VOLUME-8, ISSUE-12, DECEMBER-2019 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper | Obstetrics & Gynaecology

# CHANGING TRENDS IN THE INDICATIONS OF CAESAREAN OVER A DECADE AT RIMS GENERAL HOSPITAL, SRIKAKULAM.

**Dr. Tulugu Sasikala** Associate Professor, Department Of Obstetrics And Gynaecology, Acsr Medical College, NELLORE, Andhra Pradesh.

**Dr. Jyothirmayi Ponnada*** Assistant Professor, Department Of Obstetrics And Gynaecology, RIMS Medical College, Srikakulam, Andhra Pradesh. *Corresponding Author

## ABSTRACT

**BACKGROUND:** This study was done to evaluate the changing trends in caesarean section over one-decade period and to determine as to whether increase in caesarean section rate is due to increase in antenatal surveillance or due to medically complicated pregnancies or conceived with infertility treatment.

**MATERIALS AND METHODS:** The study was conducted in a 600 bedded Government General Hospital, Government Medical Collage (RIMS), Srikakulam, Andhra Pradesh. Data was collected retrospectively from database from 2009 to 2018. The rates and indications of primary and repeat caesarean sections (CS) were analysed among 3476 live births during 2018. Caesarean section rates have increased as it has become the procedure of choice in high risk pregnancies to prevent prenatal morbidity and mortality; this has become possible due to improved patient care, availability of effective antibiotics, blood transfusion services, safer anaesthesia, improved surgical technique and sophisticated neonatal care services.

**RESULTS:** As medically complicated pregnancies and antenatal surveillance have increased, there was an increase in caesarean section rate. Caesarean section rate increased from 22.23% in 2009 to 40.56% in 2018. There was an increase in primary section and repeat sections. Primary caesarean section rate is 54.32% compared to repeat caesarean section rate which was 45.67%. This increase in caesarean section rate is due to increase in indications like cephalo pelvic disproportion, pregnancy being associated with medical disorders (PIH, GDM, hypothyroidism) and Malpresentations.

**CONCLUSION:** Rising rate of caesarean section over one decade is attributed to frequent diagnosis of foetal distress on electronic foetal heart monitoring, identification of high-risk mother and frequent resort to elective sections in high risk situations and precious pregnancies and institutional vaginal deliveries.

**KEYWORDS :** Primary Caesarean Section, Repeat Caesarean Section, Caesarean Rate, Gestational Hypertension, Gestational Diabetes Mellitus, Hypothyroidism,

## BACKGROUND

Caesarean section is one of the commonly performed surgical procedures in obstetrics and is certainly one of the oldest techniques in surgery. Its incidence continues to rise internationally. The rising rates of CS internationally have prompted the World Health Organization to make a proposal in 1985 that a CS rate of more than 10–15% is not justifiable for any region in the world.[1] Caesarean section (CS) is an operation mainly evolved to save a maternal life during difficult child birth. The decision to perform a primary CS has important implications for maternal morbidity in the current pregnancy and mode of delivery and maternal morbidity in subsequent pregnancies[2,3,4] increases in the caesarean rate for women of all ages, races, geographic areas, and gestational ages.

The reasons mostly related to foetal distress especially in detection by continuous electronic foetal monitoring, advanced age, more liberal use of caesarean section for breech, intrauterine growth retardation (IUGR), preterm labour, multiple gestation, medical complicating pregnancy like Gestational Hypertension, Gestational Diabetes Mellitus and Hypothyroidism and improved safety of caesarean section.

## AIMS AND OBJECTIVES

To compare changing trends in caesarean section over one decade -increase Caesarean section rate done to increase in Antenatal Surveillance and Medically Complicated pregnancies.

## MATERIALS AND METHODS

The study conducted In Prospective and retrospective manner in 600 bedded Government Hospital; Govenrment medical college, Srikakulam, Andhra Pradesh. The caesarean rate was calculated as the number of caesarean births divided by total live births. To compare the caesarean delivery rates over the last decade, the data was collected for the year 2009 and 2018.

The rates and indications of primary and repeat caesarean sections (CS) were analysed among 3476 live births during 2018 and present caesarean section rate was compared with that of 2009 and 2013 caesarean rates.

The following variables of interest were retrieved from the database: maternal age; year of delivery; parity; total number of previous caesarean sections; mode of delivery; onset of labour; gestational age; birth presentation; birthweight.

The categories of indications for caesarean section like foetal distress, multiple gestation, mal presentation, arrest of labour or vacuum extraction, cephalopelvic disproportion(CPD), maternal indications, and foetal indications were studied. Cases with missing information after review were excluded.

