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Original Research Article

Risk Factors and Perinatal Outcome in Preterm Labor

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Abstract: ***Background*:** One of the world's major health problems, preterm labor is characterized by significant perinatal mortality and morbidity. In one of these clinical situations, a healthy pregnancy might become one that is at high risk for both the mother and the fetus. ***Objective*:** To detect the risk factors and perinatal outcome in with complication in preterm labor. ***Materials and Methods*:** A case control study was carried out from February 2010 to July 2010 in the department of gynecology and obstetrics at the Dhaka Medical College Hospital. ***Results*:** A total of 50 instances of preterm labor occurring between 28 and 36 weeks of pregnancy and 50 control cases of lobour pain occurring between 37 and 40 weeks of pregnancy were screened and recruited in the research. The following risk variables were identified as being significantly linked with premature labor. Preterm delivery (OR -9.33), and Anaemia (OR = 8.31). Perinatal outcome in preterm lobour were Still birth, low APGAR score, neonatal resuscitation and neonatal complications significantly ($p<0.05$) higher in case group. ***Conclusion*:** The purpose should be to raise awareness of pregnant women who are at high risk for preterm labor since preterm labor has serious repercussions for both the mother and the infant.

Keywords: Preterm labor, Risk factor, Delivery, Outcome newborn.

INTRODUCTION

Preterm labor is one of the biggest health issues in the globe and is associated with high perinatal mortality and morbidity. A healthy pregnancy can turn into one that is at high risk for both the mother and the fetus in one of these clinical scenarios [1]. Before 37 complete weeks (259 days) have gone from the first day of the previous menstrual cycle, preterm labor is considered to have started [1]. Before 37 weeks of pregnancy, the cervical effacement and/or dilatation, as well as increased uterine irritability, occur [3]. Preterm labor complicates 1 to 15% of pregnancies. It accounts for 75% of all neonatal fatalities that are not caused by congenital defects and is the main cause of infant morbidity [3]. However, the cause of early labor in 50% of pregnancies is idiopathic [3]. There are several risk factors for preterm labor. Low socioeconomic status, youth, body mass index, smoking, environmental stress, poor nutrition, and alcohol and caffeine usage are examples of epidemiologic factors.

Preterm births in the past, many pregnancies, polyhydromniosis, chronic vaginal bleeding, early membrane rupture, and other obstetrical factors are among them diabetes, anemia, vaginal infections, systemic infections, and cardiac issues are just a few examples of medical ailments. Elective delivery includes conditions including pre-eclampsia and intrauterine growth retardation, among others [3-5]. With severe instances accounting for 80% of all perinatal fatalities, premature babies have high risks of sickness and fatality. Infants born preterm before 30 weeks are therefore most at risk since aviolar surfactant production begins at 30-32 weeks gestation [5]. One third of babies who have low birth weights are considered to have the condition (less than 2500gm).

A minimum of 10% of them are in fact premature births, with 3% of them being fully formed low birth weight newborns. Following group, this is responsible for almost two thirds of infant fatalities. One to three percent of preterm births are the result of inaccurate gestational age estimations or the need for

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pregnant mothers and their babies to get medical care [3]. Preterm (birth weight 1000-2500 gm) and immature (birth weight 1000 gm) babies require expensive care, and their rates of morbidity and mortality are significantly greater than those of term infants (eg: functional disorders, abnormalities of growth and development). Therefore, every effort is made to halt or postpone premature labor [3]. Bangladesh is a developing country. Here, preterm labor is viewed as posing a threat to the health of both mother and child. Most of our pregnant moms are in poor physical condition. Additionally, they are more prone to contract an infection, which increases their risk of developing a variety of morbidities and potentially dying from them (eg: puerperal sepsis, Chorioamnionitis etc). Therefore, subpar obstetric care given at the time of delivery exacerbates the problem. The identification of the vulnerable group of women will assist in the establishment of a strategy for enhanced prenatal, antenatal, and intranatal care that will aid in the early diagnosis and management of preterm labor and minimize perinatal morbidity and mortality as well as maternal problems.

OBJECTIVES

To detect the risk factors and perinatal outcome in with complication in preterm labor.

