Original Article

High Cesarean Section Rate in Tertiary Care Hospital: Are we Justified?

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Abstract

Background: Rising cesarean section rate is a burning issue worldwide. In Pakistan, increase in cesarean section has occurred with the development of more delivery clinics and hospital in public as well as private sectors.

Objective: The aim of this study was to revisit the rising cesarean rate at a government sector as well as to evaluate the causes behind it.

Methodology: This was a cross-sectional study done in maternal and child Health (MCH) department of Pakistan Institute of Medical Sciences (PIMS) between December 2017 to February 2018. 660 pregnant women presenting for delivery in MCH Unit II through both outpatient department and Emergency department, undergoing cesarean section were included in the study. Data was obtained after obtaining informed consent and ethical approval.

Results: Cesarean section rate was calculated to be 40% with 33.3 % being elective and 66.7% being emergency cesarean section. Out of elective operations, repeat cesarean section accounted to be 59.1%, whereas mal-presentations accounted for 63.4% of all emergency cesarean sections.

Conclusion: The cesarean section rates are rising at an alarming speed. Whereas indications for cesarean section seem to be justified in the current situation, preventable measures and robust guidelines are warranted to manage preventable causes of cesarean sections in Pakistan. The government of Pakistan need to take measures to strengthen existing public health facilities as well as ensure that cesarean sections are performed based upon justified indications in both public and private sector health facilities.

Key Words: Cesarean section, Pregnancy, Cesarean Section/trends, Infant, Newborn.

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Introduction

Obstetrical care involves accurate judgement and timely decision to deliver the baby with regards to time, and mode of delivery. A cesarean section acts as a life-saving procedure indicated to save mother's as well as fetus' life.[1] However, being a major surgical procedure, it is not without its risks. Not only it prolongs the patient's postpartum recovery period as compared to vaginal delivery, but a cesarean section also impacts the long term obstetrical outcome and future mode of delivery.[2]

Although guidelines have been established regarding indication for cesarean section in various situations. However, it has been noted that cesarean section rates have increased drastically worldwide

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over the past decades especially in developing nations, in spite of lack of proof supporting significant maternal and perinatal advantages.[3] Multiple factors may be playing role behind this increase in cesarean sections rate all over the world. Apart for indicated reasons for cesarean section, maternal lifestyle, weight and co-morbidity along with attending physician's practices in terms of waiting for a normal vaginal delivery have been documented in various studies. Moreover, few studies have demonstrated a connection between expanding cesarean section rates and poor results. [4–8]

The World Health Organization have considered a cesarean section rate between 10 – 15 percent as an acceptable rate. [(9)]On the other hand, local studies have demonstrated cesarean section rates of Pakistan to be 39.2 percent. Keeping in view that the birth rate of Pakistan have fallen gradually from *43.8 per 1,000*people in 1967 to *28.2 per 1,000* people in 2016, the cesarean section rates have seemed to increase from lowest 28.3 percent in 2011 to 48.2 percent in 2017 in Gujrat alone.[10] Increasing Cesarean section rates also pose additional burden to health care setups with increase in duration of bed occupancy as well as hospital expenditure especially in government setups.

Time and again, multiple studies have been done to determine the cesarean section rates at various setups. Still it is time to revisit this topic with special reference to tertiary care hospital of Pakistan, as tertiary care hospital cesarean data will confer more clear status of rising rate of cesarean section. The aim of our study was to determine the latest cesarean section rate at a tertiary care hospital as well as to delineate various indications for cesarean section in order to justify them.

Methodology

This was a cross-sectional study done in maternal and child Health (MCH) department of Pakistan Institute of Medical Sciences (PIMS), Islamabad.

This study was conducted in MCH center between December 2017 to February 2018. After getting ethical approval from the ethical committee of the institution, approval letter from the concerned department and record rooms were sought. A non-probability purposive sampling technique was employed with inclusion of all pregnant women presenting for expected delivery at term in MCH Unit II through both outpatient department and Emergency department. Data was prospectively collected by researchers using a predesigned study proforma. The identity of each patient was kept confidential. Regular consistency checks ensured that any missing data was tracked by the researchers and entered into the data. Baseline characteristics on age, gravida, parity, and indication for cesarean section were collected.

Data was collected from the department regarding total number of deliveries occurring during the three months of study along with detailed outcome of each patient in terms of mode of delivery from the patients' archival record of the department. Outcome data on maternal and early neonatal morbidity and mortality were documented. Maternal death was defined as death of the mother during hospitalization. Early neonatal death was defined as death of the infant within 7 days of delivery. Cesarean section rates were calculated by dividing the total number of Cesarean section by the total number of expected deliveries at the center during the study time period. All obtained data was organized and analyzed through SPSS version 23.0. Continuous data like age were represented by Means $\pm$ Standard deviation and categorical data like parity, indications of cesarean sections were represented in frequency and proportions.