## RESULTS

A total of 1410 caesarean sections performed during the year 2018 at Government General Hospital (RIMS), Srikakulam, Andhra Pradesh were analysed. The total number of deliveries during our study period was 3476. Out of these 3476 patients 2066 had normal vaginal delivery and 1410 had caesarean delivery. The incidence of caesarean section at our institution was 40.56% as per Table 1.

*Table 1. Incidence of Caesarean Section*

| Mode of Delivery | No. of Cases | % |
|---|---|---|
| Vaginal Delivery | 2066 | 59.44 |
| Abdominal Delivery(LSCS) | 1410 | 40.56 |
| Total no. of Deliveries | 3476 | 100 |

There was increase in the rate of caesarean section over decade from 2009 to 2018 as per Table – 2. In 2009 CS rate was 23.23% in 2018 40.56%.

As per table – 3. Incidence of primary section 54.32% and

repeat section 45.67%.

As per Table -4 the Incidence of primary emergency 39.07%, Primary elective caesarean section 15.24%, repeat emergency 17.58% and repeat elective 28.08%.

As per Table - 5. emergency CS contributed to 56.66%, elective CS 45.33%. This seems to be main reason for the rise of caesarean section rate. There is a need to encourage trial of labour following a caesarean done for non – recurrent indication.

*Table 2. Rate of Caesarean Section Over a Decade from 2009 to 2018*

| Year | Total No. of Deliveries | No. of Caesarean Sections | % |
|---|---|---|---|
| 2009 | 2051 | 456 | 22.23 |
| 2013 | 1816 | 449 | 24.72 |
| 2018 | 3476 | 1410 | 40.56 |

*Table 3. Incidence of Primary / Repeat Caesarean Sections*

| Primary/ Repeat | No. of Cases | % |
|---|---|---|
| Primary section | 766 | 54.32 |
| Repeat section | 644 | 45.67 |
| Total no. of CD | 1410 | 100 |

*Table 4. Incidence of Primary and Repeat Emergency/Elective Caesarean Section*

| Type of CS | No. of Cases | % |
|---|---|---|
| Primary emergency | 551 | 39.07 |
| Primary elective | 215 | 15.24 |
| Repeat emergency | 248 | 17.58 |
| Repeat elective | 396 | 28.08 |

*Table 5. Incidence of Emergency/Elective CS*

| Type of CS | No. of Cases | % |
|---|---|---|
| Emergency CS | 799 | 56.66 |
| Elective CS | 611 | 43.23 |
| Total No. of CD | 1410 | 100 |

*Table 6. Important Indications for Primary Emergency Caesarean Sections Performed in The Year 2018*

| Indications | No. of Cases | % |
|---|---|---|
| Foetal distress | 203 | 36.84 |
| Cephalo-Pelvic Disproportion Associated with Medical Disorders Complicating Pregnancy Like PIH, GDM, Rh Negative Pregnancy, Hypothyroidism, Epilepsy, Bronchial Asthma, Including Failed Induction. | 201 | 36.47 |
| Big Baby (Birth Weight 3.5 Kg and More) | 24 | 4.35 |
| Malpresentations | 28 | 5.08 |
| Oligohydramnios | 42 | 7.62 |
| Preterm | 18 | 3.26 |
| Pelvic Abnormalities | 21 | 3.81 |
| Precious Pregnancy | 14 | 2.54 |

*Table 7. Important Indications for Primary Elective Caesarean Sections Performed in the Year 2018*

| Indications | No. of Cases | % |
|---|---|---|
| Cephalo-Pelvic Disproportion Associated with Medical Disorders Complicating Pregnancy Like PIH, GDM, Rh Negative Pregnancy, Hypothyroidism, Epilepsy, Bronchial Asthma. | 79 | 36.74 |
| Cephalo-Pelvic Disproportion | 42 | 19.53 |
| Malpresentations | 18 | 8.37 |
| Pelvic Abnormalities | 26 | 12.09 |
| Precious Pregnancy | 12 | 5.58 |

*Table 8. Important Indications for Repeat Emergency Caesarean Sections Performed in The Year 2018*

| Indications | No. of Cases | % |
|---|---|---|
| Scar Tenderness | 52 | 20.96 |
| Cephalo-Pelvic Disproportion Associated with Medical Disorders Like PIH, GDM, Hypothyroidism, Rh Negative Pregnancy, Epilepsy. | 86 | 34.67 |
| Malpresentations | 18 | 7.25 |
| Pelvic Abnormalities | 14 | 5.64 |
| Foetal Distress | 78 | 31.45 |

Important indications for repeat elective caesarean sections performed in the year 2018 were as per Table-9. Cephalo –pelvic disproportion associated with medical disorders like GDM, PIH, RH negative pregnancy, hypothyroidism epilepsy, bronchial asthma were the commonest indication for primary emergency LSCS followed by foetal distress and malpresentations.

