



**ORIGINAL ARTICLE**

**Indications of Preterm Caesarean Section: Experience of 100 Cases at a Tertiary Care Hospital in Bangladesh**

Rebeka Khanam<sup>1</sup>, Fatema Mahbooba Akter<sup>2</sup>, Rabeya Parvin<sup>3</sup>, Lutfunnahar Shampa<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Gynaecology & Obstetrics, Mugda Medical College, Dhaka, Bangladesh; <sup>2</sup>Assistant Professor, Department of Gynaecology & Obstetrics, Mugda Medical College, Dhaka, Bangladesh; <sup>3</sup>Assistant Professor, Department of Gynaecology & Obstetrics, Shaheed Ziaur Rahman Medical College, Bogura, Dhaka, Bangladesh; <sup>4</sup>Junior Consultant (Gynae&Obs), Dhaka Medical College & Hospital, Dhaka, Bangladesh

[Received on: 1 November 2020; Accepted on: 20 December 2020; Published on: 1 January 2021]

**Abstract**

**Background:** Preterm caesarean section is performed for different indication among the pregnant women.

**Objective:** The purpose of the present study was to find out the indications of preterm caesarean section among pregnant women. **Methodology:** This cross sectional study was conducted in the Department of Obstetric & Gynaecology at Shaheed Ziaur Rahman Medical College Hospital, Bogra, Bangladesh from January 2007 to December 2007 for a period of one year. Women with the gestational age between 32 to 36 completed weeks who were selected for delivery by Caesarean section were selected as study population. All the women of study were assessed on the basis of detailed history, clinical examination, gestational period, history of premature rupture of membranes, any vaginal bleeding and fetal condition.

**Result:** A total number of 100 pregnant women were recruited for this study. In this study most of the pregnant women were in the age group of 15 to 20 years which was 40(40.0%) cases followed by the age group of 21 to 25 years which were 20(20.0%) cases. About 43(43.0%) cases were complicated with pregnancy induced hypertension. Almost all of them had indication for immediate caesarean section. Among the group incidence of eclampsia was high which was in 23(23.0%) cases; however, preeclampsia was found in 20(20.0%) cases. Ante partum haemorrhage was reported in 10(10.0%) cases. Pregnant women with premature rupture of membrane (PROM) was found in 14(14.0%) cases; furthermore, PROM with Chorioamnionitis was detected in 5(5.0%) cases. Preterm labour with history of previous caesarean section was given by 5(5.0%) women. **Conclusion:** In conclusion eclampsia and preeclampsia are the most common indication for preterm caesarean section followed by premature rupture of membrane. [Journal of Current and Advance Medical Research, January 2021;8(1):44-48]

**Keywords:** Indications; preterm; caesarean section; pregnant women

**Correspondence:** Dr. Rebeka Khanam, Assistant Professor, Department of Gynaecology & Obstetrics, Mugda Medical College & Hospital, Dhaka, Bangladesh; Cell no.: +8801718257007; Email: [rebeka.khanam2015@gmail.com](mailto:rebeka.khanam2015@gmail.com)

**Cite this article as:** Khanam R, Akter FM, Parvin R, Shampa L. Indications of Preterm Caesarean Section: Experience of 100 Cases at a Tertiary Care Hospital in Bangladesh. J Curr Adv Med Res 2021;8(1):49-53

**Funding:** This study has been performed without any funding from outside else.

**Conflict of Interest:** There was no conflict of interest to any of the authors of the study.

**Contributions to authors:** All authors are involved from protocol preparation to manuscript writing.

**Copyright:** ©2021. Khanam et al. Published by Journal of Current and Advance Medical Research. This article is published under the Creative Commons CC BY-NC License (<https://creativecommons.org/licenses/by-nc/4.0/>). This license permits use, distribution and reproduction in any medium, provided the original work is properly cited, and is not used for commercial purposes.

## Introduction

Preterm caesarean section denotes the caesarean section which is done before completion of 37 weeks of gestation<sup>1</sup>. Medical factors known to increase the risk of preterm birth include chronic hypertension, pre eclampsia, chronic renal disease, SLE, acute or chronic infection, Heart disease<sup>2</sup>. Obstetric complications that lead to preterm delivery are Antepartum haemorrhage, premature rupture of the membrane, multiple pregnancies and polyhydramnios<sup>3</sup>.

Rate of preterm birth is directly proportional to gestational age; however, complications of preterm babies is inversely proportional to gestational age<sup>4</sup>. As preterm babies tolerate hypoxia more poorly than babies at term, significant damage could be prevented by timely intervention at the early sign of fetal distress. Many studies have shown that preterm birth is significantly more common in women of young and older age, low body weight and stature and low social class who are single (unmarried unsupported) and smoker<sup>5</sup>.

