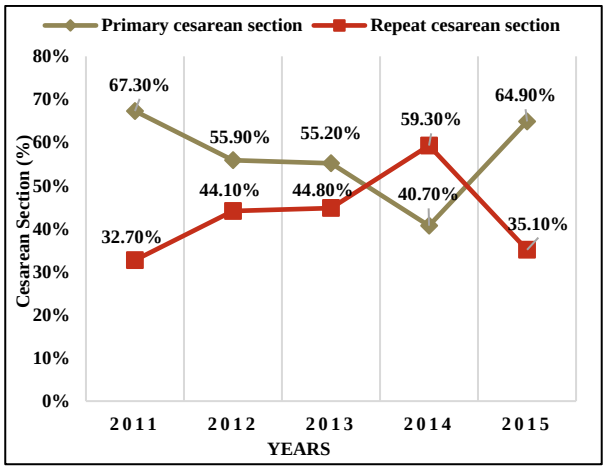

Figure 2: Percentages of primary and repeat C-sections from 2011-15. Primary cesarean delivery contributed to the overall increase in cesarean section.

Overall the primary cesarean births attributed 56.7% of the increase in C-section rate from 2011 up till the end of 2015. Moreover, the repeat C-section accounted for 43.2% of the total cesarean births from 2011-15.

In addition, we evaluated the common indications that contributed to the rise in the total C-section rate. Among the indications, labour dystocia had 131(43.6%) cases, cord around the necks 53(18.9%) cases, fetal distress 30(10.7%) cases,

malpresentation 26(9.3%) cases, maternal comorbidities 20(6.6%) cases, preeclampsia/eclampsia 7(2.3%) cases, abnormal amniotic fluid 6(2.1%) cases, multiple gestations, post-term pregnancy, fetal conditions, and obstetrical conditions each had 5(1.5%) cases. (Figure 3).

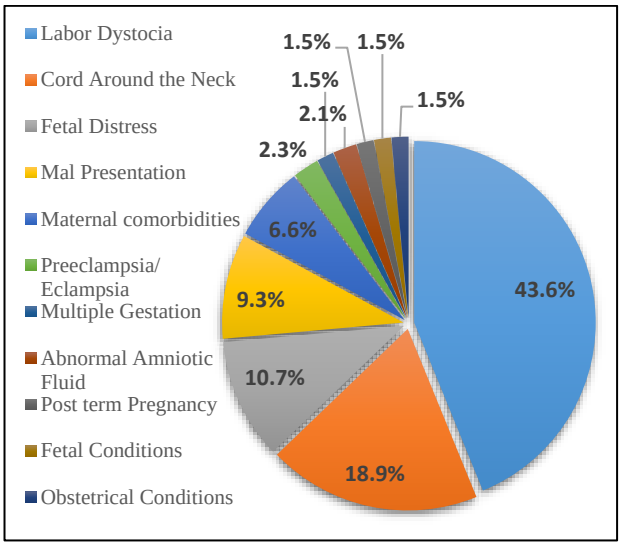

Figure 3: Percentages of indications attributed to the total increase in primary C-section from 2011-15.

Table 1 shows that the list of women with the highest percentage by age was among 26-30 years of age, followed by 21-25 years of age. Least percentage was of 41-45 years of age.

Women in the age bracket of 16-20 year had 26(8.7%) cases, 21-25 years had 96(32.0%) cases, 26-30 years had 113(37.7%) cases, 31-35 years had 46(15.3%) cases, 36-40 years had 15(5.0%) cases, and 41-45 years had 02(0.7%) cases. (Table 1).

Table 1: Cesarean Sections in different age groups of women.

Age Groups (Years)	Frequency	Percentage
16-20	26	8.7
21-25	96	32.0
26-30	113	37.7
31-35	46	15.3
36-40	15	5.0
41-45	02	0.7

Table 2 shows the higher incidence of elective cesarean section (57.3%) over emergency cesarean section (37.3%) which contributed to the overall increase in cesarean section. The cesarean section on maternal request was 2.7% while on doctor recommendation it was 97.3%. It also shows the ethnicity of the study population in which Pakistani ethnic women were more compared to Afghani origin.