Cephalo-pelvic disproportion associated with medical disorders complicating pregnancy like PIH, GDM, RH Negative Pregnancy, hypothyroidism, epilepsy, bronchial asthma, cephalo pelvic disproportion, pelvic abnormalities were the commonest indications for primary elective LSCS and also for repeat caesarean section. Apart from above. Foetal distress amounted to more than one third of repeat emergency LSCS followed by scar tenderness.

The majority of cases were in the age group of 21-25 years (59%) as per Table -11. This reflects the early marriage and early age of child bearing among Indian women. Total 90.92% of women belonged to low socio-economic status as per Table-12. Total 78.15% patients belonged to rural area as per Table - 13. This indicates the awareness among rural women comparatively with urban women and shows the improved transport facilities are available through 108 services to our hospital.

*Table 9. Important Indications for Repeat Elective Caesarean Sections Performed in The Year 2018*

| Indications | No. of Cases | % |
|---|---|---|
| Cephalo-Pelvic Disproportion Associated with Medical Disorders Like PIH, GDM, Hypothyroidism, RH Negative Pregnancy, Epilepsy, Bronchial Asthma | 196 | 49.49 |
| Big Baby (Birth Weight 3.5 Kg and More) | 46 | 11.61 |
| Malpresentations | 20 | 5.05 |
| Past-Dates | 48 | 12.12 |
| Oligoamnios | 46 | 11.61 |
| IUGR with Oligoamnios | 11 | 2.77 |
| Intrauterine Growth Retardation (IUGR) | 9 | 2.27 |
| Pelvic Abnormalities | 13 | 3.28 |
| Precious Pregnancy | 7 | 1.76 |

Total 77.02% of patients had regular antenatal checkups but 22.97% were admitted as emergencies as per Table -14. Most of these cases were post caesarean pregnancies and referred from surrounding villages as our hospital is a referral hospital. Majority of LSCS were in primi gravid(41.41%) and second gravid(45.60%) as per Table-15. Total 68.93% cases were performed at term with good foetal survival chances as per Table 16.

## DISCUSSION

There is concern over the rising caesarean delivery rates, in both developed and developing countries across the world.[5,6]

The rates of both primary and repeat caesarean delivery have been on the rise.[7]

A study conducted by Stavrou et al.[8] in New South Wales, Australia, showed an overall increase in caesarean rate from 19.1 to 29.5 per 100 births from 1998 to 2008. In a study conducted in Singapore by Chong et al.[9]

In our study the rates and indications of primary and repeat caesarean sections (CS) were analysed among 3476 live births during 2018 and present caesarean section rate was compared with 2009 and 2018 caesarean rates. In our study, the caesarean rate was 40.56%. There is an increase in the LSCS rate over last decade from 22.23% in 2009, 24.72% in 2013, and 40.56% in 2018.

An increase in primary and repeat caesarean rates has been reported by Stavrou et al.[8] in our study primary emergency rate is higher than repeat emergency. Both multiple gestation and pre-eclampsia increased as indications for caesarean delivery at a much faster rate than the incidences of multiple gestation[10] and pre-eclampsia[11,12] in the population are increasing.

*Table 10. Comparison of Various Indications for All Types of CS*

| Indications | Emergency | Elective | Emergency | Elective |
|---|---|---|---|---|
| Cephalo-Pelvic Disproportion Associated with Medical Disorders Like PIH, GDM, Hypothyroidism, RH Negative Pregnancy, Epilepsy, Bronchial Asthma | 36.47 | 36.47 | 34.67 | 49.49 |
| Pelvic Abnormalities | 3.891 | 12.09 | 5.64 | 3.28 |
| Foetal Distress | 36.84 | - | 31.45 | - |
| Precious Pregnancy | 2.54 | 5.58 | - | 1.76 |
| Big Baby | 4.35 | - | - | 11.61 |
| Malpresentations | 5.08 | 8.37 | 7.25 | 5.05 |
| Scar Tenderness | - | - | 20.96 | - |
| IUGR | - | - | - | 2.27 |

As in our study, the largest contributor to the primary caesarean rate was cephalopelvic disproportion associated with medical disorder complicating pregnancy like hypertension, GDM, hypothyroidism. Indian national survey report also showed cephalo pelvic disproportion associated with medical disorders like PIH, GDM, Rh negative, bronchial asthma, hypothyroidism as the largest contribution in our study both big baby and IUGR was also similar to the study by BARBER et al,.[7] The higher contribution by foetal indications reflects better neonatal care with improved survival of IUGR babies. For the repeat caesarean, there is an increase in the number of cases with CPD and scar tenderness.[9]

Foetal distress, especially its detection by continuous electronic foetal monitoring, more liberal use of caesarean section for breech presentation, abdominal delivery for growth-retarded fetus, delayed childbearing, increasing maternal body mass, multiple gestation, prematurity, and improved safety of caesarean section are commonly cited causes for caesarean section in our as well as many other studies.

