Pattern of Cesarean Delivery in Bolan Medical Complex Hospital Quetta

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ABSTRACT

Objective — *To analyze contemporary practices of cesarean section (CS) at a public sector hospital.*

Study design — *A retrospective study.*

Place & Duration of study — *A Department of Obstetrics and Gynecology Unit-4, Bolan Medical Complex Hospital Quetta, from January 2011 to December 2015.*

Methodology — *In this study clinical records of all the patients who underwent cesarean section were reviewed. This included booked, un-booked or referred cases. Data regarding the indications, type of cesarean deliveries and demographic features as well as outcome were noted.*

Results — *Out of 27791 total births, 2951 were cesarean deliveries, giving a cesarean section rate of 10.6%. The highest number of CSs were performed in multigravidas (54%) followed by primigravida (28.5%) and grand multigravida (17.5%). The commonest indication for CS was previous cesarean section (50.1%) in which previous one LSCS was 29.9% and previous two or more LSCS were 20.2%. Other common indications were obstructed labor (12.1%), cephalo-pelvic disproportion (CPD - 6.1%), placenta previa (5%), labor dystocia (4.7%) and breech presentation (4.7%).*

Conclusions — *Previous ceserean section was the commonest indication for CS. Multigravida ranked highest among women who underwent CS. The ceserean section rate in this study was 10.6 indicating better obstetric care.*

Key words — *Cesarean section, Obstructed labor, Audit.*

INTRODUCTION:

Cesarean section is a common surgical procedure in obstetrics practice. W.H.O. suggests that a cesarean section rate (CSR) of above 10-15%, at population level are associated with increase maternal and neonatal mortality rates.[1] The maternal and neonatal morbidity and mortality has rather increased with cesarean delivery as compared to vaginal delivery. W.H.O. uses the CSR to monitor implementation of emergency obstetric care (EmOC). As maternal outcome has not improved, so it is not an effective way of monitoring.[2] There is considerable variation in CSR between high and low income countries and between different institutions within these countries. The CSR in certain countries are reported as China 46%, Turkey 47.5%, Iran 40%, North America 24.3%, Central America 31%, Eastern Asia 40.5%, Canada 22.5%, Italy 40%, Central Asia 1.8%, Nordic countries 14%, Yemen 4.8%, and Sweden and Netherlands with lowest perinatal mortality rates 10%.[3,4]

Cesarean delivery is the most commonly performed surgical operation in the world. Though it is a

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lifesaving surgery, but it has a number of associated complications with short and long term health risks and financial burden on patient and health system. The maternal complications of cesarean section include damage to genitourinary and gastrointestinal systems as well as depression, pelvic pain, infertility, and even death.[5,6] Number of fetal complications are also reported.

In the audit on cesarean delivery, we not only explore different indications but also focus on determining the causes for rising CSR. This study is one such effort in exploring cesarean section trends from a developing region of Pakistan.

METHODOLOGY:

This retrospective case series was conducted in the Department of Obstetrics & Gynaecology unit -4, Bolan Medical Complex Hospital Quetta. Clinical records of all patients delivered in the department from January 2011 to December 2015 were obtained from labor ward and operation theater registers as well as from the case files of the patients who had cesarean section. Information about age, marital status, address, occupation, parity, previous cesarean section, antenatal care, obstetric history and any medical disorder, were noted. Any complications during surgery, hospital stay, neonatal outcome and tubal ligation were also recorded. Descriptive statistics were used and results presented in frequencies and percentages.

RESULTS:

A total of 27,791 deliveries were conducted during the study period. Of these24,840 were vaginal deliveries and in 2951 CS was performed. Ruptured uterus found in 138 women. The CS rate was 10.6%. Of all the CS 60% were booked. Other cases (40%) were non booked and referred cases. Emergency CS was performed on 2426 (8.7%) patients. The age range of patients was from 16 year to 45year with a mean age of 32.30 +6.7 year. The parity of woman ranged from para 0 to para 20, with mean parity of 6.9 +3.63. Out of these 28.5% were primigravida, 54% multigravida and 17.5% grandmultigravida. Table I shows the CSR during the five years study period. The most common indication for cesarean was previous cesarean section. Other indications are shown in table II.

DISCUSSION:

FIGO has reported the practice of performing a cesarean delivery for non-medical reasons as unethical.[4] The prevalence of cesarean delivery is increasing globally. Medical causes include increased maternal age, increased BMI, etc. Non-medical causes include maternal request, fear of litigation, socioeconomic status, subjective interpretation of CTG, fear of vaginal delivery, avoiding pain, tubal ligation, poor government oversight etc.[3,7]

The global average CSR increased from 6.7% in 1990 to 19.1% in 2014 with an annual rate of increase of 4.4%. A hospital in Northern Thailand reported an increase from 11.3% in 1992 to 23.6% in 2011.[8] From Pakistan a hospital based study showed an increase from 27% in 2002 to 37.7% in 2012.[9] In UK CSR has also increased from year 2009 to 2012.[10]

