

Changing trends in caesarean deliveries at a tertiary care centre: a ten year appraisal

Paudyal P, Gurung G, Baral J, Rana A

Department of Obstetrics and Gynaecology, Tribhuvan University Teaching Hospital, Kathmandu, Nepal

Correspondence: Dr Pooja Paudyal,

Email: paudyalpooja@yahoo.com

Abstract

Introduction: Over the last few decades, the rise in the rates of Caesarean Sections (CS) has become a global phenomenon. The objective of this study was to follow the CS rates over the last 10 years and to compute the various indications of CS in an attempt to analyze the possible reasons for this changing trend in the institute.

Methods: All deliveries that took place between April 13, 2004 to April 14, 2014 (Baisakh 2061 BS and Chaitra 2070 BS) in TUTH were retrospectively collected. Annual total number of deliveries, rates of CS, instrumental deliveries and Vaginal Birth after Caesarian Section (VBAC) along with indications for CS were computed and analyzed.

Result: A total of 38,770 deliveries were conducted over ten years with 26,791 (69.10%) vaginal deliveries and 11,979 (24.80%) CS. There was a steep rise in the rates of CS from 21.04% in 2004 to 39.23% in 2014. Rates of instrumental deliveries and VBAC remained low at 0.86% to 3.35% and 0.15% to 0.7 % respectively. Fetal distress was the commonest indication of emergency CS while previous CS was the commonest indication for elective CS.

Conclusion: Over the last decade, the global trend of rising CS rates was also found to be mirrored at TUTH. The causes for rise in CS rates were- increased diagnosis of fetal distress and oligohydramnios, delivery of most breech by Caesarean sections, low rates of VBAC and instrumental deliveries, complicated referrals from all over the country and last but not the least, threat of malpractice litigations.

Key words: Caesarean sections; Rates; Indications.

Introduction

Caesarean delivery is defined as the birth of a fetus through incisions in the abdominal wall (laparotomy) and the uterine wall (hysterotomy).¹ Caesarean Section (CS) is one of the most commonly performed surgical procedures in modern obstetrics. The improvements in anesthesia services, availability of improvised surgical techniques and prophylactic use of antibiotics have made CS a relatively safer procedure.

There is no consensus regarding the ideal CS rate; however WHO states that no additional health benefits are

associated with a CS rate above 10 to 15%.^{2,3} Over the last few decades marked rise in the rates of CS has become a global phenomenon. CS rate in USA was 4.5% in 1965, increased to 29.1% in 2004 and after steeply increasing over more than a decade, it leveled off at 32.8% in 2010 and 2011.⁴ In Chile, 40% of births are by this route while in Brazil's public hospitals, up to 80% of pregnant women reportedly gave birth by CS.⁵ A study done in a tertiary level hospital in Eastern Nepal showed an increase in CS rates from 29.2% in 2003 to 33.7% in 2007.⁶

The rate of CS has increased many folds and the reasons for this marked increase has not been completely evaluated but some of the possible explanations are: increased use of electronic fetal heart rate monitoring (EFM) which lowers the threshold for CS, breech fetuses are delivered more often by CS, waning operative deliveries, rising labor inductions, low VBAC rates and medicolegal concerns.¹

The objective of this study was to follow the CS rates in the institute over the last 10 years to see whether it follows the global trend and to compute the various indications of CS in an attempt to analyse the possible reasons for this changing trend at the institute.

Methods

This was a retrospective study conducted in the Department of Obstetrics and Gynecology of Tribhuvan University Teaching Hospital (TUTH). All deliveries that took place between April 13, 2004 to April 14, 2014 (Baisakh 2061 BS to Chaitra 2070 BS) were retrospectively collected from the record book of labour room and annual labour room/CS audits of the Department. All CS that were done during the period were recorded and the indications were noted. Also the instrumental deliveries (vacuum and forceps) were noted along with all Vaginal Births after Caesarean section (VBAC). Annual total number of deliveries, rates of CS, rates of instrumental deliveries and rates of VBAC

were computed. All data was entered into a master chart and descriptive analyses were conducted using the SPSS 19 software. Qualitative variables were expressed as percentages. Comparison was made between the first five years (April 13, 2004 - April 12, 2009) and the last five years (April 13, 2009 - April 14, 2014).