*Table 11. Pattern of Age Distribution*

| Age Group | No. of Cases | % |
|---|---|---|
| 19 Years and Below | 262 | 18.58 |
| 21-25 Years | 832 | 59 |
| 26-30 Years | 294 | 20.85 |
| 31-35 Years | 22 | 1.56 |

*Table 12. Pattern of Economics Status*

| Economic Status | No. of Cases | % |
|---|---|---|
| Low Income Group | 1282 | 90.92 |
| Middle Income Group | 126 | 8.93 |
| High Income Group | 2 | 0.14 |

*Table 13. Pattern of Residential Status*

| Residential Status | No. of Cases | % |
|---|---|---|
| Urban | 308 | 21.84 |
| Rural | 1102 | 78.15 |

*Table 14. Pattern of Registration Status*

| Registration Status | No. of Cases | % |
|---|---|---|
| Booked | 1086 | 77.02 |
| Unbooked | 324 | 22.97 |

*Table 15. Status of Gravida*

| Gravida | No. of Cases | % |
|---|---|---|
| Primi Gravida | 584 | 41.41 |
| II Gravida | 643 | 45.60 |
| III Gravida | 146 | 10.35 |
| IV Gravida | 30 | 2.12 |
| V Gravida and Above | 7 | 0.49 |

*Table 16. Status of Gestational Age*

| Gestational Age (Weeks) | No. of Cases | % |
|---|---|---|
| 32-34 | 22 | 1.56 |
| 35-36 | 74 | 5.24 |
| >37 | 972 | 68.93 |
| >40 | 342 | 24.25 |

The limitation of this study is that this data represents one institution.

## CONCLUSION

The rate of caesarean section has increased from 2009 to 2018 with primary and repeat caesareans both showing an increase. In the primary caesarean section rate, indications like labour arrest disorders, cephalo pelvic disproportion, show an increase. In repeat caesarean sections, history of foetal distress and two or more previous sections contributed more than the scar tenderness.

Rising rate of caesarean section over one decade are justified and mainly attributed to frequent diagnosis of foetal distress on electronic foetal heart monitoring, identification of high-risk mother and frequently resorting to elective sections in high risk situations and precious pregnancies and institut ional vaginal deliveries.

## REFERENCES:


1. Appropriate technology for birth. Lancet 1985;2(8452):436-437.
2. Lydon-Rochelle M, Holt VL, Easterling TR, et al. Risk of uterine rupture during labour among women with a prior caesarean delivery. N Engl J Med 2001;345:3-8.
3. Taylor LK, Simpson JM, Roberts CL, et al. Risk of complications in a second pregnancy following caesarean section in the first pregnancy: a population-based study. Med J Aust 2005;183(10):515-519.
4. Smith GC, Pell JP, Cameron AD. Risk of perinatal death associated with labour after previous caesarean delivery in uncomplicated term pregnancies. JAMA 2002;287(20):2684-2690.
5. Tollånes MC. Increased rate of caesarean sections--causes and consequences. Tidsskr Nor Laegeforen 2009;129(13):1329-1331.

6. Oladapo OT, Sotunsa JO, Sule-Odu AO. The rise in caesarean birth rate in Sagamu, Nigeria: reflection of changes in obstetrics practice. J Obstet Gynaecol 2004;24(4):377-381.
7. Barber EL, Lundsberg LS, Belanger K, et al. Indications contributing to the increasing caesarean delivery rate. Obstet Gynecol 2011;118(1):29-38.
8. Stavrou EP, Ford JB, Shand AW, et al. Epidemiology and trends for caesarean section births in New South Wales, Australia: a population based study. BMC Pregnancy Childbirth 2011;11:8.
9. Chong C, Su LL, Biswas A. Changing trends of caesarean section births by the Robson Ten Group Classification in a tertiary teaching hospital. Acta Obstetrics Gynecol Scand 2012;91(12):1422-1427.
10. Martin JA, Sutton PD, Ventura SJ, et al. Births: Final data for 2008. Natl Vital Stat Rep 2010;59(1):1,3-71.
11. Kuklina EV, Ayala C, Callaghan WM. Hypertensive disorders and severe obstetric morbidity in the United States. Obstet Gynecol 2009;113(6):1299-1306.
12. Kuklina EV, Meikle SF, Jamieson DJ, et al. Severe obstetric morbidity in the United States: 1998-2005. Obstet Gynecol 2009;113(2 Pt 1):293-299.