Original Article

Rising Caesarean Section Rate: an Obstetric Epidemic

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Abstract

Objective: the current study was meant to analyze the trends of Caesarean Section (CS) rate in a tertiary care hospital of Pakistan over the last 10 years period.

Place and Duration: department of Obs/Gynae, Holy Family Hospital, Rawalpindi, from 2002 to 2012.

Methodology: this retrospective descriptive case series study was conducted in department of Obs/Gynae, Holy Family Hospital, Rawalpindi, Pakistan. Records of all the patients, delivered in the two units of the department in year 2002 and 2012 were obtained. The demographic details of all women delivered by CS, including gravidity as well as indications for CS were recorded. Results were calculated in terms of percentage and frequency.

Results: in year 2002, out of total 4,733 deliveries, CS rate was 27%. In 2012, this rate rose upto 37.7%, with the statistically significant net rise of 10.7%. In 2002, the highest number of CSs were performed in multigravidas (46.6%), followed by primigravida (35.4%) and grandmultigravida (18%). While in 2012, these rates were 54%, 40% and 6.2%, respectively. During 2002, the common indications for CS were; Foetal distress (29%), previous one CS (14.3%), dystocia (12.3%), breech presentation (11.8%), and placenta praevia (3.5%). While in 2012, these were foetal distress (24%), previous one CS (23.8%), dystocia (10%), breech presentation (8.47%), refused trial for VBAC (2.2%) and placenta praevia (02%).

Conclusion: an increase of 10.7% is observed in CS rate over the last 10 years period in this hospital. Refused trial of VBAC/CS on demand is emerging as an important new indication. CS Rate must be checked by regular audit meetings to analyse the alternative modes of delivery.

Key words: caesarean section rate, Caesarean indications, Caesarean complications.

Authorship Contribution: *[1]conceived, literature review and authored the study, [2] Data collection, [3]Data Analysis, [4,5] Reviewed the Study.*

Introduction

Caesarean Section is a commonly employed surgical procedure, worldwide, whereby a foetus is delivered through an abdominal and uterine incision. The first modern CS was performed by Dr. James Barry on 25th July 1826, in Cape Town, South Africa.[1] As time passed on techniques of surgery were refined and indications of CS became more and more defined. Common indications are relative/absolute cephalo pelvic disproportion, uterine dystocia/failed progress of labour, previous uterine scar(s), antepartum haemorrhage, pre-eclampsia, eclampsia, foetal distress/ cord prolapse, malpresentations, maternal distress (heart disease. etc), bad obstetric history/ precious pregnancy and CS on patient's demand.

Whereas a CS rescues mother/ foetus in such critical situations it is not free from attendant risks of a major surgery as well, therefore decision for a caesarean delivery must be made very cautiously. These risks include catastrophic intra operative blood loss, risks of anaesthesia, infections and prolonged hospital stay. Puerperal morbidity is 5-10 times that for vaginal birth [2] and the risk of maternal death is 3 times that of a vaginal birth (UK National Health Service).[3] Moreover the subsequent pregnancies carry an increased risk of repeat scar (67%), scar dehiscence/ uterine rupture (1-2%), Morbidly adherent placenta leading to caesarean/peripartum hysterectomy, Adhesion formation leading to chronic pelvic pain, infertility, ectopic pregnancy, increased risks of malpresentations, prolonged labour, preterm birth, low birth weight, and still births.[2,4] According to ACOG a non-medically indicated/elective CS before 39 weeks gestation carries significant risks for the baby with no known benefit to the mother.[5] The risk of death in the first 28 days of life is almost 1.77/1,000 live births, compared to 0.62/ 1,000 with vaginal delivery.[6] There is also increased incidence of suspected/proven sepsis, RDS, 'Wet' lung, hypoglycaemia, need for respiratory support, need for NICU admission, and need for hospitalization > 4 – 5 days.

To avoid such undue serious foeto-maternal morbidity and mortality, in 1985 WHO recommended that CS rate should not exceed 15% of total deliveries at a certain health care facility.[7]Despite this recommendation, over the past 25 years there has been a steady rise in CS rate worldwide, both in developing as well as in developed countries. A fourfold increase has been noticed from 1971 to 1991 (from 4.2 per 100 births).[5] Multiple factors have been implicated for this rise namely; fear of litigation, lack of midwifery support, inadequate active management of labour, malpractice, more trends to deliver breech foetus by CS, continuous FHR monitoring with CTG, etc. [8]

Objective of this study was to analyze what trends are leading to a higher CS rate in our tertiary care centre.

