Original Article

Caesarean Section Rate and Indications of Primary Caesarean Delivery at A Referral Center

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Abstract

Objective: To evaluate the rate of caesarean delivery and varying indications of primary caesarean delivery in a referral center.
Patients and methods: The caesarean sections that were performed in the department of obstetrics and gynaecology at SKBZ/CMH MZD between January 2015 to December 2017 were documented to evaluate and compare the rate of caesarean delivery in 2015, 2016 and 2017 and varying indications of first caesarean section that were performed between January 2017 to December 2017.
Results: A sum of 20,289 deliveries were performed from January 2015 to December 2017. Caesarean delivery rate in 2015-2017 were 41.26%, 42.03% and 42.17% respectively. A sum of 7206 deliveries were performed in 2017 and 3039 patients were delivered by caesarean section. The most frequent indication for caesarean delivery was fetal distress, which founded 22.86%(372 cases).The next frequent indication was failed progress of labour, which accounted for 13.39%(218 cases),followed by breech 10.07%(164 cases), cephalopelvic disproportion 6.57%(107 cases),precious pregnancy 7.49%(122 cases),gestational diabetes/pregnancy induced hypertension 8.42%(137 cases), intrauterine growth retardation 7%(114 cases) and cord prolapse 0.62%(10 cases).
Conclusion: There is growing inclination of carrying out caesarean deliveries in recent years. The most frequent indication for performing first caesarean delivery is fetal distress.
Keywords: Caesarean delivery, Caesarean section rate, indication.

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Introduction

The rate of caesarean delivery is continuing to rise globally in well-developed and under developed countries. [1,2] The optimum rate of caesarean section is still a matter of doubt among healthcare professionals and women. Caesarean section can prevent maternal and perinatal morbidity and mortality in some cases of antepartum haemorrhage, cord prolapse, ruptured uterus and fetal distress, however rate greater than 10-16% are not helpful in decreasing maternal and perinatal mortality, instead associated with higher rate of long term complications such as placenta previa, accrete, risk of uterine rupture, peripartum hysterectomy and massive transfusion[3].The incidence of placenta previa and these risk are higher in low resource countries and increased due to continuous rise in rate of caesarean delivery. The relative risk of placenta previa is 4.5 for one, 6.5 for two, 7.4 for three and 44.9 for four or more previous caesarean as compare to vaginal deliveries. The chief measure of high standard care is the rate of first caesarean delivery as stated by the Italian Government[4]. Primary Caesarean Section (PCS) is described as caesarean delivery carried out first time in a woman with no previous caesarean delivery. The rate of Caesarean delivery exhibit dissimilarities worldwide, and a growing inclination toward caesarean delivery has been noticed during last three decade.

Caesarean section is a part of modern obstetric practice, with the aim of reducing maternal and perinatal morbidity and mortality. There is a significant

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geographical variation in caesarean section rate throughout the world ranging from 0.4percent in Chad to 45.9 percent in Brazil[4,5] with significantly higher rates in developed countries. The reason for higher caesarean section rate in developed countries include socio demographic factors, clinical practices and the attitude of healthcare professionals and women toward the procedure. Maternal request caesarean section (MRCS) is women considering caesarean section with no clinical indication, is increasing with tokophobia (excessive fear of child birth) and cited as commonest reason. It is important to explore carefully and document the reasons for such request and fully counsel the women to ensure, she is thoroughly informed of the risk and benefit for both mother and baby. In case of tokophobia referral to an appropriate mental health professional is indicated.

The contrary situation exists in Sub- Saharan Africa where very low caesarean section rate generally less than 5% have been reported. This phenomenon most likely represent inadequate access to medical services in economically depressed countries. There is a strong association with caesarean section and socioeconomic status, with caesarean deliveries increases as wealth increases.

Furthermore, statistics from developing countries have also established a growing trend of caesarean deliveries recently, up to 25 % in Nigeria.[6] It can be a life sustaining involvement for baby in cases of cord prolapse, placental abruption, high order pregnancies, abnormal fetal growth and fetal malpresentation. Studies conducted in different part of the world have suggested that maternal mortality is not reduced with increased caesarean deliveries but evidence supports that it is associated with poor maternal and fetal outcome as compared with vaginal delivery[7,8]. Various studies have determined the maternal mortality rate between 2.84[10] and 3.11[11] rate due to elective caesarean section.

The implication of caesarean delivery for future pregnancies, including increase rate of still birth, placenta previa and morbid adherent placenta (MAP) must be considered when making decision to perform a caesarean section. The risk of placenta previa and MAP is related to number of previous caesarean deliveries. The risk of MAP is11-14%after 1 caesarean and increase to 35-67% after 3 or more caesareans. Therefore, utmost struggle be driven to avoid primary caesarean delivery. The rationale of the study is to analyze the indications of primary cesarean delivery in year 2017 and compare the rate of cesarean section in year 2015-17 in our department since we were lacking any prior study on this subject in our setup.