In a common type of C-section, elective cesarean section had 172(57.3%) cases in comparison with emergency cesarean section which had 112(37.3%) cases and contributed to the overall increase in cesarean deliveries.

In view of the increase in CS rates, only 2.7% of the C-sections were performed on maternal request. Pakistani ethnic women were more compared to Afghani origin, Pakistanis having 286(95.3%) cases compared to Afghanistan 10(3.33%) cases. (Table 2).

Table 2: Type of Cesarean Section, opting for C-section and ethnicity

	Frequency	Percentage
Type of C-section		
Elective	172	57.3
Emergency	112	37.3
Missing	16	5.3
Opting for C-section		
Maternal request	08	2.7
Doctor's recommendation	292	97.3
Ethnicity		
Pakistanis	286	95.3
Afghanis	10	3.33

DISCUSSION

Rise in C-section rates is a global occurrence, and despite its technical proficiency, those who care for women's health are concerned because the increase has not provided improved pregnancy results. The high rate of C-section is concerning considering the short and long term complications it can have on health systems. It is important to look beyond WHO's recommendation of 10-15% and find rates that are considered justifiable by contributing to reduction in maternal morbidity such as post partum sepsis, third degree tears, obstructed labour, and perinatal morbidiy.[19]

A study at Jalandhar Punjab, India shows an increase in Cesarean section due to emergency cesarean delivery (52.31%) compared to elective which was 47.7%. In the present study elective cesarean deliveries were 57.3% and were more than emergency (37.3%) in contrast to the study mentioned above.[20]

Pettker M, et al[21] conducted a study at Yale-New Haven hospital, showing that 33.3% births were by Cesarean section; the study at RMI showed much higher (50.1%) births delivered by Cesarean section, indicating a trend of increasing cesarean deliveries at this tertiary care hospital. In the same article primary cesarean births accounted for 50% of the increasing cesarean rate, compared to 57.5% in the present study.

Another study from Peshawar based in a public sector hospital showed that Cesarean section rate was 13.62% of the total deliveries, with first cesarean section accounting for 70.13% and repeat Cesarean section being 29.87%.[22] This is in contrast to the present study at a private tertiary care hospital where CS was 50.1% of the total deliveries, with the first cesarean section accounting for 56.7% and repeat cesarean section being 43.3%. Although there is a stark difference between the rates of C-section in a public and private sector hospital, higher rate in RMI can be attributed to fact that people tend to visit private hospitals for better surgical care and complicated cases.

Caughey AB, et al[23] showed that indications for primary C-section were labour dystocia 34%, abnormal fetal heart tracing 23%, malpresentation 17%, multiple gestation 7%, and maternal request 3%. In the current study the indications were labor dystocia 43.6%, cord around the neck 18.9%, fetal distress

10.7%, malpresentation 9.3%, maternal comorbidities 6.6%, preeclampsia/ eclampsia 2.3%, abnormal amniotic fluid 2.1%, multiple gestation (1.5%) and maternal request 2.7%.

A Chinese study concluded the cesarean delivery rate as 41.4%,[24] compared to 50.1% in the present study; maternal request was 9.07% and about 8% in a study from Pakistan,[22] compared to the present 2.7%.

Factors recognized as drivers of high CS rates in private sector include economic pressure, financial incentives and private health insurance.[25] Request for C-section by expecting mothers due to fear of labour pain exacerbated by stories of birth experiences also play a role.[26,27]

LIMITATION

The data represent only one institution in Peshawar, and may not be generalizable to populations with different demographic and regional characteristics.

CONCLUSION

There is a gradual increase in primary Cesarean deliveries which can affect future pregnancies and their outcomes. The increase could possibility be attributed to differences in materal request or clinical decision making.

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