Methodology

This retrospective descriptive case series study was conducted in two units of the department of Obs/Gynae, Holy Family Hospital, Rawalpindi, Pakistan. Approval was taken from hospital ethical committee. Records of all the patients, delivered in two units of the department in the year 2002 and 2012 were obtained. The demographic detail of all women who were delivered by caesarean section,

was recorded on a specially designed proforma, recording their gravidity and indication for CS. Results were calculated in terms of percentage and frequency.

Results

In year 2002, total 4,733 deliveries were conducted in the two units, out of these CSs done were 1279, with 27% CS rate. After 10 years in 2012, this rate rose upto 37.7%. (Figure 1) The net rise of CS rate after 10 yrs period was 10.7% (Figure 2).

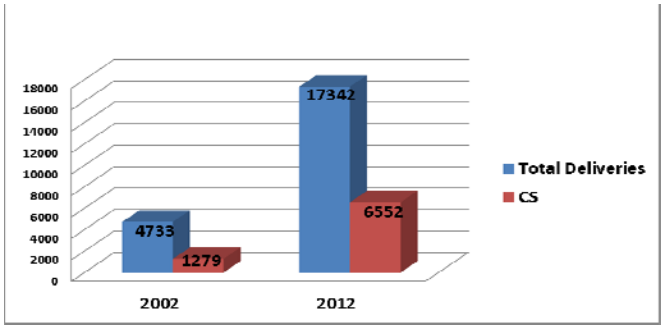

Figure 1. Total Vs CS Deliveries

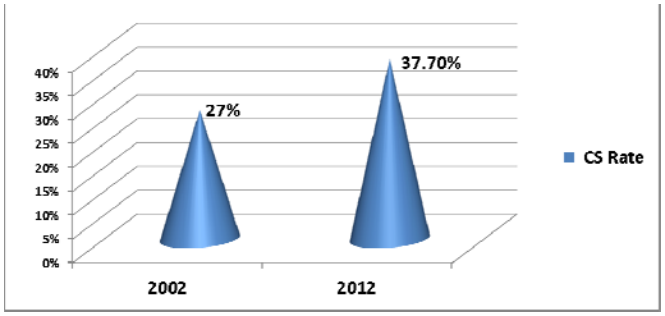

Figure 2. CS Rate showed 10.7% rise.

In 2002, the highest number of CSs were performed in multigravidas n=596 (46.6%), followed by primigravida n=453(35.4%) and grandmultigravida n=230 (18%). While in 2012, these rates were n=3544 (54%), n=2598(40%) and n=410(6.2%), respectively (Figure 3). During the two study years the indications for CSs are shown in Table I. Refused trial for VBAC was a new indication in year 2012.

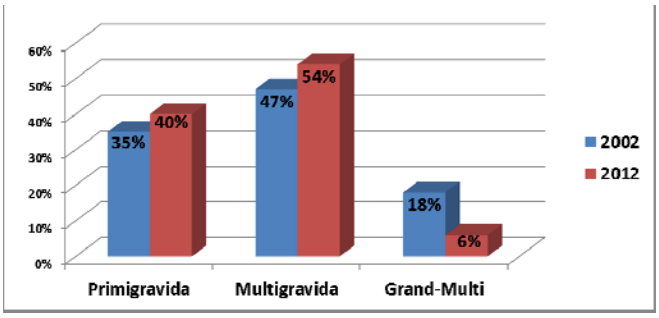

Figure 3. Gravidity Distribution

Table I. Indications for Caesarean Delivery

Sr. No.	INDICATIONS	2002 Yr. n (%)	2012 Yr. n (%)
01.	Foetal Distress	372 (29)	1597 (24)
02.	Previous 01 CS	183(14.3)	1560(23.8)
03.	Previous>01 CS	106(8.3)	1131(17.3)
04.	Uterine Dystocia	158(12.4)	670(10)
05.	Malpresentation		
	• Breech	151(11.8)	555(8.5)
	• Others	30(2.3)	76(1.2)
06.	Precious Pregnancy	63(05)	231(3.5)
07.	Obstruted labour	61(4.8)	73(1.1)
08.	Placenta Praevia	46(3.6)	123(02)
09.	Multiple Pregnancy	36(2.8)	110(1.7)
10.	Hypertensive Disorders	23(1.8)	95(1.4)
11.	Chorioamnionitis	20(1.6)	38(0.6)
12.	Abruptio Placentae	13(01)	40(0.6)
13.	Failed Induction	12(01)	30(0.4)
14.	IUGR	05(0.4)	117(1.8)
15.	Patient's Demand	--	144(2.2)