Methodology

The study was premeditated to recognize the varying tendencies in caesarean delivery rate and varying indications of primary caesarean section. This study was conducted in department of obstetrics and Gynaecology, SKBZ/CMH Muzaffarabad, which is a tertiary care referral center in Azad jammu Kashmir. The study was to evaluate the caesarean section rate between January 2015 to December 2017 and the different reasons of primary caesarean deliveries that were performed between January 2017-December 2017.All caesarean deliveries that were performed in our department from January 2017 to December 2017 were prospectively collected through a pre designed Performa . Maternal variables include the age, parity, type of caesarean and indication of caesarean. Data was collected from hospital record registers after permission of head of department. It was a descriptive study with prospective consective sampling of all cesarean deliveries. The rate of cesarean section was calculated by dividing total no of cesarean by total no of deliveries multiplied by 100.

Relatedly, the total deliveries and caesarean sections performed from 2015 to 2017 were evaluated with the aim of detect the variations in the rate of caesarean section during previous 3 years in gynae department. Permission was obtained from hospital ethical committee.

Results

The caesarean rate was calculated as (total numbers of caesarean deliveries/total numbers of deliveries) multiply by 100. In 2017 a sum of 7206 deliveries took placed in gynae department. Similarly, the sum of deliveries in 2016 was 6726 and 2015 was 6357.The rate of caesarean deliveries was 42.17 % (2239 cases) in 2017. Table I.

Table I: Table showing total deliveries in 2017

Mode of delivery	No. of cases	Frequency (%)
Vacuum	161	2.23
Forceps	35	0.48
Caesarean	3039	42.17
Normal delivery	3971	55.10

In 2016 caesarean section were performed in 42.03% (2827 cases). The caesarean section rate in 2017 increased up to 42.17% (3039 cases).

When statistics of all deliveries and caesarean section of previous three years were evaluated (2015-2017), it was observed that number of hospital deliveries increased and the caesarean sections remained consistent from 41.20 % to 42.17% in 2017as shown in table II.

Table II: caesarean sections rate in previous 3 years

Year	Sum of deliveries	Caesarean deliveries	Rate of Caesarean deliveries
2015	6357	2372	41.26%
2016	6726	2827	42.03%
2017	7206	3039	42.17%

The demographic analysis (table3) shows maximum number of patients to be between21-30 (71%). Those of 20 and below were11%. Remaining were above 30 (18 %).54% were primipara and 46% were multipara. Majority of patients belonged to rural areas (68.27 %) and (31.73%) from urban areas (Table III).

Table III: Table showing demographic variations

Parameters	Variables	Percentage n (%)
Age	20 years and below	11
	21-30	71
	31-40	14
	>40	4
Parity	Primi	54
	Multi	46
Residence	Rural	68.27
	Urban	31.73

Indications of primary caesarean deliveries revealed in table IV.

Table IV: Main indications for primary caesarean delivery between (January 2017-December 2017)

Indications	2017	Percentage %
Fetal distress and meconium	454	27.90
Failed induction	218	13.39
Breech	164	10.07
Pregnancy induced hypertension (severe pre-eclampsia /eclampsia	137	8.42
Precious pregnancies	122	7.49
IUGR/oligohydroamnios	114	7.0
Cephalopelvic disproportion	107	6.57
Antepartum Haemorrhage	97	5.96
Failed progress	56	3.44
Twin pregnancies	36	2.24
Obstructed labour	24	1.49
Transverse lie	23	1.43
Cord prolapse	10	0.6
Others	42	1.38
Caesarean on maternal request	23	0.75

Discussion

Caesarean delivery is the most frequent major surgical procedure, performed in obstetrics and gynaecology. The caesarean delivery rate has been progressively increased throughout the world most dramatically in developed countries than others[10,11]In 21st century women are four times more likely to have caesarean birth than 30 years ago. The reasons for this increase are multifactorial and includes the increasing number of women with prior caesarean deliveries, increasing in multifetal gestation, the use of intrapartum electronic fetal monitoring, change in obstetric training, medicolegal concerns, alteration in parental and social expectation of pregnancy outcome and maternal autonomy in decision making regarding delivery mode. In 1985 WHO recommends caesarean section rate no higher than 15percent. Primary caesarean section is caesarean performed first time without previous caesarean. As most of the caesarean sections are performed in women with prior caesarean delivery. PCS is a major determining factor to alter caesarean delivery rate[12,13,14]

Caesarean delivery is most frequently performed surgical intervention in most part of the world that is not used appropriately. Globally, the first paper on Optimizing Caesarean Section use presented that, caesarean delivery practice is high and growing in 2015, a projected 29·7 million (21·1%) births occurred by caesarean, which was almost double the proportion in 2000 (12·1%). WHO has estimated that 6·2 million additional caesareans are being performed annually, more than half of which are performed in Brazil and China[3,4.]

