

Trends and Determinants of Caesarean Section

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ABSTRACT

Objective To analyze different indications and frequency of caesarean section (CS) so as to provide recommendations for reduction of caesarean section rate.

Study design Descriptive case series.

Place & Duration of study Obstetrics and Gynaecology Unit III, Civil Hospital and Dow University of Health Sciences Karachi, from January 2009 to December 2009.

Methodology All patients who underwent CS either booked, unbooked or referred were included in the study. The data was collected and analyzed for socio-demographic parameters and indications of CS. Patients with ruptured uterus on laparotomy were excluded. Data was analyzed on SPSS 11; percentages and mean were calculated.

Results During one year study period 778 CS were performed. The rate of CS was 27.94%. Emergency CS was performed on 85.86% and elective caesarean section on 14.14% patients. Among them 71.34% were non-booked and referred cases. The commonest indication was repeat CS (n 367- 47.17%), followed by labour dystocia (n 78 - 10.01%), breech presentation (n 77- 9.8%), foetal distress (FD n 72 - 9.2%), cephalo-pelvic disproportion (CPD n 71 - 9.1%), hypertensive disorders of pregnancy (PIH n 49 - 6.2%) and antepartum haemorrhage (APH n 39 - 5.0%).

Conclusions The rate of caesarean section was high. The majority of the cases were non-booked and referred patients, who mostly underwent emergency CS. The commonest indication was repeat CS.

Key words Caesarean section, indications, Audit - CS.

INTRODUCTION:

Over the last century delivery by caesarean section has become increasingly safer but it can not replace vaginal delivery in terms of low maternal and neonatal morbidity and less cost.¹ Depending on the population and the facilities available the incidence varies in developed and developing countries. WHO indicated that a caesarean section rate greater than

10-15% is not justified in any region of the world.² There is a wide variation in trends of indications and rate of caesarean section. In recent years the rate has increased to a record level of 46% in China and 25% and above in many Asian countries, Latin America and the USA.³

Based on the timing of caesarean section, the indications are grouped in four categories as urgent, emergency, scheduled and elective caesarean section.⁴ Over the last century the indications of caesarean delivery has become less rigid and is also performed on request (CDMR-caesarean delivery on maternal request) in the absence of obstetrical or medical reasons,⁵ and another terms has been

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used is planned elective lower segment caesarean section (PELSCS).⁶ The movement of CDMR was started in Brazil and its frequency is about 4-18%.⁷

Considering the indications for caesarean section the repeat caesarean section, dystocia, foetal distress, APH etc are commonly reported in Pakistani studies,⁸ while foetal distress and dystocia are reported from NHS hospitals in England.⁹ Repeat caesarean section accounted for the largest proportion of caesarean deliveries in United Kingdom.¹⁰ So this is clear that primary caesarean section is an important target for reduction because it leads to an increased risk for repeat caesarean delivery.¹¹⁻¹³

This study was conducted to analyze the indications and rate of caesarean sections in terms of patient's social and clinical characteristics so as to find out reasons for increased caesarean delivery.

METHODOLOGY:

This descriptive case series was conducted in Obstetrics and Gynaecology Unit III Civil Hospital Karachi, from January 2009 to December 2009. All the patients who underwent caesarean section were analyzed in terms of socio-demographic data as well as for indications of CS. It included all the pregnant ladies booked, non-booked and referred cases admitted either through emergency or OPD. According to urgency of CS they were grouped as emergency or elective caesarean cases. The patients with clinical diagnosis of ruptured uterus which later proved on laparotomy, were excluded. The classification system of Robson 10 groups was not used.¹⁴ The data was analyzed on SPSS 11 and percentages and mean were calculated.