MATERIALS AND METHODS

Type of Study: This is a case control study.

Study Place

Labour ward of Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital.

Study Period: February 2010 to July 2010.

Sample Size

Sample size approximately 100 cases (fifty cases in each group).

Sampling Technique: Purposive consecutive sampling.

Study Group

Patients with preterm lobour in between 28 to 36 weeks of gestation were considered as case and patients with lobour pain in between 37 to 40 weeks of gestation was considered as control.

Inclusion Criteria

- Gravid women both primi and multi.
- Pregnancy of more than 28 weeks duration but less than 37 completed weeks of gestation.
- Patient is in labor.

Exclusion Criteria

- Labor pain started before 28 weeks of pregnancy.
- Induced preterm labor in any cases like PIH, eclampsia, pre-Eclampsia, APH, foetal IUGR, PROM etc.
- Preterm labor with intra uterine foetal death.

Data Collection

The study was carried out on 100 women in DMCH. They are divided into 2 groups. On admission into the labour room, women were given detail information on the study protocol and consent was taken. Complete history, general physical and systemic examination was done. Data were collected regarding maternal characteristics and perinatal outcome.

Variables

Age, Education, socio-economic status, Parity, Gestational age, Antenatal check-up, Multiple pregnancy, Rupture of membrane, Labour characteristics, Complications.

Data Analysis

Data were collected in a pre-designed form. All data were analyzed by using computer based SPSS (version 12.0) program. Statistical analysis was performed, categorical variables were presented in the form of frequency and percentage and analysis of association was made using-chi-square test (-//) of significance and Odd Ratio, a p-value less <0.05 were considered statistically significant.

RESULTS

Table 1 show that the socio economic status of study groups and found most of the patients came from low socio-economic class in both groups. The difference was statistically significant (P<0.005).

Table 1: Socio economic status

Socio economic status	Case (%)	Control (%)	P value
Low	82	64	0.043
Moderate hgh	18	36	

Table 2 illustrates the educational background of the study participants and reveals that, in the case group, the majority of participants (48%) had secondary education whereas in the control group, the majority (48%) had primary education. The other primary and HSC or Higher were found in average percentage in both groups.

Table 2: Educational Status

Educational Status	Case (%)	Control (%)
Illiterate	14	4
Primary	48	16
Secondary	24	48
HSC	10	20
Higher	4	4

Table 3 shows that the prenatal checkup status and reveals that roughly 32% of patients in the case and the control group routinely underwent prenatal examinations. In the case and control groups, respectively, 56% and 20% of women got prenatal care sporadically. However, 14% of control patients and 12% of case patients, respectively, did not get any prenatal care during their pregnancies.

Table 3: Prenatal check up

Prenatal check up	Case (%)	Control (%)	P value
Regular	32	46	0.263
Irregular	56	40	
No check up	12	14	

Figure 1 shows that in case patients (8%) and control patients (2%) had multiple pregnancies, respectively. The difference between the two groups was not statistically significant (p>0.05).

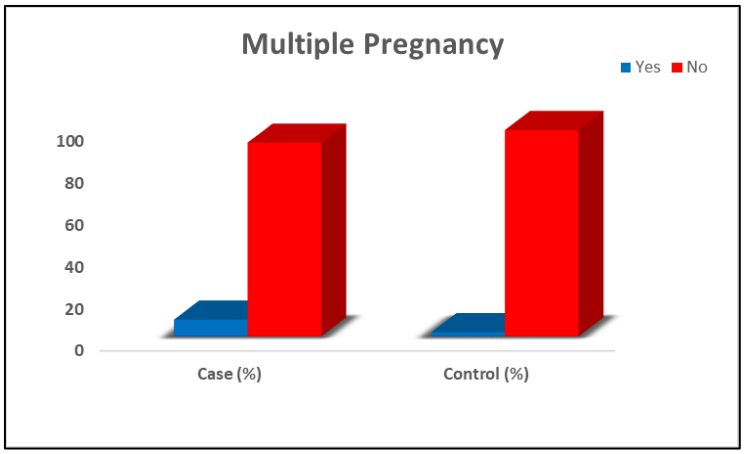

Figure 1: Multiple Pregnancy

Regarding the history of abortion it was found that 20% and 10% had previous history of abortion in case and control group. The difference was not statistically significant (p>0.05) between two groups. Patients having history of abortion compared to no history of abortion is 2.25 times to have risk.

