Determinants of caesarean section in a tertiary hospital

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Abstract

Objective: To analyse the different indications and frequency of caesarean sections in order to reduce such deliveries in a tertiary hospital.

Methods: The retrospective study was conducted at the Department of Obstetrics and Gynaecology, Liaquat National Hospital, Karachi, from January 1 to December 31, 2011. It comprised review of clinical records of all patients who underwent caesarean section during the period. This included booked, un-booked or referred cases and data regarding the indications, type of caesarean deliveries and demographic features as well as outcomes. SPSS 13 was used statistical analysis.

Results: During the study period, there were 1491 deliveries out of which 669 (44.8) were caesarean. Emergency caesarean section was performed on 392(58.5%) and elective caesarean section was performed on 277(41.4%) patients. Overall, 523(78.2%) cases were booked and 146(21.8%) were un-booked or referred cases. Most of the caesarean sections were carried out due to previous caesarean sections 207(30.9%) followed by foetal distress 102(15.2%), non-progress of labour 93(13.9%), malpresentation 44(6.57%), placental abruption 21(3.13%) and placenta previa 19(2.84%).

Conclusion: Audit and feedback is the best way to judge clinical practice and to reduce the frequency of caesarean section in any tertiary setup. Previous caesareans were the most common indication of repeat procedure in the study.

Keywords: Caesarean section, Audit, Indications. (JPMA 64: 1175; 2014)

Introduction

"Once a caesarean, always a caesarean" was the rule for classical caesarean section (CS) but nowadays CS is considered a safe mode of delivery associated with less perinatal complications despite high health and financial cost.

Rising CS rate in developing countries is alarming as it increases maternal morbidity owing to fever, bleeding, anaesthesia complications, postoperative thromboembolism and long-term risk of having morbidly adherent placenta leading to obstetrical hysterectomy or uterine rupture with progressive number of scars.

The World Health Organisation (WHO) estimates the rate of CS at between 10% and 15% of all births in developed countries.[1] The rate of CS not only differs between countries, but also within a country, depending on the type of facility provided and the level and type of care given. In Central Africa, CS deliveries are only 1.8% compared to 24.3% in North America, 31% in Central America and 40.5% in Eastern Asia.[2] Canadian rate in 2001-02 was 22.5%.[3]

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Common primary indications reported for women having a primary CS were failure to progress (25%), presumed foetal compromise (28%) and breech presentation (14%). The most common indications for women having a repeat CS were previous CS (44%),[4] maternal request as reported by clinicians (12%), failure to progress (10%), presumed foetal compromise (9%) and breech presentation (3%).[5-7]

The current study was planned to analyse the different indications of primary or repeat CS so as to reduce the CS rate by adopting multifaceted strategies after critically evaluating individual cases.

Subjects and Methods

The retrospective study was conducted at the Department of Obstetrics and Gynaecology, Liaquat National Hospital (LNH), Karach, from January 1 to December 31, 2011, after approval from the institutional ethics committee.

Booked, un-booked or referred cases that underwent CS as an elective procedure or those who had it in emergency situations during the study period were included. Indication, type of CS (primary or repeat), demographic features of patients and outcomes were recorded on a designated proforma. Patients with previous one CS were also given the option of deciding about the mode of delivery. Data analysis was done using SPSS 13.

Results

Overall there were 1491 deliveries during the study period, out of which 669(44.8%) were CS. Of the CS cases, 523(78.2%) were booked, and 146(21.8%) were either un-booked or referred cases. Out of the 679 neonates resulting from these cases, 10(1.4%) were twins, 12 (57.9%) were males and 8 (44%) were females. Emergency CS was performed on 392(58.5%) and elective CS on 277(41.4%) patients. The mean age of the patient was 29±3.6 years, 483(69%) belonged to the 20-30 years age group, and 186 (26.6%) were between 30 and 40 years. Among 669 patients, 392 (58.6%) were multigravida, 209 (30%) were nulliparous and 76 (11.4%) were grandmultipara (Table-1). Most of the CS procedures were carried out due to previous caesareans accounting for 207(30.9%) cases. . These were followed by foetal distress 102(15.2%), non-progress of labour 93(13.9%), malpresentation 44(6.57%), placental abruption 21(3.13%) and placenta previa 19(2.84%). The complete indication are shown in Table-2.

Table-1: Demographic data.

	Emergency caesarean (mean)	Elective caesarean (mean)	STDEV
Age (range) in years	20-40	21-38	29.6±3.65
Gestational age (weeks)	25-42	28-40	33.2±2.4
Parity			2±3.65
Primigravida	165	36	
Multigravida	175	217	
Grandmultipara	49	27	

Total no of deliveries: 1491
No of vaginal deliveries: 822
No of caesarean sections: 669
Caesarean section rate: 44.8%.

Table-3: Miscellaneous Indications for caesarean section.

Indications	Frequency	Percentages
Twins pregnancy	10	1.49%
Precious pregnancy /BOH	14	2.09%
Scar tenderness	11	1.57%
Decreased foetal movements	8	1.2%
Patient wish	7	1.04%
Maternal medical disorders*	14	2.1%
Foetal anomalies #	4	0.6%
Fibroids/history of myomectomy	3	0.4%
Perineal tear	2	0.29%
Chorioamniotis/ leaking	4	0.59%

*includes medical disorders like epilepsy, cardiac disease. Renal disease, liver disease, obstetric cholestatic & ITP
includes diaphragmatic hernia, hydrocephalus.