In our study it was observed that rate of caesarean delivery has remained consistent as compared to past

41.26% vs. 42.17 % though the sum of deliveries in the hospital was raised by 9 %. In 2015 sum of 6357 deliveries and in 2017 total 7206 deliveries. Statistics from 2015- 2017 also shows an increasing number of vaginal births. In 2015(3734 cases 58.73%), 2016 (3899 cases57.96%) and in 2017 (4167 cases 57.82%) while caesarean section, in 2015 (2623 cases, 41.26 %), 2016 (2827 cases, 42.03 %) and in 2017(3039cases, 42.17%) were performed in department.

Various demographic changes particularly increasing maternal age is also connected with high caesarean rate in our department but the rate despite being high remained consistent in three years of study period. Caesarean delivery is linked with increased risk of severe maternal morbidity and mortality and are greater than those associated with vaginal delivery, even after adjustment of risk factors. Risk of placenta previa and accrete, placental abruption, uterine rupture and need of peripartum hysterectomy are increased in future pregnancies[15,16].

Caesarean section is also linked with amplified risk of preterm delivery, low birth weight, still birth and neonatal death in subsequent pregnancies[16].

The most frequent indication for first caesarean section in this study was fetal distress and meconium stained liquor which established in 27.90% (454). Meconium stained liquor was common in women who had intrauterine growth retardation, pregnancy induced hypertension, oligohydroamnios, postdates pregnancies and mostly in non-booked cases. Due to economic limitation and decrease literacy rate women usually report to hospital only at time of delivery. The meconium aspiration is an important cause of neonatal morbidity and mortality and due to unavailability of continuous intrapartum monitoring, fetal scalp sampling the caesarean delivery rates are higher due to meconium stained liquor and fetal distress.

The second common cause was failed induction in 13.39% (218 cases). One must identify the risk related with borderline induction and avoid such induction. Limiting induction of labour when there is no clear indication before 41 completed week and with poor bishop, help to reduce unnecessary caesarean sections.

To reduce caesarean section due to failed progress of labour/arrest in second stage constituted 3.44 % (56 cases) of all indications which is similar to study done by Gupta M. Judicious use of oxytocic's and maintenance of portogram in case of failure to progress will help to reduce the rate of caesarean in such cases. Our institution which is a tertiary care center gets a larger number of complicated cases as well in critical stage which makes it difficult to keep caesarean rate low.

Breech presentation accounted for 10.07% (164 cases). Elective caesarean delivery has progressively become favored approach for breech delivery over the past twenty years. Planned caesarean section than with planned vaginal birth is associated with decrease perinatal and neonatal morbidity as evident from meta analysis[17,19].

Cephalopelvic disproportion was indication in 6.57% (107 cases), Bad obstetrical history /precious pregnancies in 7.49 % (122 cases). Complicated pregnancy induces hypertension /gestational diabetes constituted in 8.42 % (137 cases). Caesarean for antepartum haemorrhage were performed in 5.96 % of (97 cases).

The caesarean section performed in women with pregnancy induced hypertension/preeclampsia were in 137(8.42%). The severe preeclampsia is one of the most common reason for elective preterm birth. Most of the time baby need to deliver in a woman with poor bishop. Many obstetricians prefer to perform caesarean in a pregnancy with a healthy baby. Many observational studies have demonstrated that caesarean delivery may worsen outcome for both baby and mother with increased risk of complication. There is need of high-quality randomized trial to asses short term and long-term effects of caesarean section and vaginal delivery for these women and their babies. Caesarean sections performed on request were low in 0.75 % of all indications. However maternal request for caesarean section is high in the west and comprises of around 23%-38.9% in the United Kingdom.

Conclusion

The caesarean section is an integral part of obstetric practice. As the primary caesarean section usually determines the woman's future course of pregnancy and its associated complications and mode of delivery, it is of prime importance to make efforts for safe reduction of caesarean. Careful evaluation and individualization of indications according to evidenced-base obstetrics followed by regular audit, can help us limit caesarean rates. The most common indication for performing caesarean section first time is fetal distress

and meconium stained liquor. Every effort should be made to reduce first caesarean which can be accomplished by continuous intrapartum fetal monitoring and confirmed by fetal scalp PH finding and this may help in reducing primary caesarean section.

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