RESULTS:

During the study period out of 2784 total deliveries, 778 (27.94%) women underwent CS; 668 (85.86%) patients had emergency CS, whereas 110 (14.14%) had elective caesarean delivery. The mean age of the patients in this series was 25.7 years; 605 (77.7%) patients belonged to the age group of 21-30 years, whereas teen agers were 96(12.3%). Considering parity, 443 (56.9%) patients were multiparous and 260 (33.4%) nulliparous. The mean parity was 3. Socioeconomically 616 (79.17%) patients were poor, whereas 162 (20.82%) belonged to middle class (Table I). Out of total patients, 223 (28.65%) were booked; 353 (45.37%) non-booked, while 202 (25.8%) cases were referred. 523 (67.22%) patients were admitted through emergency and 255 (32.77%) via OPD.

The commonest indication of CS was previous caesarean section (n 367- 47.17%). There were 195 (25.06%) patients with 1 CS, and 172 (22.10%) patients had >1 CS. Patients with more than one CS directly underwent CS either in emergency or electively. Out of 195 patients with single CS scar, 120 (15.42%) were operated along with another associated indications, while remaining 75 (9.6%) were operated with the dictum of once CS always CS (Table II). Miscellaneous indications (n 108) are given in table III.

DISCUSSION:

In this study total number of deliveries in year 2009 was 2784 of which 778 (27.94%) patients had CS. Being a public sector hospital it caters people of low and middle socioeconomic class as reported from studies conducted at Hyderabad⁸ and Lyari General Hospital Karachi.¹⁵ A study from United States

Table I: Socio-demographic Data (n=778)

Variables		No. of patients	Percentage	Mean
Age (years)	< 20	96	12.3	25.7
	21 – 30	77	9.8	
	31 – 40	605	77.7	
	> 40	00	00	
Parity	Nulliparous	260	33.4	3
	Multiparous	443	56.9	
	Grand multiparous	75	9.6	
Socioeconomic status	Poor	616	79.12	
	Middle	162	20.82	
	Upper	00	00	

Table II: Indications of CS Other Than Previous CS (n 531)

Indications	Un-scarred uterus No. (%)	Previous 1 CS No. (%)	Total No. (%)
Labour Dystocia			78 (10.1%)
Prolonged Labour	39 (9.5%)	9 (7.5%)	48 (6.2%)
Obstructive Labour	29 (7.1%)	1 (0.8%)	30 (3.9%)
Breech Presentation	65 (15.8%)	12 (10%)	77 (9.8 %)
Foetal Distress	62 (15.1%)	10 (8.3%)	72 (9.2 %)
Cephalopelvic Disproportion	41 (9.9%)	30 (25%)	71 (9.1 %)
Hypertensive Disorders			49 (6.2 %)
Pre-eclampsia	39 (9.5%)	2 (1.7%)	41 (5.3%)
Eclampsia	6 (1.5%)	2 (1.7%)	8 (1.02%)
Antepartum Haemorrhage			39 (5.0 %)
Abruptio placentae	17 (4.1%)	2 (1.7%)	19 (2.4%)
Placenta previa	13 (3.2%)	7 (5.8%)	20 (2.6%)
Malpresentations	12 (2.9%)	7 (5.8%)	19 (2.4 %)
Twins	13 (3.2%)	5 (4.2%)	18 (2.3 %)
Miscellaneous	75 (18.2%)	33 (27.5%)	108 (13.8 %)
Total	411 (52.82%)	120 (15.42%)	531 (68.25%)

Table III: Miscellaneous Indications for Caesarean Section (n=108)

Types	Number of patients	Percentage
Prelabour rupture of membranes	20	18.5
Bad obstetrical history	20	18.5
Medical-disorders including GDM	17	15.7
Failed induction	16	14.8
IUGR** / Scanty Liquor	14	12.96
Precious pregnancy	10	9.25
Chorioamnionitis	07	6.48
H/O Myomectomy	4	3.7
~GDM (gestational diabetes mellitus) **IUGR (intrauterine growth retardation)		

showed that married white women with high social class gave birth in private hospital by CS as compared with poor women.¹⁶ According to Berley the caesarean sections are more likely in women's of high socioeconomic class in England.¹⁷