Results

Total 1651 women were delivered during the study period out of which 660 underwent cesarean section making cesarean section rate of 40%. Table I shows the demographic data of the participants recruited in the study. Mean age of the participants was 29.16 $\pm$ 5.6 years while 261 (39.5%) were between range of 25-29 years. There were 499 cesarean sections on unscarred uterus (75.6%) and 161on already scarred uterus (24.4%). There were 220 elective LSCS (33.3%) and 440 Emergency LSCS (66.7%) at MCH center. Regarding parity status, it was observed that 206 (31.2 %) were nulliparous women followed by 174 (26.3%) women being Para 1. There were 22 patients with high parity of 5 or more m accounting for 3 % of the total participants. Out of 660 participants, 534 were booked (80.9 %) whereas 126 were unbooked (19.1 %). Neonatal outcome were

Table I: Details of Cesarean sections being performed	
Indications for Elective LSCS	**n (%)**
Repeat LSCS	**130**
Previous(2,3,4,) uterine surgery	31 (14%)
Medical Disorders + Previous 1	**99**
Hypertensive disorders	34 (15.5%)
Diabetes	28 (12.7%)
Cardiac disorders	2 (9.0%)
Placental abnormalities	
Placenta Previa	31 (14.1%)
Previous 1 + on demand	4 (1.8%)
Unscarred Uterus	**90**
Uterine anomaly	
Fibroid uterus	4 (1.8%)
Previous Manchester	1 (0.45%)
Mal-presentations	41 (18.6%)
Bad Obstetrical History	20 (9.0%)
On demand	8 (3.6%)
Twins	14 (6.36%)
Placenta Previa	2 (0.9%)
Indications for Emergency LSCS	
Medical Disorders	46 (10.4)
Hypertensive disorders	
Pre-Eclampsia	35 (7.9)
Eclampsia	9 (2.0)
Jaundice	2 (0.45)
Intrapartum Complications	**279 (63.4)**
Malpresentations	151 (34.3)
Breech	72 (16.3)
Transverse lie	21 (4.8)
Oblique lie	26 (5.9)
Hand Presentation	4 (0.9)
Cord Prolapse	5 (1.1)
Liquor Abnormalities	49 (11.1)
Meconium stained	31 (7.0)
Grade II	12 (2.7)
Grade III	19 (43.1)
Oligohydramnios	18 (4.1)
Failure to Progress	31 (7.0)
Obstructed labor	17 (3.8)
Deep Transverse arrrest	
Failed Induction	15 (3.4)
Previous 2 or more in labour	9 (2.0)
Chorioamnionitis	7 (1.6)
Neonatal Complications	**81 (18.4)**
Intrauterine growth Retardation	47 (10.6)
large for dates	2 (0.45)
Fetal distredd on CTG	39 (8.89)
Non-reactive CTG	16 (3.6)
CTG with decelerations	23 (5.2)
Uterine abnormalities	**9 (2.0)**
Ruptured uterus	4 (0.91)
Impending scar ruputure	5 (1.1)
Placental abnormalities	**25 (5.7)**
Antepartum hemorrhage	
Placental abruption	11 (2.5)
Placenta Previa	14 (3.2)

assessed in the study showing that 427 neonates weighed less than 3 kg, whereas 233 neonates weighted $\geq$ 3kg.

Table II showed data related indications for cesarean sections and emergency LSCS; unscarred uterus, 88 patients underwent Elective LSCS in this category (%). There were 3 patients with low-lying fibroid, contraindicating normal vaginal delivery (1.8%), while one patient had previous Manchester repair (0.45%). Malpresentations were present in 41 patients (18.6 %) out of which breech presentations were 22. 17 patients opted for Elective LSCS due to bad obstetrical history despite unscarred uterus (9.0 %). 8 patients refused for labour trial (3.6 %), while 2 patients had Placenta Previa (0.9 %).12 patients with twin pregnancy accounted for 6.36 % of elective LSCS at the center. Among the 440 Emergency LSCS, 279 were performed due to intrapartum complications. (63.4 %). 151 patients were operated upon due to mal-presentations (34.3%), including breech (16.3%, n=72), transverse lie (4.8%, n=21), oblique lie (5.9%, n=26%), hand presentation (0.9 %, n=4) and cord prolapse (1.1%, n=5). There were 46 operations performed due to emergencies related to hypertensive disorders like preeclampsia (7.9%, n=35), eclampsia (2.0 %, n=9) and jaundice (0.45 %, n=2). Liquor abnormalities accounted for 49 emergency LSCS (11.1%) out of which 31 LSCS were done due to meconium (7%) and 18 sections were performed due to oligohydramnios. (4.1%). 31 patients were operated due to failure to progress in labour (7.0 %).17 patients had Cesarean sections due to obstructed labour (3.7 %), and 15 due to failure of induction of labour (3.4 %). 7 Patients show signs of chorioamniotis and were operated upon (1.6%) whereas presented with previous 2 LSCS or more in labour.