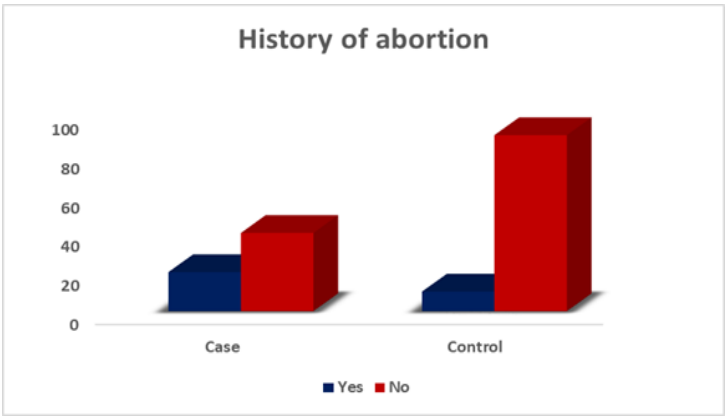

Figure 2: History Pregnancy

Table 4 shows the distribution if medical condition according to the study patients. Patients experiencing preterm labor, which represented (90%) and (52%) in the cases and control groups, were

substantially more likely to have anemia. Patients who had anemia were 8.31 times more likely to be at danger than those who did not.

Table 4: Distribution of associated medical condition of both groups in study patients

Associated Medical Condition	Case (%)	Control (%)	P value
Anaemia	90	52	0.001
Hypertension	12	4	
Pre-eclampsia	6	2	
UTI	6	2	
DM	4	8	
Heart Disease	4	2	

Figure 3 shows that more over two thirds (70.0%) of the study's patients delivered vaginally normally, compared to 84.0% of the control group. On the other hand, in case and control, 30.0% and 16.0% received emergency cesarean sections. The difference between the two groups was not statistically significant (p>0.05).

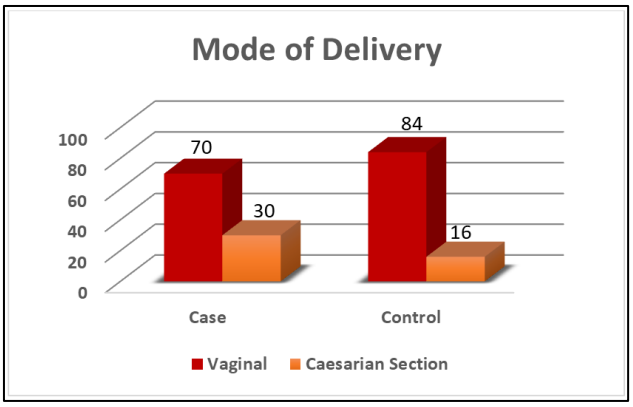

Figure 3: Mode of Delivery

Table 5 illustrates a pregnancy complication and reveals that there were (4.0%) cases of puerperal sepsis and (2.0%) in the control group. UTI rates in the case and control groups were (8.0%) and (4.0%), respectively.

Table 5: Puerperal Complication

Puerperal Complication	Case (%)	Control (%)
Puerperal sepsis	4	2
UTI	8	4

Live birth rates in the case and control groups are (82%) and (48%) in Figure 4. 18.0% of cases and 2.0% of controls both had stillbirths. Between two groups, there was a statistically significant difference (p 0.05).

