ORIGINAL ARTICLE

# RATE AND INDICATIONS OF ELECTIVE AND EMERGENCY CAESAREAN SECTION; A STUDY IN A TERTIARY CARE HOSPITAL OF PESHAWAR

**Mohammad Naeem, Muhammad Zia Ul Islam Khan*, Syed Hussain Abbas*, Ayasha Khan**, Muhammad Adil***, Muhammad Usman Khan*****

**Department of Community Medicine, *Khyber Medical College, Peshawar, **Lady Reading Hospital, Peshawar, ***Khyber Teaching Hospital, Peshawar-Pakistan**

**Background:** The study was conducted to determine the rate and clinical indications for emergency and elective caesarean section. **Methods:** This was a cross-sectional descriptive study conducted from December 2010 to January 2011 in Gynaecology unit-A of Lady Reading Hospital Peshawar. Consecutive patients who gave birth in the hospital during the study period were included in the study. There were a total of 966 patients. Mode of delivery and basic demographics of the patients who underwent elective and emergency caesarean section were noted down. Clinical indications were recorded. **Results:** Out of 966 patients, 210 underwent caesarean section. Therefore, the rate of caesarean section was 21.7 per 100. Among those 78% (n=164) were emergency caesarean sections and others were elective caesarean sections. Top six indicators for caesarean sections were foetal distress 17.1 % (n=36), obstructive labour/failure to progress 16.1% (n=34), previous caesarean section 15.2% (n=32), breech presentation 9.5% (n=20), cephalopelvic disproportion 6.1% (n=13), failed induction 5.7% (n=12) and pregnancy induced hypertension (PIH) 5.7% (n=12). **Conclusion:** The rate of caesarean section was only slightly higher than recommended by the WHO. Most of caesarean sections were emergency caesarean sections.

**Keywords:** Caesarean section, rate, indications, Elective, Emergency

**J Ayub Med Coll Abbottabad 2015;27(1):151–4**

## NTRODUCTION

The increasing global rates of caesarean section have been one of the most debated topics in maternity care. Caesarean section is a major surgical procedure and like every surgical procedure, carries a significant risk of morbidity and mortality. Guidelines must be established and implemented for Caesarean section and it should be performed in the presence of specific and clearly defined indications only.[1] Many obstetricians consider caesarean section to be quite simple, efficient, safe and psychologically well-tolerated procedure and far superior to secondary interventions such as vacuum delivery or emergency caesarean section but opposite school of thought also exists. Thus, caesarean section is a subject of professional controversy.[2] Controversy over the rate of caesarean section is also there. The relative benefits of higher or lower rates are also debatable. Today caesarean birth accounts for 15–25% of all the deliveries in developed countries, with maternal mortality of less than 1:10,000.[3,4]

WHO states no additional health benefit associated with caesarean section if its rate goes above 10–15%. Maternal wish has become a new indicator for caesarean section in the developed world, however in the developing world; it is rarely performed purely on maternal wish due to lack of knowledge and also lack of facilities. Although the caesarean section rates have increased over the last decade, the major clinical indications have remained the same, namely foetal distress, failure to progress in labour/failed induction, previous caesarean section and breech presentation.

In Pakistan, the caesarean section rates are difficult to calculate as most of the births take place at homes. Only complicated cases or those having good access to health centres avail this facility. Therefore, much higher incidence of emergency caesarean section is seen as compared to elective caesarean section.[5]

This study was conducted to determine the frequency of caesarean section and to analyze the indications of it in our setup. The study will also help identify the factors needed to be addressed in order to decrease maternal mortality rate.

## MATERIAL AND METHODS

This cross-sectional descriptive study was conducted from December 2010 to January 2011 in Gynaecology Ward-A of Lady Reading Hospital, Peshawar with patients consecutively selected including all pregnant women booked in the antenatal clinic and unregistered patients admitted in early labour.

A total of 966 patients were delivered through different modes. The study also included all of emergency caesarean sections that were indicated during this time. Patients in whom caesarean section

was indicated, a detailed *pro forma* was completed, regarding the relevant information about maternal age, whether registered or unregistered patient, elective or emergency caesarean section. Elective caesareans were defined as those performed without emergencies and the decision was made before the onset of labour. Emergency caesareans were defined as those performed for maternal or foetal emergencies such as preeclampsia, foetal distress or arrested labour due to other causes.

Clinical indications were noted down for both elective and emergency caesarean sections. In case of multiple indications, the three most important indications were considered for data analysis. The period of gestation at the time of presentation, gravidity, parity and obstetric background was also noted. Patients with gravidity more than one but less than five were grouped as multigravida and those with gravidity of five or more were grouped under grand multigravida.

