

Perinatal Outcome in Preterm Caesarean Section at a Teaching Hospital in Bangladesh

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Abstract

Background: Preterm caesarean section gives different perinatal outcomes. **Objective:** The purpose of the present study was to observe the different perinatal outcomes among the pregnant women with preterm caesarean section. **Methodology:** This prospective cohort 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. Most of the pregnant women were brought to the hospital with 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 and the perinatal outcomes were recorded. **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 25 years which was 60(60.0%) cases. Birth weight below 1.5 kg was in 15.0% cases. However, 72.0% babies had shown APGAR score within 4 to 7 at 5 minute. APGAR score more than 7 was present in 18.0% babies. In this study incidence of other diseases associated with prematurity was in 39(39.0%) cases and perinatal asphyxia was in 25(25.0%) cases. Among the women undergone preterm caesarean sections about 92(92.0%) cases were giving live birth and 8(8.0%) cases were reported still birth; however, subsequent neonatal death occurred in 27(27.0%) cases. **Conclusion:** In conclusion most common perinatal outcomes of preterm caesarean section is live birth with prematurity and perinatal asphyxia. [*Journal of National Institute of Neurosciences Bangladesh, July 2021;7(2):169-172*]

Keywords: Perinatal outcome; preterm; caesarean section; fetal complication

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Introduction

Labour and delivery may be a severe insult to preterm babies¹. Therefore, caesarean section should be used to deliver babies under 1.5 kg irrespective of their presentation². This is a controversial opinion and there is no solid evidence that caesarean section is a better way of delivering very small babies. The active phase of labour rather than delivery is the most important factor

behind production of intracranial bleeding in preterm babies weight less than 1.5 kg³. Thus, caesarean section should be performed before the active phase of labour in case of preterm babies.

Woman who has experienced a preterm birth is at increased risk of a subsequent preterm birth⁴. Infection has been shown to be associated with preterm birth; in addition smoking and cocaine use are also contributing

factors⁵. Caesarean section is a powerful intervention and often seems to offer the best chance to a vulnerable preterm baby. Preterm breech probably benefits to some extent from caesarean section⁶.

Intrauterine fetal hypoxia is a very critical condition. Under normal condition when oxygen supply is adequate, aerobic glycolysis occurs in the fetus. During hypoxia when oxygen saturation falls below 50.0% (normal 65%) anaerobic glycolysis occurs resulting in the accumulation of lactic acid and pyruvic acid leading to metabolic acidosis⁷. A continuous severe oxygen deprivation may cause still birth. In less severe cases the baby may be born with a low APGAR score. There may be available degree of brain cell damage which in the long run may produce mental retardation. In this context this present study was undertaken to observe the different perinatal outcomes of among pregnant women with preterm caesarean section.

Methodology

This prospective cohort study was conducted in the Department of Obstetric & 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. 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 checkup, gestational period, history of premature rupture of membranes, any vaginal bleeding and fetal condition. Majority of the pregnant women included in this study belonged to low socio-economic class and high risk category. Usually the patients had no antenatal checkup. Most of the patients were brought to the hospital with poor condition. Actually the patients were managed on emergency basis. With the improvement of general condition of the patients, in consultation with anaesthetic department & 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.

Results

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 25 years which was 60(60.0%) cases followed by the age group of 26 to 35 years and more than or equal to 36 years which were 30(30.0%) cases and 10(10.0%) cases respectively (Table 1).

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

Age Group	Frequency	Percent
15 to 25 Years	60	60.0
26 to 35 Years	30	30.0
≥36 Years	10	10.0
Total	100	100.0

In this study birth weight of maximum preterm babies were within 1.5 to 2.5 kg. Birth weight below 1.5 kg was 15.0% cases. Only 6.0% babies were above 2.5 kg. However, 72.0% babies had shown APGAR score within 4 to 7 at 5 minute. APGAR score more than 7 was present in 18.0% babies; however, 10.0% babies were in grave condition with APGAR score less than 4 (Table 2).

Table 2: Perinatal status of the Newborn after Preterm caesarean section (n=100)

Variables	Frequency	Percent
Birth weight (kg)		
• <1.5	15	15.0
• 1.5-2.5	79	79.0
• >2.5	6	6.0
APGAR Score at 5 minute		
• <4	10	10.0
• 4 to 7	72	72.0
• >7	18	18.0

In this study incidence of other diseases associated with prematurity was in 39(39.0%) cases and perinatal

asphyxia was second peak of foetal complications which was in 25(25.0%) cases. These babies were mostly asphyxiated at birth in eclampsia and foetal distress. However, 8.0% cases were reported stillbirth (Table 3).