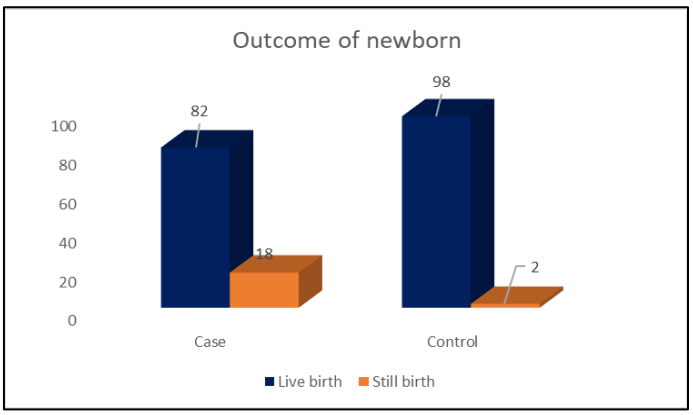

Figure 4: Outcome of newborn

Table 6(a) shows that APGAR score during 1 minute it was observed that most 60% of the new born belongs to 5-6 APGAR score in case, however control more than two third 68% of the new born had 7-10 Apgar score. Then the difference was statistically significant (p>0.05) between two groups. APGAR score during 5 minute it was observed that most of the new born belongs to 7-10 APGAR score in both groups.

Table 6(a): Distribution of neonatal APGAR score in 1 min

APGAR score	Case	Control	P value
1-3	8.0	2.0	0.001
4-6	60.0	30.0	
7-10	32.0	68.0	

Table 6(b): Distribution of neonatal APGAR score in 1 min

APGAR score	Case	Control	P value
1-3	4.0	2.0	0.001
4-6	12.0	4.0	
7-10	90.0	94.0	

Table 7 shows that in case group, majority 90% needed neonatal resuscitation but most 84% control did not required any neonatal resuscitation. The difference was statistically significant (p<0.05) between two groups.

Table 7: Distribution of the patients according to neonatal resuscitation

Neonatal Resuscitation	Case	Control	P value
Required	90	16	0.001
Not Required	10	84	

Figure 5 show that more than a half (58.0%) in case and (24.0%) had some complications in case and control. The difference was statistically significant (p>0.05) between groups.

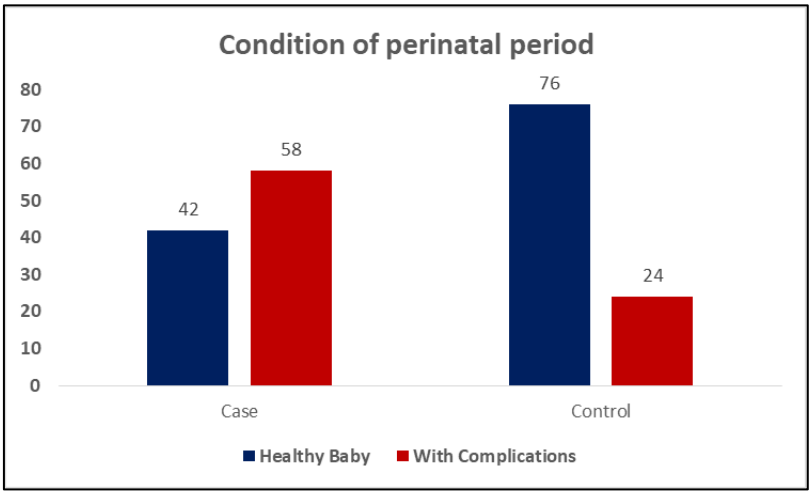

Figure 5: Condition of perinatal period

Table 8 shows that in perinatal period neonatal jaundice were mostly seen in case (22%) and control (14%) group. Septicemia had also found as a most complication in case (6%) group.

Table 8: Distribution of condition of perinatal period

Perinatal period (Complication)	Case (%)	Control (%)
Neonatal Jaundice	22	14
Septicemia	6	2
Neonatal convulsion	4	2
Neonatal death	4	2
RDS	2	2
Umbilical Sepsis	2	0

