Original Research Article

Risk Factors and Foeto-Maternal Outcome in Preterm Labour

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Abstract

Background*:** 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. ***Objective*:** The aim of the present study is to determine the risk factor and maternal and perinatal outcome of patients presenting with preterm labor and to evaluate the preventable causes of preterm labour. ***Methods*:** A Case control study conducted in the Department of Gynaecology and Obstetrics Dhaka Medical College Hospital, during February 2010 to July 2010. ***Results*:** A total of 50 cases having preterm labour in between 28 - 36 weeks of gestation and 50 controls having 37-40 weeks pregnancy with lobour pain were screened and enrolled in the study. Several significant risk factors were associated with preterm labour and the following risk factors were identified. Low socio-economic class, rupture of membrane (OR = -2.45), previous history of abortion (OR = 2.25), Preterm delivery (OR -9.33), and Anaemia (OR = 8.31). ***Conclusions: As preterm labour is grave consequences for both the mother and the newborn of preterm labor should be aim and developing awareness of pregnant mother who are high risk for preterm labor.

Keywords: Preterm labor, Pregnancy, Delivery, Risk factors.

INTRODUCTION

One of the most significant health problems in the world, preterm labor is linked to high perinatal mortality and morbidity. It is one of the clinical situations where a healthy pregnancy can become one that is at high risk for both the mother and the fetus [1]. Preterm labor is defined as beginning before 37 full weeks (259 days) have passed from the first day of the last menstrual cycle [1]. Cervical effacement and/or dilatation, as well as increased uterine irritability, occur prior to 37 weeks of gestation [3]. 10-15% of pregnancies are complicated with preterm labor. It is the leading contributor to newborn morbidity and accounts for 75% of all neonatal deaths that are not the result of congenital abnormalities [3]. However, 50% of pregnancies have an idiopathic etiology of premature labor [3]. Preterm labor has a wide range of risk factors. Epidemiologic variables include things like low socioeconomic level, youth, body mass index, smoking, stress from the environment, poor nutrition, and use of alcohol and caffeine. Obstetrical variables include prior preterm births, numerous pregnancies, polyhydromniosis, persistent vaginal hemorrhage, premature membrane rupture, and others medical conditions, including as diabetes, anemia, vaginal infections, systemic infections, and heart problems. Pre-eclampsia, intrauterine growth retardation, etc. are examples of elictive delivery [3-5]. Premature newborns have significant rates of illness and mortality (in severe cases, 80% of all perinatal fatalities). At 30-32 weeks gestation, the manufacturing of aviolar surfactant starts. Infants born preterm before 30 weeks are hence most at risk [5].

Low birth weight infancy is defined as occurring in 1.03% of newborns (less than 2500gm). Three percent of these are fully developed low birth weight infants, while at least 10% are indeed born too soon. Afterwards group roughly two thirds of baby

deaths are caused by this. Miscalculations of gestational age or the necessity for women and fetuses to get medical attention cause one to three percent of preterm deliveries [3]. It is expensive to care for preterm (birth weight 1000–2500 gm) and immature (birth weight 1000 gm) newborns, and compared to term infants, premature infants have much higher rates of morbidity and death (eg: functional disorders, abnormalities of growth and development).

As a result, every effort is taken to stop or delay preterm labor [3]. Bangladesh is a nation in development. Preterm labor is here seen as a health risk for both mother and child. The majority of our expectant mothers are in poor health. Additionally, they are more likely to become infected, making them more vulnerable to numerous morbidities and even fatality (eg: puerperal sepsis, Chorioamnionitis etc). Therefore, poor obstetric treatment at the moment of birth makes the issue worse. The development of a plan for improved prenatal, antenatal, and intranatal care that will aid in the early diagnosis and management of preterm labor and lower perinatal morbidity and mortality as well as maternal complications will be aided by the identification of the susceptible group of women.