Data was analyzed on SPSS version 16.0. The caesarean delivery rate was calculated as the number of caesarean deliveries per 100 deliveries. The percentage for each, emergency and elective caesarean sections were calculated. Proportions of indication-specific caesarean deliveries were calculated as the number of indication-specific caesarean deliveries per 100 caesarean deliveries.

## RESULTS

In the study period, 966 deliveries took place. Out of 966, 210 were done through Caesarean section while the rest were vaginal deliveries. The caesarean section rate was 21.7 per 100 deliveries. Among them, 78% (164) were emergency caesarean sections while 22% (46) were elective caesarean sections. The maternal age for patients undergoing Caesarean section ranged from 16 years to 42 years; 27% were under the age of 20 years, 50% were aged 20–30 years, 20% were aged 30–40 years and 3% were more than 40 years old.

The gravidity and period of gestation at the time of surgery are given in table-1. The clinical indications for elective Caesarean section are given in table-2 while those for emergency caesarean section are given in table-3.

Top six indicators for caesarean sections were foetal distress 17.1% (n=36), obstructive labour/failure to progress 16.1 % (n=34), previous Caesarean section 15.2% (n=32), Breech presentation 9.5% (n=20), cephalo-pelvic disproportion 6.1 % (n=13), failed induction 5.7% (n=12) and pregnancy induced hypertension (PIH) 5.7% (n=12).

**Table-1: Patients by gravidity and period of gestation**

| Gravidity | Emergency C-Section n=164 (%) | Elective C-Section n=46 (%) | Total n=210 (%) |
|---|---|---|---|
| Primigravida | 59 (35.9%) | 6 (13.0%) | 65 (30.9%) |
| Multigravida | 65 (39.6%) | 22 (47.8%) | 87 (41.4%) |
| Grand Multi Gravida | 40 (24.3%) | 18 (39.1%) | 58 (27.6%) |
| **Period of gestation** | | | |
| 34 or less Week | 12 (7.3%) | 6 (13.0%) | 18 (8.5%) |
| 35–38 Week | 26 (15.8%) | 10 (21.7%) | 36 (17.1%) |
| 39–42 Week | 124 (75.6%) | 28 (60.8%) | 152 (72.3%) |
| More than 42 Week | 2 (1.2%) | 2 (5.0%) | 4 (1.9%) |

**Table-2: Indications for elective caesarean section (n=46)**

| Indications for Elective Caesarean Section | n | % |
|---|---|---|
| Previous Caesarean Section(s) | 16 | 34.0 |
| Marked Oligohydromnios | 6 | 13.0 |
| Cephalo Pelvic Disproportion | 6 | 13.0 |
| Pregnancy Induced Hypertension | 5 | 10.8 |
| Breech Presentation | 4 | 8.6 |
| Twins with some complication | 4 | 8.6 |
| Bad Obstetrical History | 4 | 8.6 |
| Maternal Wish (with bilateral tubal ligation) | 2 | 4.3 |
| Placenta Praevia | 2 | 4.3 |
| Miscellaneous | 3 | 6.5 |

**Table-3: Indications for emergency caesarean section (n=164)**

| Indications for Emergency Caesarean Section | n | % |
|---|---|---|
| Foetal Distress | 36 | 21.9 |
| Obstructed Labour/Failure to progress | 34 | 20.7 |
| Previous caesarean section(s) | 16 | 9.7 |
| Breech presentation | 16 | 9.7 |
| Failed Induction | 12 | 7.3 |
| Antepartum Haemorrhage | 11 | 6.7 |
| Primary Dysfunctional Labour | 10 | 6.4 |
| Transverse lie | 9 | 5.5 |
| Cephalo Pelvic Disproportion | 7 | 4.3 |
| Pregnancy Induced Hypertension/eclampsia | 7 | 4.3 |
| Cord Prolapse | 4 | 2.4 |
| Twin and first breech | 4 | 2.4 |
| Miscellaneous | 9 | 5.5 |

## DISCUSSIONS

During the study period, the frequency of caesarean section was 21.7%. According to the WHO, the recommended rate of caesarean section should be within 10–15%,[6] thus this study showed a higher rate. However, being a tertiary care hospital, Lady Reading hospital receives most of the complicated cases, as indicated by greater percentage of emergency caesarean sections. Therefore, the actual rate of caesarean section for the area the hospitals serves is much lower. This is partly due to lack of facilities and also due to lack of knowledge or antenatal care. This is in contrast to studies in developed countries and countries with better health facilities.[7–9] In June 2010, WHO stated that there is no empirical evidence for the rate it recommends, as it has been a debatable issue. Now the WHO

recommends that caesarean section should be done only when it is needed.[10]