There is a wide variation between low and high socioeconomic countries. 76% of low income countries have CSR between 0.4-10 % while 31% of high income countries showed CSR above 20%.[11] The private sector has a huge contribution in this rise. A specialist hospital in South Africa has CSR of 60.4% with 7.3% for HIV patients.[12] In Brazil private sector hospitals have CSR of 80%.[12] The CSR in our unit was 21% in 2004, [13] and it has decreased to 10.6% in the current study. It is one of the lowest rates in Pakistan as other studies showed high CSR from 17.8% to 45.5%.[7,10,14,15]

Continuous electronic fetal monitoring (CEFM) during labor has increased dramatically from 40 to 85%. CEFM has resulted in an increased rate of cesarean delivery, however the incidence of perinatal mortality and cerebral palsy has not fallen. A very high

Table I: Year Wise Cesarean Section Rate

Year	Number of Births	Emergency CS n (%)	Elective CS n (%)	CS rate n (%)
2011	4116	390 (9.5%)	65 (1.6%)	455 (11.1%)
2012	4608	457 (10%)	59 (1.3%)	516 (11.3%)
2013	5776	443 (7.7%)	84 (1.4%)	527 (9.1%)
2014	6401	498 (7.8%)	118 (1.84%)	616 (9.6%)
2015	6890	638 (9.3%)	199 (2.9%)	837 (12.1%)
Total	27791	2426 (8.7%)	525 (1.9%)	2951(10.6%)

Table II: Indications of Cesarean Section			
Indications	**Emergency (n%)**	**Elective (n%)**	**Frequency (%)**
Previous 1CS	679 (23)	201 (6.8)	880 (29.8)
Previous 2 CS	297 (10)	152 (5.2)	449 (15.2)
Obstructed labor	358 (12.1)	0 (0)	358 (12.1)
CPD	162 (5.5)	18 (0.6)	180 (6.1)
Previous 3CS or more	94 (3.2)	56 (1.8)	150 (5)
Placenta previa	132 (4.5)	15 (0.5)	147 (5)
Breech presentation	121 (4.1)	20 (0.6)	141 (4.7)
Dystocia	140 (4.7)	0 (0)	140 (4.7)
Fetal distress	100 (3.4)	0 (0)	100 (3.4)
Malposition	48 (1.6)	1 (0.03)	49 (1.7)
Placenta abruption	48 (1.6)	0 (0)	48 (1.6)
Induction failure	46 (1.5)	0 (0)	46 (1.5)
Pre-eclampsia / PIH	36 (1.2)	7 (0.2)	43 (1.4)
PROM	36 (1.2)	0 (0)	36 (1.2)
Post term	21 (0.7)	14 (0.5)	35 (1.2)
Transverse lie/ hand prolapse	31(1.05)	2 (0.06)	33 (1.1)
Bad obstetrical history	19 (0.65)	12 (0.4)	31 (1.05)
Maternal wish	21(0.7)	6 (0.2)	27 (0.9)
Eclampsia	19 (0.6)	0 (0)	19 (0.6)
IUGR	8 (0.3)	3 (0.1)	11 (0.4)
Twins	9 (0.3)	2 (0.07)	11 (0.4)
Retained second twin/failed IPV	9 (0.3)	0 (0)	9 (0.3)
Diabetes mellitus	3 (0.1)	2 (0.07)	5 (0.2)
Locked twin	1 (0.03)	0 (0)	1 (0.03)
Uterus didelphy	1 (0.03)	0 (0)	1 (0.03)
Previous Myomectomy	1 (0.03)	0 (0)	1 (0.03)
Total	**2440**	**511**	**2951**

proportion of abnormal fetal monitoring tracings occur in fetuses with normal pH and oxygenation. Its utilization is limited by low specificity and lack of inter- and intra-observer reliability in interpretation. Therefore intermittent fetal heart rate auscultation instead of CEFM is preferred in low risk pregnancies. As CTG interpretation is subjective, consultant involvement in decision making is useful.[16]

A clinical audit is an effective strategy to reduce CSR by strict monitoring of the indications. A high rate of unnecessary and potentially preventable cesarean sections were identified in an audit. Lasnet A et al introduced cesarean delivery audit for the daily report meetings.[17] The CSR decreased from 19.6% to 16.7% and instrumental delivery increased from 14.4% to 17.2%. Thaens A et al were able to reduce CSR from 25% in 2007 to 20% in 2010 by reduction in induction of labor and strict criteria for diagnosis of labor.