There were other miscellaneous causes as well (Table-3) Concomitant bilateral tubal ligation was done in 12(1.8%) patients and in women with fourth or fifth CS.

Discussion

To improve the quality of care audit is an essential component of any management system. By adopting different strategies and implementing protocols for obstetric conditions, the rate of CS can be reduced.[8]

During the study period, 1491 patients were delivered, out of which 669 underwent CS giving a rate of 44.8% that is comparable with some earlier findings,[9] but much higher than some others.[10] Primary CS was a major contribution to this high rate and the commonest indications were foetal distress 15.2% and non-progress of labour 13.9%.

In majority of patients with presumed foetal distress

Table-2: Indications of caesarean section.

Indications	Emergency Caesarean (n %)	Elective Caesarean (n %)	Total
Repeat Caesarean section	7 (1.04%)	200 (29.89%)	207
Previous scar in labour	38 (5.6%)	0	38
Miscellaneous	45 (6.72%)	32 (4.7%)	77
Foetal distress	102 (15.2%)	0	102
Non progress of labour	93 (13.9%)	0	93
Breech presentation	25 (3.7%)	19 (2.8%)	44
Pre eclampsia/ Eclampsia	22 (3.2%)	4 (0.59%)	26
Placental abruption	21 (3.1%)	0	21
Placenta previa	15 (2.24%)	4 (0.59%)	19
Refusal of labour trial	15 (2.24%)	3 (0.44%)	18
Intra uterine growth restriction	7 (1.04%)	9 (1.3%)	16
Good size baby	1 (0.14%)	3 (0.44%)	4
GDM/ Uncontrolled Diabetes	1 (0.14%)	3 (0.44%)	4

GDM: Gestational Diabetes Mellitus.

babies delivered with good Apgar score but with meconium stained liquor. Understanding of cardiotocograph findings is subjective and one of the factors involved in unnecessary CS performed for foetal distress in this tertiary setup. Involving consultant obstetrician in the decision making for emergency CS and practising foetal cord blood sampling to detect true foetal acidosis are the means by which we can reduce the CS rate.

Percentage of CS performed for non-progress of labour (NPOL) is similar to the findings (12%) of a study[11] but much less than that of another.[12] The best way to monitor the progress of labour is 4-hour action-line partogram. In 20% of patients undergoing CS for NPOL, partogram was not adequately maintained. Other reasons were inductions before expected date of delivery and failure to judge cephalopelvic disproportion.

Caesareans for breech presentation accounted for 6.6% and was the commonest indication for primary elective CS. Patients who came in labour were also not given the option of vaginal delivery and were operated upon in emergency. Offering External cephalic version (ECV) to patients with breech presentation at 37 weeks of gestation who fulfil the criteria to deliver vaginally is another way to decrease the CS performed for malpresentation.[13] Therefore, it is important to take correct decision about the mode of delivery of the first labour as it will determine the future mode of delivery.

Previous scars were the main indications in our study for repeat CS, especially the previous CS. Reluctance to give trial of vaginal delivery after one CS may be due to the fear of litigation related to uterine rupture and associated risk to the mother and the foetus. Evidence-based studies have shown that women delivered by CS were less likely to have a subsequent pregnancy (66.9%) compared with those having spontaneous vaginal delivery (73.9%) and instrumental vaginal delivery (71.6%), and they were more likely to have problems like antepartum haemorrhage (APH), preterm or prolonged labour, morbidly adherent placenta, and the risk of malpresentation or an ectopic eventuality in their next pregnancy.[14,15] In a Chinese study, maternal mortality among women who underwent CS has been reported to be four to ten times higher than among women who deliver vaginally, and uterine scarring from a CS can undermine reproductive health.[16]

APH accounted for 5.9% of CS in our study. Out of this, placental abruption was 3.1% and placenta previa was 2.8%. Most of the patients with placental abruption were un-booked and had poor neonatal outcome. Interestingly patients with placenta previa were multiparous not having any previous scar. Only 3 (0.44%) patients required obstetrical hysterectomy due to massive haemorrhage. A study mentioned the risk of placenta previa with increasing number of CS, suggesting that the risk is increased to four times with previous one scar, seven times with previous two or three operations, and 45 times with four or more CS.[17]

In the current study, 3.9% CS were performed in emergency due to hypertensive disorders of pregnancy that include pregnancy-induced hypertension (PIH), eclampsia and chronic hypertension with superimposed pre-eclampsia including booked and referred patients with poor Apgar score and severity of disease. As definitive treatment is to terminate the pregnancy, so early booking or referral, correct diagnosis and timely management can control the disease and prevent unnecessary CS and associated morbidities.

Besides, 11.5% of our patients had miscellaneous CS indications. Main reasons were patients with scar tenderness, unstable lie, precious or bad obstetrical history, foetal anomalies requiring CS delivery, maternal medical conditions other than diabetes and hypertension. CS performed on the request of patient accounted for 0.7%. The reason was patients' desire to avoid painful vaginal childbirth and to maintain the vaginal tone of the teenager which is more beneficial to the sexual partner rather than the women herself.

The global rise in CS rate reflects changing trends of delivery. Women belonging to high socioeconomic status prefer CS delivery as an elective procedure. Delivery in a small setup, lack of skilled health professionals, abandoning of instrumental delivery and fear of litigation are the complex reasons of keeping CS rate high.

Conclusion

Adoption of different strategies and changing clinical practice for delivery of breech presentation and detection of true foetal distress and labour dystocia and unbiased implementation of such protocols are some of the ways to reduce the CS rate in any tertiary setup.

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