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Original Research Article

Analysis of caesarean section in a tertiary care hospital, Assam, India

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ABSTRACT

Background: One of the commonest surgery performed worldwide is caesarean Section (CS). The World Health Organization (WHO) has identified an ideal caesarean section (CS) rate for a nation of around 10-15%. In recent times the proportion of delivery conducted by caesarean section has increased.
Methods: This is a retrospective study of all the caesarean deliveries performed between 1st January 2010 to 31st December 2018 in the Department of Obstetrics and Gynaecology in Silchar Medical College. The caesarean rate was calculated as: (total number of caesarean deliveries/ total number of deliveries) × 100. The indications for CS included foetal distress, malpresentation, previous caesarean section, multiple gestation, failed induction, failed progression, cephalopelvic disproportion, maternal indications, obstetric indication and foetal indications.
Results: During the study period a total of 75685 patients delivered. 25805 patients had undergone CS with the CS rate being around 34.1%. Majority of the CS (75.6%) were performed as emergency procedure. Maximum number of patients were between 21-30 years (73.24%) and 54.47% were primipara. Majority of the patients (68.37%) belonged to the rural areas. Foetal distress (32.8%) was the commonest indication followed by post caesarean pregnancy (26.76%).
Conclusions: The rate of caesarean section is increasing with time. As primary caesarean section usually determines the lady's future obstetric course, it is of prime importance to give effort for safe reduction of caesarean. Individualization of the indication and careful evaluation, following standardized guidelines and practice of evidenced-based obstetrics followed by audits in the institution, can help us limit the caesarean rates.

Keywords: Caesarean section, Indications, Rate

INTRODUCTION

One of the commonest surgery performed worldwide is caesarean section (CS). The surgery should only be performed when there is a valid reason to do so. The World Health Organization (WHO) has identified an ideal caesarean section (CS) rate for a nation of around 10-15%.[1] In recent times the proportion of delivery conducted by caesarean section has increased and has reached the epidemic proportion in some parts of the world. It has been suggested that factors, such as social, cultural, unequal accessibility to health services and clinical practice patterns might have been major contributors to the wide variation in caesarean section rates across different countries.[2,3] The increasing trend of CS rates may indicate a trend towards a costlier medical delivery systems and lowered threshold of abnormality detection among the health care providers.[4] Studies have shown that there is no evidence of benefit for the health of mothers and babies in populations with values of CS rate above 15%.[5,6] In fact, caesarean deliveries are associated with increased risk of maternal and perinatal morbidity as compared to vaginal

deliveries even in low risk cases.[7] This study is aimed to find the rate of caesarean deliveries and various indications of the procedure. This analysis may help to find out various ways to reduce the incidence of caesarean rate in the institute in future.

METHODS

This is a retrospective study of all the caesarean deliveries that occurred in the period between 1st January 2010 to 31st December 2018 in the Department of Obstetrics and Gynaecology in Silchar Medical College. This is a tertiary care hospital receiving referred patients from nearby rural sub divisional hospitals, peripheral health centres and also nursing homes.

Data were analysed from the hospital records. Maternal data collected included the age, parity, type of CS and indication of CS. The caesarean rate was calculated as:

(Total number of caesarean deliveries / Total number of deliveries) × 100.

The indications for caesarean section included foetal distress, malpresentation, previous caesarean section, multiple gestation, failed induction, failed progression (including failed forceps or vacuum extraction), cephalopelvic disproportion, maternal indications, obstetric indication and foetal indications.

In the present study, foetal distress includes foetal distress during labour, and abnormal umbilical artery Doppler study. Maternal indications include the maternal conditions predating the pregnancy that could complicate delivery like complete perineal tear, medical causes, post myomectomy etc. Obstetric indications were placenta previa, abruptio placentae, placenta accreta, cord prolapse etc. Foetal indications included intrauterine growth restriction, prematurity, and congenital malformations in which vaginal delivery was not possible.

RESULTS

During the study period a total of 75685 patients delivered and 25805 patients had undergone caesarean section.

Table 1: Year wise deliveries, caesarean section and caesarean section rates.

Year	Total deliveries	Caesarean section	Rate of CS
2010	7843	2154	27.5%
2011	8159	2378	29.1%
2012	9038	2848	31.5%
2013	9677	3174	32.8%
2014	10001	3605	36.04%
2015	10084	3538	35.08%
2016	10071	3819	37.9%
2017	10812	4289	39.6%

Year wise deliveries, caesarean section and caesarean section rates in the hospital from 2010 to 2017 is shown in Table 1. Caesarean rates were lowest in 2010 (27.5%) and highest in 2017 (39.6%).

Table 2: Caesarean section rates.

Mode of delivery	No. of cases	Percentage
Vaginal delivery	49880	65.9
Caesarean delivery	25805	34.1
Total	75685	
Type of caesarean		
Emergency	19508	75.6%
Elective	6297	24.4%

Table 2 shows that the caesarean section rate at the institution comes to be around 34.1% whereas vaginal delivery rate was 65.9%. Majority of the CS (75.6%) were done as emergency procedure as patients mostly came to this hospital when there was emergency or were referred. Only 24.4% cases had elective CS.