Primigravida are at higher risks, therefore, a higher incidence of caesarean section is found among them.[11] However in our study, caesarean section rate was high among multigravida (41.4%). This is probably due to fact that women in this part of the world get pregnant many times. This finding coincides with studies conducted in our setup.[5,12,13]

Foetal distress was the leading indication for caesarean section. Foetal distress is diagnosed on foetal heart monitoring and meconium. This is in part due to more advanced technology and equipment (such as ultrasound) newly available in some rural areas. Foetal distress has always been one of the most important medical indications for caesarean section.[5,11,12,14]

The second most frequent indication in this study was obstructed labour (16.1%); this is a common problem in Pakistan, primarily due to mishandling by traditional birth attendants, injudicious use of oxytocic drugs or unjustified induction with prostaglandins without prior assessment.[15]

Previous caesarean section is an important cause of caesarean sections; therefore implementation of a trial of vaginal delivery after previous one caesarean section should be done in order to control the increasing caesarean section rate.[16,17] A successful vaginal birth after a caesarean in the grand multiparous population has not been associated with a higher risk of maternal complications in comparison with repeated caesarean sections.[18]

About 9.5% of caesarean operations in this study were done because of breech presentation. Breech presentation is associated with higher maternal mortality and morbidly irrespective of route of delivery due to its association with foetal abnormalities and premature delivery. However, vaginal delivery for term breech does not increase morbidity and mortality, if the case for vaginal delivery is well selected. Nowadays there has been an increase in caesarean section for breech presentation, as most obstetricians consider it to be safer and easier than giving a trial of labour. This has led to increase in elective caesarean section for breech, as shown in this study.[19] Cephalopelvic disproportion was the sixth most common cause; however, for elective caesarean sections it was the second most common cause. High proportion of caesarean sections for cephalopelvic disproportion diagnosed before the onset of labour suggests a more aggressive approach, thus causing an increase in caesarean section rate.[11] Pregnancy induced hypertension was found in 5.7 % of caesareans in this study. Good antenatal care can detect such problems earlier and early management can prevent the complications. Pregnancy induced hypertension carries a higher risk for caesarean section and preterm delivery.[20]

About 5.7 % of caesareans were due to failure of progression of labour. This was lower than what was found in other studies conducted in Pakistan.[12] It seems that the decision of caesarean section depends upon the department policy. The safety of caesarean section has encouraged the obstetricians towards caesarean section.[21]

Antepartum haemorrhage (APH) was an important indication for emergency caesarean section (6.7%). In APH, caesarean section is an important life saving procedure, as in most of the cases it is due to placenta praevia - a definitive risk for both child and mother if any delay is done.[22,23]

In this study all the caesarean section were performed with a definite medical indication. The women in our region do not accept caesarean section as a primary mode of delivery. Only two cases were reported out of 210 where the mother requested caesarean delivery, however, it was noted that a side procedure like bilateral tubal ligation was done in those cases and that this was the contributing reason for such a request. The situation is very different in developed countries where the women request elective caesarean section as a primary mode of delivery.[24,25]

There is currently no evidence that elective caesarean is safer than vaginal delivery. In fact, most evidence indicates that caesarean section has much higher risk than labour. Therefore, obstetric care providers should continue to advocate for vaginal delivery as the optimal mode of birth.[26]

## CONCLUSION

The rate of caesarean section was only slightly higher than recommended by the WHO. Most of them were emergency caesarean sections. This is primarily due to the reason that tertiary care hospitals usually receive complicated cases. In Pakistan most of caesarean sections are done with definitive clinical indication.

## REFERENCES

1. Tampakoudis P, Assimakopoulos E, Grimbizis G, Zafrakas M, Tampakoudis G, Mantalenakis S, *et al*. Caesarean section rates and indications in Greece: data from a 24 year period in a teaching hospital. Clin Exp Obstet Gynecol 2004;31:289–92.
2. Husslein P. Elective caesarean section versus vaginal delivery. Whither the end of traditional obstetrics? Arch Gynecol Obstet 2001;265(4):169–74.
3. Betrán AP, Merialdi M, Lauer JA, Bing-Shun W, Thomas J, Van Look P, *et al*. Rates of caesarean section: analysis of global, regional and national estimates. Paediatr Perinat Epidemiol 2007;21(2):98–113.