Importantly infection is now recognized as a major factor initiating many premature deliveries<sup>6</sup>. Prostaglandin synthesis reaches a peak during the birth of placenta. Hypertensive disorder is one of the commonest complications of pregnancy and is a common cause of foetal and maternal mortality and morbidity. It includes pre eclampsia, eclampsia, chronic hypertension with superimposed preeclampsia and transient hypertension<sup>7</sup>. Pre eclampsia and eclampsia is pregnancy specific disorder of uncertain causes and pathology that appears to be associated with endothelial cell injury<sup>8</sup>.

Though the aetiology of eclampsia is uncertain, but the patho physiological changes are much informative and well documented. Most of the pathological changes in women dying of eclampsia consisted of haemorrhages and oedema<sup>9</sup>. Spontaneous rupture of the membranes any time beyond 28<sup>th</sup> weeks of pregnancy but before the onset of labour is called pre labour rupture of membrane<sup>5</sup>. Increased friability of membrane, decreased tensile strength of the membrane, polyhydramnios, cervical incompetence, multiple pregnancy, infection i.e chorioamnionitis, urinary tract infection, lower genital tract infection are the causes of pre labour rupture of membrane<sup>10</sup>. This present study was undertaken to find out the indications of preterm caesarean section among pregnant women.

## Methodology

This cross-sectional study was conducted in the Department of Obstetrics & Gynaecology at Shaheed Ziaur Rahman Medical College Hospital, Bogra, Bangladesh. This study was carried out from January 2007 to December 2007 for a period of one year. Consecutive cases of preterm Caesarean section who were fulfilling the selection criteria were included in this study. Women with the gestational age between 32 to 36 completed weeks who were selected for delivery by Caesarean section were selected as study population. Women with the gestational age less than 32 weeks or women at term were excluded from this study. After formulation of aims of the study a data sheet form was made for recording all relevant parameters. Written consent was taken from each of the pregnant women. All the women of study were assessed on the basis of detailed history, clinical examination with particular reference to the age, history of antenatal check-up, anaemia, hypertensive disorders with or without convulsion, gestational period, history of premature rupture of membranes, any vaginal bleeding and fetal condition. Most of the pregnant women had no history of antenatal check-up. Most of the patients were brought to the hospital with very critical and poor condition. Actually the patients were managed on emergency basis. With the improvement of general condition of the patients, in consultation with anaesthetic department and paediatric department patients were managed accordingly. All the relevant information were collected from the brief history and hospital record sheet of the patient. Data collected were recorded on a pre-designed data record sheet. Computer based statistical analysis were carried out with appropriate techniques and systems. All data were recorded systematically in preformed data collection form (questionnaire). The quantitative data were expressed as mean and standard deviation and qualitative data were expressed as frequency distribution and percentage. Statistical analysis was performed by using window based computer software devised with Statistical Packages for Social Sciences (SPSS 22.0) (SPSS Inc, Chicago, IL, USA). The summarized data was interpreted accordingly.

## Result

A total number of 100 pregnant women were recruited for this study after fulfilling the inclusion and exclusion criteria. In this study most of the pregnant women were in the age group of 15 to 20 years which was 40(40.0%) cases followed by the

age group of 21 to 25 years, 26 to 30 years and 31 to 35 years which were 20(20.0%) cases, 16(16.0%) cases and 14(14.0%) cases respectively. Only 10(10.0%) cases were in the age group of 36 and above years (Table 1).

**Table 1: Age Distribution of Study Population (n=100)**

Age Group	Frequency	Percent
15 to 20 Years	40	40.0
21 to 25 Years	20	20.0
26 to 30 Years	16	16.0
31 to 35 Years	14	14.0
36 and above Years	10	10.0
<b>Total</b>	<b>100</b>	<b>100.0</b>

In this study hypertensive disorder was the most common medical problem associated with preterm caesarean section. About 43(43.0%) cases were complicated with pregnancy induced hypertension. A minor group had bacterueia and diabetes mellitus. Rest of the cases had no medical problem (Table 2).