Table 3: Demographic analysis of patients who underwent caesarean.

Parameters		No. of cases	Percentage
Age	20 years and below	3826	14.8
	21-30 years	18902	73.24
	31-40 years	2814	10.9
	>40 years	263	1.01
Parity	Primi	14057	54.47
	Multi	11748	45.52
Residence	Rural	17643	68.37
	Urban	8162	31.63

Demographic analysis shows maximum number of patients to be between 21-30 years (73.24%). Those of 20 years and below were 14.8%. 14057 patients (54.47%) were primipara and 45.52% cases were multipara (Table 3). Majority of the patients (68.37%) belonged to the rural areas and 31.63% cases were from urban areas.

Table 4: Indication of caesarean deliveries.

Indication	No. of cases	Percentage
Foetal distress	8462	32.8%
Malpresentation	1893	7.33%
Post caesarean pregnancy	6905	26.76%
Failed induction	948	3.67%
Failed progression	2706	10.5%
cephalopelvic disproportion	476	1.84%
Multiple pregnancy	695	2.7%
Maternal indication	492	1.9%
Obstetric indication	2137	8.2%
Foetal indication	1091	4.2%

Among the indications, it was observed that foetal distress (32.8%) was the commonest cause followed by post caesarean pregnancy (26.76%) as shown in table 4.10.5% cases were due to failed progression and obstetric indication constituted 8.2%.

DISCUSSION

Although the CS rate is said to vary from region to region and from one country to another, worldwide there has been an increasing trend of caesarean section deliveries. Manjulatha B et al found the CS rates to increase from 16.6% in 2002 to 22.4% in 2012.[8] Present study also showed an increase in CS rates from 27.5% in 2010 to 39.6% in 2017. In the present study we found the CS rate of the institution to be 34.1% which is similar to the findings of Bhasin SK et al.[9] Santhanalakshmi C et al found CS rate to be comparatively lower (12.5%) whereas G Singh et al and Haidar G et al (Pakistan) reported CS rate as high as 51.1% and 67.7% respectively.[10-12]

The reasons for the increase in the caesarean rates are multifaceted. Detection of foetal distress especially with the use of continuous electronic foetal monitoring may be an important reason. Liberal use of caesarean in high risk cases like breech presentation, previous caesarean delivery, growth retarded foetus etc along with avoidance of difficult manipulative or instrumental vaginal deliveries may be some other reasons. Our institution which is a tertiary centre gets a large number of complicated pregnancies as well as referred patients in critical stage which makes it difficult to keep the CS rates low.

In the present study majority of the CS (75.6%) were performed as emergency cases which is comparable with findings of Gupta M et al who found emergency cases to be 62.08%.[13]

Demographic data analysis of the present study showed that 73.24% cases belonged to 21-30 years which is similar to the findings of Jawa A.[14] Majority of our cases (68.37%) belonged to rural areas whereas Gupta M et al found most of the cases belonging to urban areas. The location of the institution and the type of health care facility available in nearby areas play a vital role in this matter.

In the present study, foetal distress was the commonest indication (32.8%) of CS. Studies by Barber EL et al and Liu S et al also showed similar results.[15,16] This is in contrast to the findings of Santhanalakshmi C et al and Gupta M et al where previous caesarean was the leading indication of CS.[10,13] The most accurate method for establishment of foetal distress is to perform foetal scalp blood pH estimation but in our setup this was not performed. The post caesarean cases accounted for the second commonest indication in out hospital (26.76%). The incidence of CS in previous CS case can be minimized by routine practice of a trial of labour of Vaginal Birth After Caesarean (VBAC). VBAC is less in our hospital due to details regarding previous CS mostly being not available, doubtful scar strength, greater number of complicated referral cases to deal with and shortage of trained personnel for continuous monitoring of such cases. Few studies found that VBAC with a well-defined protocol was found to safe for the mother and infant as a planned caesarean delivery and can be encouraged.[18,19] However, McMahon et al noted that higher rates of maternal and foetal morbidity exist with VBAC as compared to elective caesarean.[20]

Failed progression constituted 10.5% of the indications in our study which is similar to the findings of the study done by Gupta M. Judicious use of oxytocics and maintenance of a partogram in cases of failure to progress will help reduce the rate of CS in such cases. Obstetric indications constituted 8.2% of the indications. Being a referral centre our hospital has to deal with more number of such cases.

CONCLUSION

With passing time, the rate of caesarean section is increasing. As primary caesarean section usually determines the future obstetric course of a lady, it is of prime importance to give effort for safe reduction of caesarean. Individualization of the indication and careful evaluation, following standardized guidelines and practice of evidenced-based obstetrics followed by audits in the institution, can help us limit the caesarean rates.

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