DISCUSSION

The main factor contributing to perinatal morbidity and death is preterm labor. Before 37 weeks of pregnancy, it is characterized by cervical effacement and/or dilatation as well as increased uterine irritability. The risk is higher for women with a history of premature birth. Preterm labor dangers and techniques of diagnosing preterm cervical dilatation have been the focus of strategies to lower the frequency of preterm labor and delivery among both doctors and patients. Transvaginal ultrasound, fetal fibronectin detection, weekly cervical measurement, and home uterine activity monitoring are some of the techniques used to identify premature labor. It is not yet obvious which of these tactics ought to be used often. Tocolytic drugs, corticosteroids, and antibiotics may now be used in the therapy of premature labor. In the case and control groups, respectively, Dabbagh and Taee39 found that 64.0% and 40.0% of people lacked literacy. In this study, it was discovered that 49 patients had primary education in the majority (48.0%); while, in the control group, the patients had secondary education in the majority (48.0%). The findings of the current study may be compared to those of the previous study. In this study, it was found that 82.0% of the patients in the case groups and 64.0% of the controls were from low socioeconomic classes, which was statistically significant (p 0.05). In their investigations, Dabbagh and Taee39 discovered that the case group had 32.5% fewer prenatal visits (1-3) than the control group (12.5%). The present study is supported by the fact that in control groups, 15.0% of pregnant women had no prenatal care and 47.5% had one to three antenatal visits. In this study, it was discovered that 12.0% of the case patients and 14.0% of the control patients didn't receive any prenatal care during their pregnancies. Anaemia was shown to be substantially (p 0.05) related with patients experiencing premature labor, which was 90.0% and 52.0% in the cases and control groups, respectively, in the current study's associated medical condition. Patients with anemia are 8.31 times more likely to be at risk than patients without anemia. The table above shows several medical conditions. In cases and controls, pregnancy-related hypertension was 12.0% and 4.0%, respectively. Pre-eclampsia and UTI were found in 6.0% of cases and 2.0% of controls, respectively. 4.0% in cases and 8.0% in controls, according to DM. 2.0% and 4.0% of case and control subjects had heart disease, respectively. Gestational hyperglycemia complicated 16.0% of cases, according to Kurdi *et al.*, 42, and anemia was diagnosed in 22.0% of patients. According to Arafa *et al.*, 43, the hemoglobin level was less than 9 g/dl. 4.3 times, then came the risk when the hemoglobin level fell below 10 g/dl. a haemoglobin level of 10 g/dl during the third trimester was associated with the least risk (2.09), and there was no evidence of a significant connection with haemoglobin levels of 11 g/dl during either period or 9 g/dl during the third trimester. However, DM discovered 1.0% and 0.5% in case and control, respectively. Dabbagh and Taee39 revealed 41.0% had UTI in case and 20.0% in control. In terms of the linked medical condition, the majority of the data support the current study. In this study, it was discovered that more than two thirds (70.0%) of cases and 84.0% of controls experienced a normal vaginal birth. The remaining 30.0% and 16.0% received emergency C/Ss in the case and control groups, respectively. 2.0% in the control group and 4.0% in the case group had puerperal sepsis. UTI rates in the case and control groups were 8.0% and 4.0%, respectively. Significantly (p 0.05) more still births occurred in cases, which were 18.0% and 2.0% in the case and control groups, respectively. In this study, it was shown that more than half of the cases (58.0%) and 12 of the controls (24.0%) experienced some difficulties during the prenatal period. In terms of the APGAR score after 1 minute, it was shown that the majority (60.0%) of newborns fall into the 5–6 APGAR score range in the case, but more than two thirds (68.0%) of newborns in the control group had 7–10 APGAR scores, which were statistically significant (p 0.05). Although there was no difference (p>0.05) in the two groups' APGAR scores after 5 minutes, there was practically no difference. 90% of them required neonatal resuscitation. In the current study, 84.0% of the control group didn't need any newborn resuscitation, which was statistically significant (p> 0.05) between the two groups.

CONCLUSION

The purpose of this case control research was to identify the risk factors and perinatal outcomes, of preterm labor in patients who presented with premature labor. The majority of patients with premature labor were low socioeconomic class, primary-educated women. In this study, it was difficult to get reliable LMP records from patients due to illiteracy and lack of knowledge. Some information, such as the patient's age, educational background, and monthly income, was based on the patient's statement, which wasn't always true. The study was completed quickly, and its scope was constrained. The mother's educational standing should be raised, the socioeconomic conditions of the poor should be improved, and frequent prenatal checkups should be ensured in order to prevent premature labor.

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