In this study indications of caesarean section were not based according to the RCOG classification of urgency of caesarean section.⁴ In this study more

caesareans were performed in emergency (85.86%). Caesarean sections were also classified as primary and repeat caesarean sections, but rules of classification system and audit as reported by Robson 10 group classification, not used.⁹ This classification is currently being used internationally and provides helpful information in the assessment of caesarean section rates. In this study the commonest indication was repeat CS in 367

(47.17%) cases. Our results are similar to other studies.^{18,19}

In this study 411 (52.82%) CS were primary caesarean sections. Among them the most common indications were labour dystocia in 68 (16.5%). According to Belgrames¹⁸ and Sheikh et al¹⁹ primary CS have major contribution in determining the future obstetric course of a woman, and among primary CS the most common indication for an elective procedure was breech presentation and for an emergency section labour dystocia and nonreactive CTG were the reasons.^{18,19} A study at Isra Medical University showed that repeat CS accounts for 19.2% of cases while primary CS were done due to dystocia and other indications.⁸

According to Bragg F et al¹⁰ and RCOG guidelines,¹¹ the likelihood of a caesarean section is strongly associated with maternal characteristics and clinical risk factors. Women were more likely to have caesarean section if they had a previous caesarean section (71%), if baby is breech (90%) or if the women had APH (85%).¹⁰ Similar correlations were noted in this study. Repeat CS accounted for the largest proportion of CS in the UK, while mother who achieved a vaginal delivery in their first pregnancy are very unlikely to end up with a CS in subsequent deliveries.⁹ It is therefore important to pay attention to the first labour as its outcome greatly determines the future mode of delivery.¹⁹

Kenner R et al²⁰ have found that women who had just one previous caesarean section were more likely to have problems with their second birth, including increased risk of malpresentations, APH, placenta previa, placenta accreta, prolonged labour, risk of scar dehiscence, uterine rupture, preterm birth etc. They concluded that some risks may be due to confounding factors related to the indications for the first CS rather than procedure itself. Women who had multiple CS were more likely to have problems with later pregnancies like placenta accreta.²¹

In this study 108 (13.8%) patients had miscellaneous indications for caesarean section. The most common reasons were prelabour rupture of membranes and bad obstetrical history. CS rate in this series was 27.94% which is quite high as compared to 20% in a study from Lyari General Hospital Karachi,¹⁵ but low as compared to 64.7% found at Isra Medical University Hyderabad.⁸ WHO estimates the rate of CS between 10% - 15% of all births in developed countries.² In 2004 the rate of CS was about 20% in UK, and 22.5% in Canada.²² In United States the

CS rate increased to 31.8% in 2007.²³

Reasons of high rate of CS in this series included many unbooked and referred patients who came in critical condition with history of trial of labour or complicated medical disorders. In these patients urgent CS was done to save the life of mother and foetus. Other reasons included lack of adherence to standard guidelines and protocols for managing labour and non availability of system of audit for caesarean section rates. Induction of labour and failed induction contribute to increase CS rate. Induced labor cases contributed mostly to primary caesarean section. Vague indications such as precious pregnancy, poor Bishop scores, ARM, assessment and decision making by junior doctors, missing partograms, failure to read CTG were also observed as causes for increased CS rate.

Globally caesarean delivery on maternal request is rising and in southeast China it is about 20%.³ According to Campbell D women have lost their confidence in the ability to give birth because of low threshold for pain.²⁴ Studies suggested that women think that CS can be life saving.²⁴ Walsh JA suggests that rise of rate is simply due to slow changes in population genetics.²⁵ Studies of UK and USA showed that the women of higher social class want delivery by caesarean section,¹⁷ while 42% obstetrician believe that media and women are responsible for rising rate of caesarean section.²⁶ After modification of guidelines on vaginal birth after caesarean by American College of Obstetricians and Gynecologists²⁷ the rate decreased to 13.5% from 24%.^{27,28}

CONCLUSIONS:

The rate of caesarean section was high in our study (27.94%). The factors that caused rise in rate included increased number of non-booked and referred patients. Commonest indications of CS were repeat caesarean section, labour dystocia, breech presentation etc.

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