The indications of CS vary in different studies but all do agree that repeat cesarean delivery has emerged as one of the top indications. Almost 50% of our cesarean sections were due to previous scar with 29.8% previous one. Dystocia was responsible for 30-50% of primary cesarean sections in the

United States. Therefore primary cesarean deliveries should be maintained at acceptable limits by judicious selection of cases. The maternal mortality rate for elective repeat cesarean delivery is 13.4 per100,000 births due to intraoperative, anesthetic and postoperative complications.[16]

Mean age of our patients in our study was 32.30 ±6.7 and mean parity of 6.9 ±3.63. There is a high percentage of primigravida in all studies. There is a need to counsel all women about next delivery within health facility as obstructed labor and ruptured uterus are still common. The probability of a successful vaginal birth after CS (VBAC) has been estimated at 70-80%.[20] Assisted breech vaginal delivery is as safe as cesarean section, in skilled hands. External cephalic version (ECV) should be considered if criteria are met. In 2004 our unit cesarean rate for breech was 14.5%.[13] In current study, it was 4.7% with no added perinatal complications.

CSR has been on the rise for the last three decades, so does its complications. Serious measures must be taken to reduce CSR to 10-15% as proposed by WHO. Patience is the key element in obstetrics. Options of VBAC and ECV should be on the table. Intermittent fetal heart rate auscultation is favored over CEFM. Verification of cesarean indication by a consultant and their involvement help to reduce CSR. A keen government oversight on private sector is also mandatory.

CONCLUSIONS:

CSR, though a lifesaving surgery, is not without complications. Cesarean delivery for high risk pregnancies can improve maternal and neonatal outcomes. In this study the CSR was 10.6% which is in accordance with WHO recommendations.

REFERENCES:

1. Ye J, Zhang J, Mikolajczyk R, Torlani MR, Gulmezoglu AM, Betran AP. Association between rates of caesarean section and maternal and neonatal mortality in the 21st century: a worldwide population based ecological study with longitudinal data. BJOG. 2016;123:745-53.
2. Heemelaar S, Nelissen E, Mdoe P, Kidanto H, van Roosmalen J, Stekelenburg J. Criteria based audit of cesarean section in a referral hospital in rural Tanzania. Trop Med Int Health. 2016;21:525-34.
3. Shabila NP. Rates and trends in cesarean sections between 2008 and 2012 in Iraq. BMC Pregnancy Childbirth. 2017;17:22.
4. Bangal VB, Thorat PS, Patel NH, Borawake SK. Cesarean sections-are we doing right? IJBR. 2012;3:281-4.
5. Grivell RM, Dodd JM. Short- and long-term outcomes after cesarean section. Expert Rev Obstet Gynecol. 2011;6:205-15.
6. Souza JP, Betran AP, Dumont A, de Mucio B, Gibbs Pickens CM, Deneux-Tharaux C. A global reference for cesarean section rates (C-Model): a multicountry cross sectional study. BJOG. 2016;123:527-36.
7. Ehtisham S, Akhtar HH. Determinants of caesarean section in a tertiary hospital. J Pak Med Assoc. 2014;64:175-8.
8. Charoenboon C, Srisupundit K, Tongsong T. Rise in cesarean section rate over a 20-year period in a public sector hospital in Northern Thailand. Arch Gynecol Obstet. 2013 ;287:47-52.
9. Syed S, Arshad F, Bano N, Chaudri R, Shaheen F. Rising cesarean section rate: an obstetric epidemic. JSOGP. 2014;4:146-50.
10. Sajjad R, Ali CA, Iqbal A, Sajjad N, Haq MZ. An Audit of cesarean sections in Military Hospital Rawalpindi. Int J Anesth Pain Intensive Care. 2014;18:172-5.
11. Althabe F, Sosa C, Belinzan JM, Gibbons L, Jacquerioz F, Borgel E. Cesarean section rates and maternal and neonatal mortality in low-, medium-, and high-income countries: An ecological study. Birth. 2006;33:270-77.
12. Naidoo N, Moodley J. Rising rates of cesarean sections: an audit of cesarean sections in a specialist private practice. SA Fam Pract. 2009;51:254-8.
13. Yousaf R, Baloch SN. An audit of cesarean section. Pak J Med Res. 2006;45:28-31.
14. Bilal N, Yasmin F, Akhtar S. Frequency and indications of cesarean section in a tertiary care maternity unit. J Postgrad Med Inst. 2005;19:392-5.

15. Najmi RS. An Audit of Cesarean Sections carried out in Tertiary care Maternity Unit. J Coll Physicians Surg Pak. 2000,10:24-6.

16. Alfirevic Z, Devane D, Gyte GM. Continuous cardiotocography(CTG) as a form of electronic fetal monitoring(EFM) for fetal assessment during labour. Cochrane Database Syst Rev. 2006;3:CD006066.

17. Lasnet A, Jelen AF, Douysset X, Pons JC, Sergent F. [Introducing a daily obstetric audit: A solution to reduce the cesarean section rate?] J Gynecol Obstet Biol Reprod. 2015;44:550-7.

18. Knight HE, van der Meulen JH, Gurol-Urganci I, Smith GC, Kiran A, Thornton S, et al. Birth "out-of-hours": An evaluation of obstetric practice and outcome according to the presence of senior obstetricians on the labour ward. PLoS Med. 2016;13(4):e1002000.

Author's Contributions:
Safia Bibi: Conception, design of study, data analysis & interpretation.
Khanda Gul: Drafting of work & critically revising the manuscript.
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