4. Lee SI, Khang YH, Lee Ms. Women attitude towards mode of delivery in South Korea: A society with high caesarean section rates. Birth 2004;31(2);108–16
5. Haider G. Frequency and indications of caesarean section in a tertiary care hospital. Pak J Med Sci 2009;25(5):791–6
6. World Health Organization. Appropriate technology for birth. Lancet 1985;2:436–7.
7. Hamilton BE, Martin JA, Sutton PD; Centers for Disease Control and Prevention, National Center for Health Statistics. Births: preliminary data for 2003. Natl Vital Stat Rep. 2004 Nov 23;53(9):1-17.
8. Dobson R. Caesarean section rate in England and Wales hits 21. BMJ 2001;323(7319):951
9. Cheng YM, Yuan W, Cai WD, Zhang WM, Wang TY, Wang Y, *et al*. [Study on the occurrence of cesarean section (CS) and factors related to CS in China]. Zhonghua Liu Xing Bing Xue Za Zhi. 2003;24(10):893–6.
10. Bailey P, Lobis S, Maine D, Fortney J. Monitoring emergency obstetric care: a handbook: World Health Organization; 2009
11. Qin C, Zhou M, Callaghan WM, Posner SF, Zhang J, Berg CJ, *et al*. Clinical Indications and Determinants of the Rise of Caesarean Section in Three Hospitals in Rural China. Matern Child Health J 2012;16(7):1484–90.
12. Shamshad. Factors leading to increased caesarean section rate. Gomal J Med Sci 2008;6(1):1–4
13. Sreevidya S, Sathiyasekaran BW. High caesarean rates in Madras (India): a population-based cross sectional study. BJOG 2003;110(2):106–11.
14. Tang CH, Wang HI. Risk-adjusted Caesarean Section rate for the assessment of physician performance in Taiwan: a population based study. BMC Public Health 2006;6:246
15. Rayburn WF. Minimising the risk from elective induction of labour. J Reprod Med 2007;52:671–6.
16. Lydon-Rochelle MT, Gardella C, Cárdenas V, Easterling TR. Repeat caesarean delivery: what indications are recorded in the medical chart? Birth. 2006;33(1):4–11.
17. Ali L, Tayyab S. Caesarean section rate: curremt trends. J Surg Pak 2007;12:64–6.
18. Kugler E, Shoham-Vardi I. The safety of a trial of labour after caesarean section in a grand multiparous population. Arch Gynecol Obstet 2008;277:339–44.
19. Coughlan C, Kearney R. Turner MJ. What are implications for the next delivery in primigravidae who have an elective Caesarean Section for breech presentation? BJOG 2002;109:624–6.
20. Favilli A, Pericoli S, Acanfora MM, Bini V, Di Renzo GC, Gerli S. Pregnancy outcome in women aged 40 years or more. J Matern Foetal Neonatal Med 2012;25(8):1260–3.
21. Leitch CR, Walker JJ. The rise in caesarean section rate: the same indications but a lower threshold. Br J Obstet Gynaecol 1998;105(6):621–6.
22. Oyelese Y, Smulian JC. Placenta previa, placenta accreta, and vasa previa. Obstet Gynecol 2006;107(4):927–41.
23. Robinson BK, Grobman WA. Effectiveness of timing strategies for delivery of individuals with placenta previa and accreta. Obstet Gynecol 2010;116(4):835–42.
24. Zhang J, Liu Y, Meikle S, Zheng J, Sun W, Li Z. Caesarean delivery on maternal request in southeast China. Obstet Gynecol 2008;111(5):1077–82.
25. Bettes BA, Coleman VH, Zinberg S, Spong CY, Portnoy B, DeVoto E, *et al*. Caesarean delivery on maternal request: obstetrician-gynecologists' knowledge, perception, and practice patterns. Obstet Gynecol 2007;109(1):57–66.
26. Souza JP, Gülmezoglu A, Lumbiganon P, Laopaiboon M, Carroli G, Fawole B, *et al*. WHO Global Survey on Maternal and Perinatal Health Research Group. Caesarean section without medical indications is associated with an increased risk of adverse short-term maternal outcomes: the 2004-2008 WHO Global Survey on Maternal and Perinatal Health. BMC Med 2010;8:71.

## Address for Correspondence:

**Dr. Mohammad Naeem**, Department of Community Medicine, Khyber Medical College, Peshawar-Pakistan
**Cell:** +92 300 590 1841
**Email:** eaglebook86@gmail.com