OBJECTIVE
To determine the risk factor and maternal and perinatal outcome of patients presenting with 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
Figure 1 shows 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).
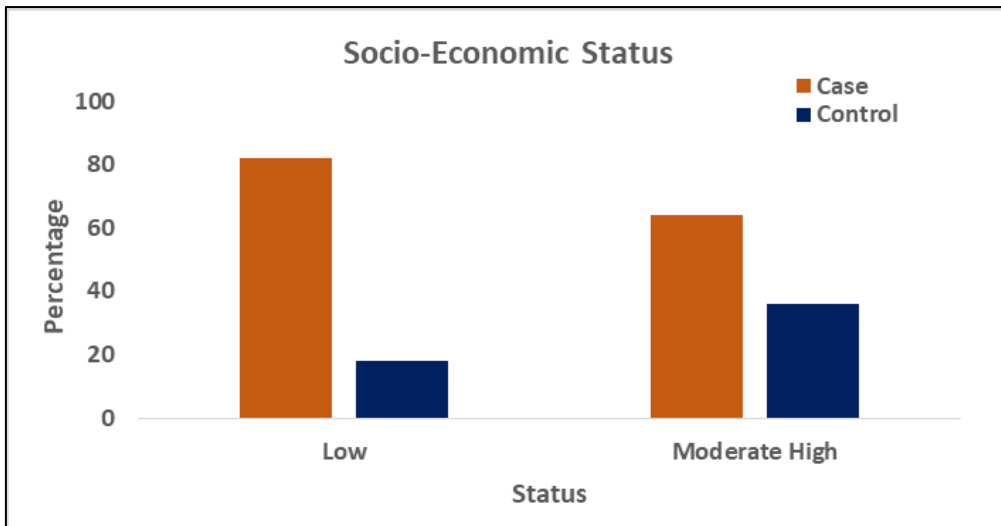
Figure 1: Socio-economic status of the patients of both groups

Figure 2 shows that the level of education of the study patients and found most (48%) of the patients had primary education in case; however in control group majority (48%) of the patients had secondary education.
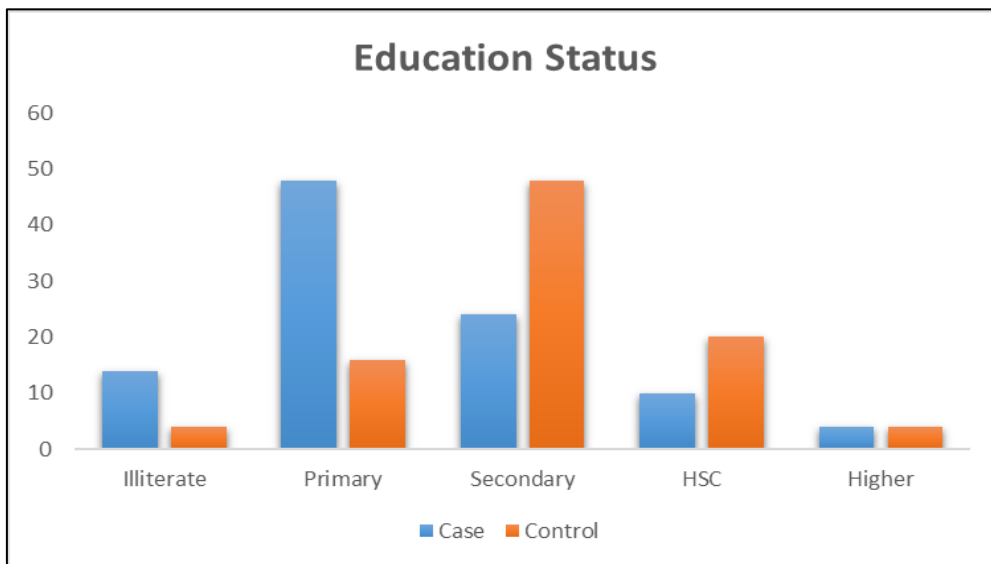

Figure 2: Education status of the patients of the both groups

Table 1 shows the multiple pregnancy status of the study subjects and found (8%) in case and (2%) in control patients had multiple pregnancy. The difference was not statistically significant (p>0.05) between two groups.

Table 1: Distribution of the study patients according to multiple pregnancy

Multiple Pregnency	Case (%)	Control (%)	P value
Yes	8.0	2.0	
No	92. 0	98.0	0.181

Table 2 shows that the rupture of membrane status of the study and found that (62%) and (40%) had rupture of membrane in case and control. The difference was statistically significant (p<0.05) between two groups. A rupture of membrane compared to no rupture of membrane is 2.07 times more likely to have risk.