Discussion

Summarizing various contributing factors, WHO (World Health Report 2010)[9] has introduced three Determinants for the rise in CS Rate. First one is **'Demand Driven' Model:** this is based upon patient's demand and has smaller impact over CS

rate. Second is **'Supply Driven' Model:** which has substantial impact, and is contributed by Health facilities and influenced by Obstetrician's decision. Third one with the largest Impact over CS rate is the **'Health System' Model**: this is constituted by human-resources and financing profiles. Higher the financing profile of a system, more will be the inclination for CS.

Literature review shows that a 12.3% rise in CS rate is seen in USA from 1996-2012, while in UK this rise is 15% from 1997-2007. Highest rates have been reported from China and India. In China CS rate was 46% in 2007 and in India a 16.7% increase is observed annually in this rate.[5,10]

In our study, CS rate was 27% in year 2002, which after 10 years in 2012, rose upto 37.7% with the net rise of 10.7%. While comparing these rates nationwide, literature shows that a net rise of 15% was seen in Lady Reading Hospital, Peshawar [2] over 10yrs period from 1996 to 2006. Rates reported from Sir Ganga Ram Hospital[11] and the Agha Khan University, Karachi[12] were 21.7% in 2001 and 31.5% in 2003-4 respectively. The last reported CS rates from few main teaching hospitals of Pakistan in 2006-7 are 35-41% which are comparable to our CS rate in 2012.[13,14]

Multigravidas have been the commonest candidates for caesarean delivery with a percentage of 46 % and 54% in two study years. Few other local studies from Pakistan[2, 13] also reveal multigravidas as being the commonest candidates with the percentage as high as 48%.

Common indications for CS in our study were foetal distress, previous caesarean deliveries, dystocia and breech presentation. Whereas CS's performed due to foetal distress and dystocia were almost comparable in two years (29% vs. 24% and 12.3% vs. 10% respectively), the figure markedly varies in previous one scar group. In 2002 CS performed due to previous one scar were 14.3% but in 2012 this figure rose upto 23.8%, suggesting that over 10 yrs period not only the number of primary CS has increased by about one third, but there could have been a low threshold for abdominal delivery in previous scar as is evident by almost doubling of CS due to previous multiple scars (8.3% in 2002 Vs. 17.3% in 2012). Fortunately a decreased trend of caesarean delivery for breech presentation is noticed, suggesting either a trend to deliver more breech babies vaginally or offering ECV to such mothers. Noticeably, for the last few years CS on demand or refusal by mothers for trial of previous scar is emerging as a new and alarmingly common indication for CS. In our study in year 2002 no such case could be identified but in 2012 there were 144 (2.2%) such cases in just one year. This practice of on demand CS should be discouraged as CS being a major surgical procedure, it can lead to major complications not only in the current surgery but also poses the mother to afore mentioned multiple other complications in next pregnancy as well.

In June 2010, WHO has officially withdrawn its previous recommendation of 15% CS rates, with the official statement saying ….."*There is no empirical evidence for an optimum percentage. What matters most is that all women who need caesarean sections receive them.*"[15]

This is because a 15% CS rate could be the under-utilization of the facility in major tertiary care/referral centres or could become an over-utilization in smaller public health sectors.

In Sept 2012, the U.S Department of Health and Human Services' Healthy People 2020 initiative includes the objective to reduce the primary caesarean rate and to increase the VBAC rate by at least 10% each.[16]

Whatever is the indication for CS, the net result is a constant rise in CS rate at an alarming pace. This trend needs to be checked. The major responsibility now lies with the obstetricians as to whom and why they are offering CS in the best interest of mother and baby.

Conclusions

In this study a significant increase in CS rate was observed over the last ten years. Refused trial of VBAC/CS on demand is emerging as an important new indication. Obstetricians both in public and private sector need motivation to reduce CS rate. These rates must be checked by regular audit meetings. Important parameters to bring down CS rate are, justified induction of labour, maintaining Partogram, not putting time limits for duration of labour, encouraging VBAC's, selective vaginal delivery/external cephalic version of term breech foetus and intermittent foetal heart rate auscultation instead of continuous CTG monitoring.

Conflict of Interest & Funding: none

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