Results

During the ten years, there were a total of 38,770 deliveries conducted in the hospital. Of those 26,791(69.10%) were vaginal deliveries, of which 685(1.76%) were instrumental deliveries. There were 11,979(30.89%) CS performed during the period. (Table 1) There has been increase in the number of Caesarean in the last five years (Table 2).

Fetal distress and breech presentation were the commonest indication of emergency CS earlier, however these days it is performed for fetal distress and oligohydramnious. Previous CS and breech remain common condition for emergency CS. (Table 3)

Table 1: Total vaginal and Caesarian births during the ten year period.

Deliveries	Number	Average/year
Total deliveries	38770	3877
Total vaginal deliveries	26791(69.10%)	2697.1
Total Caesarian deliveries	11979(30.89%)	1197.9
Total instrumental deliveries	685(1.76%)	68.5

Table 2: Comparison of total vaginal and Caesarian births between the first five years and last five years

Deliveries	April 13, 2004 - April 12, 2009 (2061-2065 BS)	April 13, 2009 - April 14, 2014 (2066-2070 BS)
Total deliveries	18733	20037
Total vaginal deliveries	14086 (75.19%)	12705 (63.40%)
Total Caesarian deliveries	4647 (24.80%)	7332 (36.54%)
Total instrumental deliveries	208 (1.11%)	477 (2.38%)

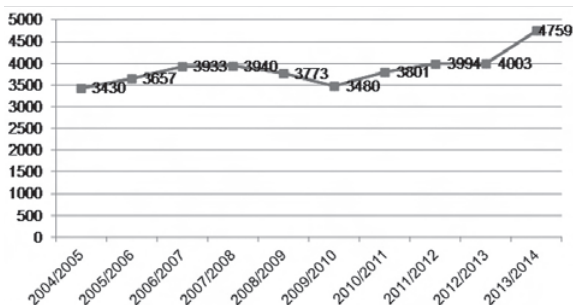


Figure 1: Number of annual vaginal deliveries

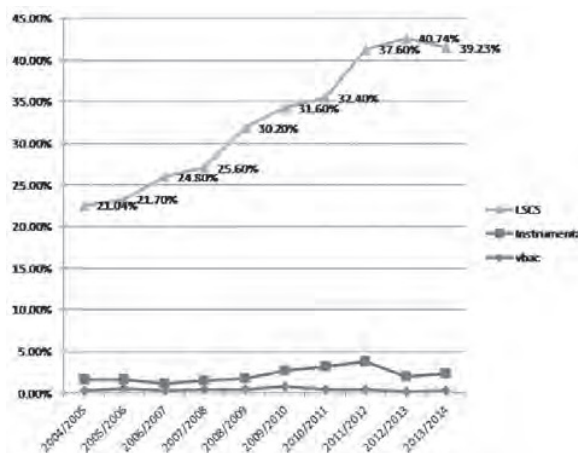


Figure 2: Graphical representation of annual rates of LSCS, instrumental deliveries and VBAC

Table 3: Top five indications for Elective and Emergency LSCS in the first and last half of the ten year period

April 13 2004- April 12, 2009 (2061-2065 BS)				April 13, 2009-April 14, 2014 (2066-2070 BS)		
	SN	Indication	No	SN	Indication	No
Emergency CS	1	Fetal distress	1603(34.5%)	1	Fetal distress	3073(41.9%)
	2	Breech	343(7.38%)	2	Oligohydramnios	711(9.69%)
	3	Previous CS	324(6.97%)	3	Previous CS	409(5.57%)
	4	Non Progress Of Labour	313(6.73%)	4	Non Progress Of Labour	400(5.45%)
	5	Oligohydramnios	241(5.2%)	5	Failed induction	296(4.03%)
Elective CS	1	Previous CS	272(5.85%)	1	Previous CS	692(9.4%)
	2	Breech	116(2.5%)	2	Breech	140(1.9%)
	3	CephaloPelvic Disproportion	69(1.48%)	3	Subfertility	91(1.24%)
	4	Bad Obstetric History	54(1.16%)	4	Bad Obstetric History	89(1.21%)
	5	Subfertility	47(1.02%)	5	CephaloPelvic Disproportion	72(0.98%)