Table 3: Foetal Complications in Preterm Caesarean Section (n=100)

Foetal Complications	Frequency	Percent
No complication	13	13.0
IUGR	15	15.0
Perinatal asphyxia	25	25.0
Prematurity	39	39.0
Stillbirth	8	8.0
Total	100	100.0

IUGR=Intrauterine growth retardation; Prematurity = Prematurity with Associated Other Diseases

Among the women undergone preterm caesarean sections about 92(92.0%) cases were giving live birth and 8(8.0%) cases were reported still birth; however, subsequent neonatal death occurred in 27(27.0%) cases (Table 4).

Table 4: Perinatal Outcome in Preterm Caesarean Section (n=100)

Perinatal Outcome	Frequency	Percent
Live birth	92	92.0
Stillbirth	8	8.0
Neonatal death	27	27.0
Total	100	100.0

Discussion

Preterm delivery (delivery before 37 completed weeks of gestation) constitutes a large number of deliveries world-wide and are a significant cause of perinatal morbidity and mortality⁸. The survival of the preterm infant is known to be related to birth weight and gestational age. Gestational age although at times, not accurately available is generally a better predictor of maturation and chance of survival than birth weight⁹. Preterm cesarean section is cesarean delivery performed between the age of viability and 37 weeks of gestation.

In this study, the birth weight in preterm babies are 1.5 to 2.5 kg in 79.0% cases. Birth weight below 1.5 kg were present in 15.0% cases. Similar studies of birth weight of babies of preterm caesarean section was not done previously. So we cannot compare it with other study. But the birth weight in studies Nassar et al¹⁰ and Chibber¹¹ show that the birth weight of preterm babies 1.5 kg on an average. Babies who have born preterm were at higher risk of needing hospitalization, having

long term health problem and of dying than babies born at term.

In the present study live birth occurred in 92.0% with 27.0% neonatal death. The perinatal mortality is still high. The incidence of perinatal death are chiefly made up of cases of prematurity, eclampsia, cord prolapse, antepartum haemorrhage and multiple pregnancy. On the other hand different studies in Western countries have revealed a very low perinatal mortality rate¹². Perinatal mortality has shown varied number in different studies of eclampsia^{9,11,13}. In this study the perinatal mortality rate is 35.0% which is due to eclampsia and other cause.

Neonatal morbidities in preterm caesarean section are prematurity, asphyxia, intrauterine growth retardation (IUGR). Prematurity in this study is more because caesarean section is done in preterm pregnancy¹². These premature babies mostly are asphyxiated at birth due to eclampsia and foetal distress. The causes of neonatal morbidities are similar to the different studies^{7,9}.

There are several reasons of preterm caesarean section among the pregnant women¹⁴. One of them is previous history of caesarean section. History of previous caesarean section done for contracted pelvis or cephalopelvic disproportion need repeated caesarean section. Many primi gravida needs caesarean section for fetal distress in 1st stage, uterine inertia, placenta praevia. Infection may weaken the uterine wall and predispose to rupture if labour is permitted¹⁵. Three factors are mainly restorable for subsequent scar rupture. Firstly, infection of uterine scar during previous section. Secondly implantation of placenta over the previous scar in this pregnancy. Thirdly classic scar is more week because uterine contraction interfere with sound healing¹⁶.

For those patients whose labour is likely to be long tedious i.e. when the patient enter the hospital with ruptured membrane, a high presenting part and an uneffaced rigid cervix and for those who after viability is reached, experience persistent pain in the region of uterine incision need elective repeated cesarean section¹⁷. Multiple pregnancy has a global impact on both maternal and perinatal risk in any pregnancy and impacts on society in terms of both social and economic effects¹⁸. The incidence of multiple gestations has risen significantly over several decades, primarily due to increased use of fertility drugs for ovulation induction, superovulation and Assisted Reproductive Technologies (ART) such as in vitro fertilization.

Conclusion

In conclusion most common perinatal outcomes of

preterm caesarean section is prematurity. However, a large number of perinatal asphyxia is also reported in this study. In addition IUGR is also found in a significant number. Majority of the delivery are live birth; however, still birth is also found. Neonatal death is found in a significant number of cases. Similar study including a large number of cases with long duration should be carried out in different hospitals and institutes in Bangladesh to find out the exact incidence and outcome of preterm caesarean section.

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