**Table 2: Medical Condition of during Pregnancy among Study Population (n=100)**

Medical Condition	Frequency	Percent
<b>Hypertension</b>		
• Essential	1	1.0
• Preeclampsia	20	20.0
• Eclampsia	23	23.0
<b>Bacteruria</b>		
• Asymptomatic	2	2.0
• Symptomatic	3	3.0
<b>Diabetes mellitus</b>		
• Gestational Diabetes	1	1.0
• Others	0	0.0
<b>Heart disease</b>		
• Congenital	0	0.0
• Others	0	0.0

The different causes of caesarean section in preterm pregnancy were evaluated. Almost all of them had indication for immediate caesarean section. Among the group incidence of eclampsia was high which was in 23(23.0%) cases; however, Preeclampsia was found in 20(20.0%) cases. Ante-partum haemorrhage was reported in 10(10.0%) cases. Pregnant women with premature rupture of membrane (PROM) was found in 14(14.0%) cases; furthermore, PROM with chorioamnionitis was

detected in 5(5.0%) cases. Preterm labour with history of previous caesarean section was given by 5(5.0%) women. Labour pain with foetal distress was found in 6(6.0%) cases. Less foetal movement was found in 8(8.0%) cases. Malpresentation with cord prolapse was detected in only 2(20%) cases. Multiple pregnancy was found in 6(6.0%) cases. Only 1(1.0%) case was presented with Diabetes mellitus with polyhydramnios (Table 3).

**Table 3: Indications of Preterm Caesarean Section (n=100)**

Indications	Frequency	Percent
Eclampsia	23	23.0
Preeclampsia	20	20.0
Ante partum Haemorrhage	10	10.0
Premature Rupture of Membrane	14	14.0
PROM with Chorioamnionitis	5	5.0
Preterm labour with H/O previous C/S	5	5.0
Labour Pain with Foetal Distress	6	6.0
Less Foetal Movement	8	8.0
Malpresentation with Cord Prolapse	2	2.0
Multiple Pregnancy	6	6.0
Diabetes Mellitus with polyhydramnios	1	1.0
<b>Total</b>	<b>100</b>	<b>100.0</b>

## Discussion

Preterm labour is a common problem in Bangladesh like other developing countries. This study is designed to find out the major causes of caesarean section in preterm pregnancy. The study subjects were taken from Shaheed Ziaur Rahman Medical College Hospital, Bogra, Bangladesh from January 2007 to December 2007 for a period of one year.

In this study, majority of the patients are in between 15 to 25 years age group. Though there is no definite study to find out the indication of preterm caesarean section in our country average age group of our study shows near about similar results with other studies where the majority of patients who had caesarean section in eclampsia was in between 15 to 20 years age group<sup>11-13</sup>.

The indications of caesarean section in this study are eclampsia (23.0%), preeclampsia (20.0%), antepartum haemorrhage (10.0%), prelabour rupture

of membrane (14.0%), PROM with chorioamnionitis (5.0%), history of previous caesarean section (7.0%), foetal distress (6.0%), less foetal movement (8.0%), malpresentation with cord prolapse (2.0%), multiple pregnancy (4.0%), and diabetes mellitus with polyhydramnios (1.0%). Though the exact study in preterm caesarean section was not done previously in different medical colleges and institutes in our country, the major indication of caesarean section in preterm pregnancy from this study is eclampsia. The indication of caesarean section in preterm pregnancy for eclampsia and preeclampsia varies in different hospitals. Several mechanisms are thought to be important in the pathophysiology of premature placental separation<sup>14</sup>. Local vascular injury that results in vascular rupture into deciduas basal is, bleeding and haematoma formation. The haematoma shears off adjacent denuded vessels, producing further bleeding and enlargement of area of separation<sup>15</sup>. Conditions predisposing to vascular injury that known to be associated with an increased incidence of placental separation are preeclampsia, eclampsia, chronic hypertension, diabetes mellitus, chronic renal disease and cigarette smoking<sup>11</sup>.

The implication is less serious when the rupture occurs near term than earlier in pregnancy. PROM causes preterm labour and pre maturity<sup>3</sup>. There is chance of ascending infection, increase incidence of cord prolapse and continuous escape of liquor for long duration may lead to dry labour<sup>5</sup>. Foetal pulmonary hypoplasia especially in PROM is a real threat when associated with oligohydramnios. The barrier between uterine cavity and vagina breaks allowing the entrance of bacteria in uterus<sup>7</sup>. The bacteria replicate slowly in the decidua and eventually reach the necessary concentration to colonize the amniotic membrane and infect the amniotic fluid, umbilical cord and other foetal tissues. Chorio amnionitic infection occurs frequently in patients with PROM. The high incidence of chorio amnionitis and neonatal infection when PROM occurs in pregnancies remote from term may be the consequence of decreased anti-bacterial activity of the amniotic fluid<sup>16</sup>.

Patient in preterm labour with foetal tachycardia, uterine tenderness and mild temperature elevation have reached a final stage in the progression of uterine infection<sup>9</sup>. Bacterial culture of aerobic and anaerobic germs provide definite evidence of the presence of amniotic fluid infection. Common organisms are *Ureaplasma urealyticum*, *Mycoplasma hominis*, Bacteroids, *Gardenerella vaginalis*, group-B *Streptococci*, *Peptostreptococci*,

*Escherichia coli* and enterococci. Maternal infections outside the uterus are relative frequent cause of preterm labour<sup>13</sup>.