Discussion

Rising cesarean section rate is a global issue and is one of the main determinants of maternal outcome as laid by Millennium Development Goals. Keeping in account that WHO in 1985 recommended a cesarean section rate of 15%, Cesarean section rate in our study came out to be 40%. The rate can be compared to other local data available. Pakistan Demographic and Health Survey in 2012-13 demonstrated 35.40 % at public sector and 36.40 % at private sector in among urban population.[11]

This increase in cesarean section rate can be compared with other developing countries. In India, the cesarean section rates are 37.9 % in private sector where as the public sector showed rate of 13.7 %.[12] While in Bangladesh, the cesarean section rates amount up to be 62% of all hospital births in 2016-17 where 70% of cesareans were performed without any identifiable indications.[13] In contrast, the developed world reaches a cesarean section rate of 16.4 % in Sweden to 32.5 % and 32.1 % in United States and Australia respectively.[14]

Table II: Indications for Elective & Emergency Cesarean Section

Indications for Elective LSCS (n=220)	**n (%)**
Repeat LSCS	**130**
Previous(2,3,4,) uterine surgery	31 (14%)
Medical Disorders + Previous 1	**99**
Hypertensive disorders	34 (15.5%)
Diabetes	28 (12.7%)
Cardiac disorders	2 (9.0%)
Placental abnormalities	
Placenta Previa	31 (14.1%)
Previous 1 + on demand	4 (1.8%)
Unscarred Uterus	**90**
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Bad Obstetrical History	20 (9.0%)
On demand	8 (3.6%)
Twins	14 (6.36%)
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Indications for Emergency LSCS (n=440)	
Medical Disorders	46 (10.4)
Hypertensive disorders	
Pre-Eclampsia	35 (7.9)
Eclampsia	9 (2.0)
Jaundice	2 (0.45)
Intrapartum Complications	**279 (63.4)**
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As the results show the mean age of patients undergoing cesarean section was 29.16 $\pm$ 5.6 years which can be comparable with study done by John B. and Ann K. who demonstrated average age of women undergoing childbirth to be 22.7 $\pm$ 1.6 in South Asia.[20] However, the mean ages at first birth for the Japan, Czech Republic, UK, and US are mostly substantially higher (25, 26, 28, 28,31 years respectively).[15] Moreover, various studies have emphasized on regular annual checkups for favorable fetomaternal outcomes. [16] There were 80.9 % booked patients in our study. When we look at the aspect of neonatal outcome, 31.4% were admitted in Neonatal Intensive care unit in comparison. However, further correlation and in-depth study is demanded to evaluate the role of booking status with neonatal outcome in our Center.

Most common sited indications for cesarean sections in various studies are repeated caesarean, presumed fetal distress, failure to progress, breach births, hypertensive disorders, antepartum hemorrhage, near birth complications and postdate pregnancy. [3,7,17] Our study shows 33.3 percent of cesarean sections being elective as compared in 66.7 percent p[of emergency cesarean section. Repeat cesarean section accounted for 59.1% of all elective cesarean sections. There seem to be a pattern for getting into the vicious cycle of elective cesarean section. While there is always a risk of emergency cesarean section during a planned vaginal birth, reluctance to undergo vaginal delivery due to prior bad obstetrical outcomes, and unpredictability of vaginal birth timings, have allowed women to opt for elective operative deliveries.[18] This is turn adds to the pool of future elective cesarean sections for future deliveries. Hence this provides an answer for the increase in elective cesarean deliveries with time in both developing and developed countries. One possible way to halt this is devising strategies to encourage women with unscarred uteri for vaginal births in specialized labour suits after proper counselling. Even then one

cannot disregard patient's wishes regarding mode of delivery despite information provision and counselling.[19]

Moreover, emergency cesarean section accounted for 66.5 % of all cesarean section. This rate is quite high as compared to other studies which have demonstrated between 20.9 % to 44% of all cesarean sections.[13] An explanation to a high emergency rate can be the center being tertiary care catering all nearby tehsils. 63.4% of the emergency Cesarean sections were performed due to intrapartum complications. While indications like mal-presentations and prolapse cannot be prevented, reasons like fetal distress and failure to progress of labour can be looked after by appropriate patient assessments, regular monitoring of labour, accurate fetal monitoring for distress apart from cardiotocogram, as well as government initiatives to use partogram at all levels of healthcare in Pakistan.

Future directions and Limitations: Further studies are warranted to study about the trend of cesarean section rates over periods of time in the MCH and other related centers. Also, a correlational study can inform in detail about the relation between demographics of the patients which was not done due to lack of time.

Conclusion

The cesarean section rates are rising at an alarming speed. Whereas indications for cesarean section seem to be justified in the current situation, preventable measures and robust guidelines are warranted to manage preventable causes of cesarean sections in Pakistan. The government of Pakistan need to take measures to strengthen existing public health facilities as well as ensure that cesarean sections are performed based upon justified indications in both public and private sector health facilities.

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