Table 2: Distribution of the study patients according to rupture of membrane

Rupture of membrane	Case (%)	Control (%)	P value
Yes	62.0	40.0	0.027
No	38.0	60.0	

Figure 3 shows that the status of antenatal check-up and found nearly 32% of the patients in case and in control received antenatal check-up regularly. More than a half 56% and 20% received antenatal check-up irregularly in case and control. However 12% in case and 14% in control patients did not received any antenatal check-up during pregnancy period.
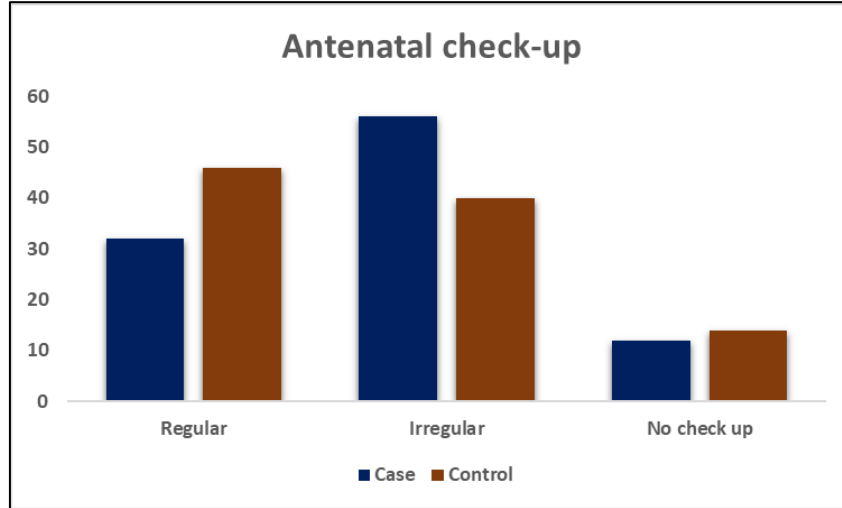

Figure 3: Status of antenatal check-up of the patients

Table 3 shows that the previous history of preterm delivery and found that (16%) and (12%) had previous history of preterm delivery in case and control. The difference was statistically (p<0.05) between two groups.

Table 3: Distribution of Preterm delivery records of both two groups

Preterm Delivery	Case (%)	Control (%)	P value
Yes	16.0	2.0	0.015
No	84.0	98.0	

Figure 4 shows that anaemia was significantly associated with patients having preterm labour which was (90%) and (52%) in cases and control group. Patients had anaemia compared to no patient had no anaemia is 8.31 times more likely to have risk.
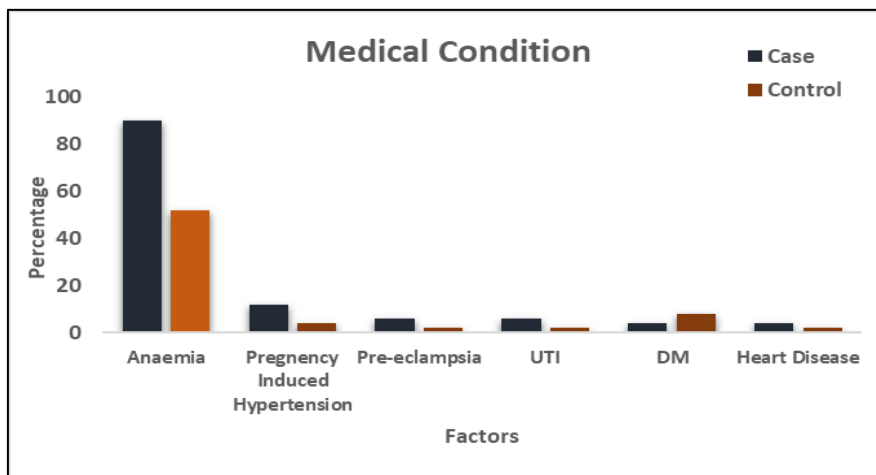