In this study multiple pregnancy is an important indication for preterm caesarean section. Similar to the present study result it has been reported that multiple pregnancy imposes physical changes on the mother in excess of those seen in singleton pregnancy<sup>16</sup>. Although the blood volume is increased in multiple pregnancy, maternal anaemia often develops because of greater demand for iron by the fetus. Placenta praevia develops more frequently because of large placenta or placentas<sup>17</sup>. There is increased incidence of maternal anaemia, hydramnions, pre-eclampsia, eclampsia, ante partum haemorrhage, malpresentation, preterm labour and urinary tract infection<sup>11</sup>. Stretching of the uterine muscle because of multiple pregnancy is another relatively common cause of preterm labour.

## Conclusion

In conclusion eclampsia is the most common indication for preterm caesarean section. However, preeclampsia is also a frequent cause of preterm caesarean section. In addition premature rupture of membrane, ante partum haemorrhage and PROM with chorioamnionitis are also reported. There are few other causes of preterm caesarean section detected in this study which are multiple pregnancy, preterm labour with history of previous caesarean section and labour pain with foetal distress. Further large scale multicenter study should be carried out to see the real scenario.

## References

1. Biswas A, Su LL, Mattar C. Caesarean section for preterm birth and, breech presentation and twin pregnancies. Best Practice & Research Clinical Obstetrics & Gynaecology. 2013;27(2):209-19
2. Penn ZJ, Steer PJ, Grant A. A multicentre randomized controlled trial comparing elective and selective caesarean section for the delivery of the preterm breech infant. BJOG: An International Journal of Obstetrics & Gynaecology. 1996;103(7):684-9
3. Penn ZJ, Steer PJ. How obstetricians manage the problem of preterm delivery with special reference to the preterm breech. BJOG: An International Journal of Obstetrics & Gynaecology. 1991;98(6):531-4.
4. Drife J. Mode of delivery in the early preterm infant (<28 weeks). BJOG: An International Journal of Obstetrics & Gynaecology. 2006;113:81-5.
5. Henson GL. Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates. Journal of Obstetrics and Gynaecology. 2000;20(6):651
6. Arias F, Bhide AG, Arulkumaran S, Damania K, Daftary SN, editors. Practical Guide to High Risk Pregnancy and Delivery-E-Book. Elsevier health sciences; 2012 May 14.

7. Malhotra N, Malhotra J, Saxena R, Bora MN. Jeffcott's principles of gynaecology. Jaypee Brothers, Medical Publishers Pvt. Limited; 2018 Aug 16.
8. Julian T. Current obstetric and gynecologic diagnosis and treatment. The New England Journal of Medicine. 1991;325(24):1749-50.
9. DeCherney AH, Pernoll ML. Current obstetric & gynecologic diagnosis & treatment. McGraw-Hill/Appleton & Lange; 1994 Jun 1.
10. Alfirevic Z, Milan SJ, Livio S. Caesarean section versus vaginal delivery for preterm birth in singletons. Cochrane Database of Systematic Reviews. 2012(6).
11. Basso O, Baird DD. Infertility and preterm delivery, birthweight, and Caesarean section: a study within the Danish National Birth Cohort. Human Reproduction. 2003;18(11):2478-84.
12. Berghenegouwen LA, Meertens LJ, Schaaf J, Nijhuis JG, Mol BW, Kok M, et al. Vaginal delivery versus caesarean section in preterm breech delivery: a systematic review. European Journal of Obstetrics & Gynecology and Reproductive Biology. 2014;172:1-6
13. Malloy MH. Impact of cesarean section on neonatal mortality rates among very preterm infants in the United States, 2000–2003. Pediatrics. 2008;122(2):285-92
14. Mashiloane CD, Moodley J. Induction or caesarean section for preterm pre-eclampsia? Journal of Obstetrics and Gynaecology. 2002;22(4):353-6
15. Malloy MH. Impact of cesarean section on intermediate and late preterm births: United States, 2000–2003. Birth. 2009;36(1):26-33
16. Kolås T, Hofoss D, Daltveit AK, Nilsen ST, Henriksen T, Häger R, et al. Indications for cesarean deliveries in Norway. American Journal of Obstetrics and Gynecology 2003;188(4):864-70
17. Högberg U, Håkansson S, Serenius F, Holmgren PÅ. Extremely preterm cesarean delivery: a clinical study. Acta obstetrica et gynecologica Scandinavica. 2006;85(12):1442-7