Discussion

There has been a steady increase in the rate of CS in both developed and developing countries. The increasing rate of Caesarean delivery has become an international public health concern. In 1985 the World Health Organization stated: “There is no justification for any region to have CS rates higher than 10–15%”.² Three decades later, however, the optimal rate of births by CS remains controversial in both developing and developed countries.⁷⁻⁹ In many developed countries, CS rates have increased, and attention has focused on strategies to reduce use due to concern that higher CS rates do not confer additional health gain but

may increase maternal risks, have implications for future pregnancies and have resource implications for health services.^{10,11} It has also become apparent that there is an increased risk of placenta praevia and placenta accreta in subsequent pregnancy and the risk of hysterectomy may be as high as 1 in 700 for repeat CS.^{12,13}

The CS rate in our study has increased from 21.04% in 2004 to 39.23% in 2014. Similar rise in Caesarean delivery rate was seen throughout the world. CS rate in USA was 4.5% in 1965, increased to 29.1% in 2004 and estimated at 32.8% in 2010 and 2011.⁴ In UK it increased from 9% in 1980 to 21.3% in 2000.^{14,15}

Fetal distress has remained the commonest indication of emergency CS over the last decade in our study. While comparing the two halves of the study period, there has been an increase in number of CS due to fetal distress by 7.4%, probably attributable to more frequent use of electronic fetal monitoring (EFM) in the last few years. Various studies have shown an increase in the CS rate associated with EFM and no significant reduction in the overall perinatal mortality rate.^{16,17}

Oligohydramnios has emerged as the second most common indication of Emergency CS in our study during the second half which may be due to more frequent use of ultrasonogram and higher diagnosis of reduced liquor volume radiologically. Due to higher number of induced labors, we have seen an increase in number of CS done for failed inductions in the last five years.

CS done for previous CS has been the commonest indication for Elective CS during both half with a rise from 5.85% in the first half to 9.4% during second half, a reflection of rise in number of primary CS over the years. There is a plethora of studies describing safe vaginal birth after CS and data would suggest a scar dehiscence rate of less than 1% for women undergoing an attempted vaginal delivery.^{18,19} Perhaps if there could be more trial of labor in previous CS cases, there could result in a decrease in number of CS. But VBAC rates have remained very low over the last ten years in our institute. In US a steep decline in the VBAC rate was seen from 28.3% to 9.2% (1996 to 2004).⁴ The causes could be maternal preference as well as clinician choice. CS is being regarded as safe and convenient, and certainly less likely to give rise to the complication of scar dehiscence and possible subsequent litigation.²⁰

In addition, there hasn't been any substantial increase in number of instrumental deliveries over the years as the number of deliveries has risen.

The department protocol of delivering primi breech via CS in our institute has led to it becoming a major reason for elective CS during the last ten years. An increasing trend of CS for subfertility and Bad Obstetric History (BOH) may be explained on the basis that women are attempting pregnancy at a later age than before with the consequent problems of fertility.

Another factor responsible for the relative high rate of CS could be the status of the hospital as a tertiary level referral center, where complicated cases are referred from all over the country. According to Maskey S, 2.6% of all admissions in the obstetric unit were referred cases and among them 52% needed operative intervention.²¹

Last but not the least reason is a very real threat of malpractice litigations in obstetric practice these days which has led to the practice of safe obstetrics resulting in higher number of CS.

Conclusion

The global trend of rising CS rates was found to be mirrored at our institute too, with a rise in rates from 21.04% in 2004 to 39.23% in 2014. The commonest indication of Emergency CS was fetal distress while that of Elective CS was previous CS.

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