Figure 4: Associated medical condition of study patients

Figure 5 shows that puerperal complication and found that, puerperal sepsis were (4.0%) in case and (2.0%) in control group. UTI were (8.0%) and (4.0%) in case and control group respectively.
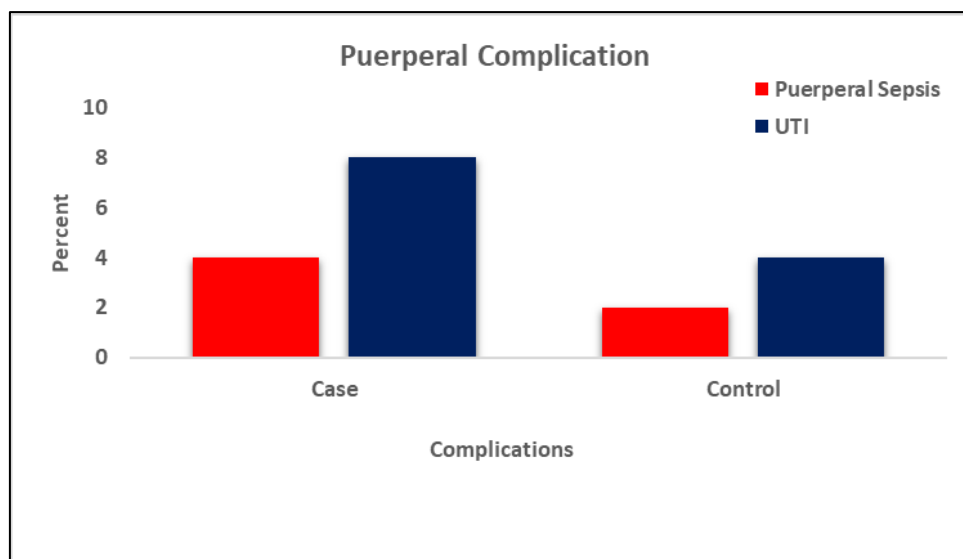

Figure 5: History of puerperal complication of study patients

Table 4 shows the mode of delivery of the study patients and found more than two third (70.0%) in case and (84.0%) in control were normal vaginal delivery. On the other hand (30.0%) and (16.0%) underwent emergency caesarean section in case and control. The difference was not statistically significant (p>0.05) between two groups.

Table 4: Distribution of mode of delivery

Mode of Delivery	Case(Percent)	Control(Percent)	P Value
Vaginal	70.0	84.0	0.096
Caesarian Section	30.0	16.0	

Table 5 shows that live birth (82%) and (48%) in case and control group. Still birth was found (18.0%) in case and (2.0%) in control group. The difference was statistically significant (p<0.05) between two groups.

Table 5: Distribution of outcome of newborn babies of both groups

Outcome of new born	Case (%)	Control (%)	P value
Live birth	82.0%	98.0%	0.008
Still birth	18.0%	2.0%	

Table 6 shows 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.

Table 6: Distribution of condition of perinatal period of both groups

Perinatal Period	Case (%)	Control (%)	P value
Healthy Baby	42	76	0.001
With Complications	58	24	

DISCUSSION

Preterm labor is the leading cause of perinatal morbidity and mortality. It is characterized by cervical effacement and/or dilatation and increased uterine irritability before 37 weeks of gestation. Women with a history of preterm labor are at greatest risk. Strategies for reducing the incidence of preterm labor and delivery have focused on educating both physicians and patients about the risks for preterm labor and methods of detecting preterm cervical dilatation. Methods used to predict preterm labor include weekly cervical assessment, transvaginal ultrasonography, detection of fetal fibronectin and home uterine activity monitoring. As yet, it is unclear if any of these strategies should be routinely employed. At present, management of preterm labor may include the use of tocolytic agents, corticosteroids and antibiotics. Dabbagh and Taee [39] have observed 64.0% and 40.0% were illiterate in case and control respectively. In this study it was found that

most (48.0%). 49 of the patients had primary education in case; however in control group majority (48.0%) of the patients had secondary education. The results obtained in the current study are comparable with the above study. In this study it was observed that most of the patients came from low socio-economic class 82.0% in case and 64.0 in control-groups, which was statistically significant (p<0.05). Dabbagh and Taee [39] found in their studies that no antenatal visit 12.5% and 1-3 antenatal visit 32.5% in case group. In control groups the authors observed that 15.0% didn't received any antenatal check and 47.5% received 1 - 3 antenatal checkup during their pregnancy period, thus support the present study. It was found in this study that 12.0% in case and 14.0% in control patients didn't received any antenatal checkup during their pregnancy period. Basso *et al.,* [41] reported that social decline associated with a moderate increase in the recurrence risk. In the reference cohort the risk of preterm delivery associated with changing from a rural to an urban municipality. Dabbagh and Taee [39] observed 82.5% and 64.5% was illiterate in case and control respectively, which is closely resembled with the current study. Arafa *et al.,* [43] showed no early antenatal care significantly associated with the outcome. Dabbagh and Taee [39] found in their studies that no antenatal visit 12.5% and 1-3 antenatal visit 32.5% in case group. In control groups the authors observed that 15.0% didn't received any antenatal check and 47.5% received 1 - 3 antenatal checkup during their pregnancy period, thus support the present study. Multiple pregnancy status was found in this study that 8.0% in case and 2.0% in control patients had multiple pregnancies. Almost similar findings obtained by Dabbagh and Taee [39], where the authors found 9.5% and 1.5% multiple pregnancies in case and control respectively. Kurdi *et al.,* [42] showed that premature labor in multiple pregnancies was 7 times greater than singletons (42% versus 6.4%). In this study it was observed that 62.0% and 40.0% had rupture of membrane in case and control respectively, which was significantly higher than 50 in case group. A rupture of membrane compared to no rupture of membrane is 2.07 times more likely to have risk was found in this study. Regarding the associated medical condition of the present study it was observed that Anaemia was significantly (p<0.05) associated with patients having preterm labour, which was 90.0% and 52.0% in cases and control group respectively. Patients had Anaemia compared to no patient had no anaemia is 8.31 times more likely to have risk. Other medical conditions are depicted in the above table. Pregnancy induced hypertension 12.0% and 4.0% in cases and control respectively. Pre-eclampsia and UTI observed 6.0% in case and 2.0% in control. DM found 4.0% in case and 8.0% in control. Heart disease 2.0% and 4.0% observed in case and control respectively. Kurdi *et al.,* [42] showed that gestational diabetes complicated 16.0% and anemia was reported in 22.0% of cases. Arafa *et al.,* [43] reported that the haemoglobin level was <9 g/dl 4.3 times followed by the risk when haemoglobin was <10 g/dl 2.7 times risk in early pregnancy and the least risk 2.09 occurred with haemoglobin <10 g/dl during the third trimester and no significant association was detected with haemoglobin <11 g/dl for both periods or <9 g/dl during the third trimester. Dabbagh and Taee [39] showed 41.0% had UTI in case and 20.0% in control, however DM found 1.0% and 0.5% in case and control respectively. Majority of the findings are in agreement with the present study regarding the associated medical condition. In this study it was found that normal vaginal delivery was more than two third (70.0%) in case and 84.0% in control. Rest 30.0% and 16.0% underwent emergency C/S (caesarean section) in case and control respectively. Puerperal sepsis was 4.0% in case and 2.0% in control group. UTI were 8.0% and 4.0% in case and control group respectively. Still birth was significantly (p<0.05) higher in case which were 18.0% and 2.0% in case and control group respectively. In this study it was observed that the condition of prenatal period more than a half (58.0%) in case and 12(24.0%) had some complications in case and control respectively.

CONCLUSION

This case control study was done to find out the risk factors and maternal and perinatal outcome of patients presenting with preterm labor and to see and to evaluate the preventable causes of preterm labor. Most of the patients having preterm labor were primary label educating women and came from low socio economic status. In this study, because of the illiteracy and lack of awareness, obtaining record of accurate LMP from patients was a problem. Regarding some information like patient age, educational status, month income had to depend on patient statement which may not be accurate in some cases. The study was done in short period and scope of investigation was limited. To prevent preterm labor some measures should be recommended such as improvement of the educational status of the mother, improvement of the socio economic condition of the poor and ensure regular antenatal check-up.

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