Fetal Outcome in Premature Rupture of Membrane - A Study Done in the Tertiary Level Specialized Hospital in Bangladesh

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Abstract

A descriptive cross-sectional study was done in the Department of Obstetrics and Gynaecology of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, from February to July of 2008, on 50 pregnant women with more than 28 weeks of pregnancy both primigravid and multigravid with rupture of membranes prior to labor, to find out the effect of premature rupture of membrane on fetal outcome. 48 live births were observed and there were 2 fetal loss. Among those newborns, 28 (58.33%) were male and 20 (41.66%) were female. 54.16% of babies had APGAR score at 5 minutes after birth was >7 and those needed no treatment. APGAR score was 7 in 45.82% babies; all of them were treated and cured. Among the newborns, 52.08% babies had birth weight >2500 gm, 45.83% had their birth weight in between 1500 and 2500 gm, while 1 (2.08%) was between 1000 and 1500 gm. However, 22 (45.83%) were affected by the consequences of PROM and birth process. Among them, 36.36% developed jaundice, 29.27% suffered from birth asphyxia, and RTI and neonatal sepsis were evident in 18.18% each. 15% babies were treated conservatively and 7% babies were treated in the neonatal ward being admitted into it. There was no neonatal loss.

CBMJ 2014 January: Vol. 03 No. 01 P: 25-28

Key words: *Premature rupture of membrane, Fetal outcome, APGAR score.*

Introduction

Premature rupture of membrane (PROM) is defined as spontaneous rupture of membrane before the initiation of labour. It is one of the common complications of pregnancy that has a major impact on maternal outcome. PROM affects 2.7% - 17% of all pregnancies and however, in most cases, it happens spontaneously[1]. Under normal circumstances the fetal membranes rupture during the active phase of labour but PROM occurs before the onset of uterine contraction. When rupture of membrane occurs beyond 37 weeks of pregnancy, it is called term PROM and when it occurs before 37 completed weeks it is called preterm PROM. The rupture of membranes for >24 hours before delivery is called prolonged rupture of membrane[1]. PROM is responsible for about 30% of all preterm delivery and its consequences[2]. Preterm PROM is associated with significant maternal risks. preterm PROM occurs in 3% of all pregnancy and contributes to approximately one-fourth to one-third of preterm births[3]. Accurate assessment of the integrity of the membrane is very essential, because increased risk of infection, placental abruption, cord prolapse are observed with PROM[4,5,6]. The aim of the present study is to find out the effect of PROM on fetal outcome and enrich the knowledge pool for the obstetricians to ensure correct management of PROM, which can ultimately reduce the mortality and morbidity caused by it.

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Methods

This was a cross-sectional study. Fifty pregnant women both primigravid and multigravid with rupture of membranes were included in this study. These patients were admitted and treated in the Department of Obstetrics and Gynaecology in Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, from February to July of 2008.

Inclusion criteria:

1. Both primigravid and multigravid women with PROM.
2. Duration of pregnancy is more than 28 weeks.
3. History of spontaneous rupture of membrane before initiation of labour.

Exclusion criteria:

1. History of rupture of membrane with established labour.
2. Women who are suffering from antepartum haemorrhage, pre-eclampsia, or eclampsia.

After admission, history of presenting complaints including duration of pregnancy, duration of rupture of membrane, lower abdominal pain, past history of rupture of membrane, past obstetric history were taken. Gestational age was determined from first date of the last menstrual period (LMP), early ultrasonographic study, clinical examination and previous antenatal records. Moreover, socio-economic condition and special records e.g. coital habit, previous MR, D&C also were documented. After taking the history a general and per abdominal examination was done for every patient. Then a sterile per speculum examination was done to assess cervical condition and stage of labour. Relevant investigations were also done to confirm diagnosis, select management strategy and exclude the other possibilities.

Diagnosis of rupture of membrane was done by:

i. History of a gush of fluid from the vagina
ii. Continuous leakage of fluid from the vagina
iii. Demonstration of amniotic fluid leakage from the cervix by a sterile speculum examination or pooling of amniotic fluid in posterior vaginal fornix.
iv. Demonstration P^H of the vaginal fluid by litmus paper.
v. Demonstration of oligohydramnios by ultrasonography as a supporting method (when available).

Then plan of management of the patient with PROM was decided on the condition of the patient duration of pregnancy, duration of membrane rupture and intervention already made.

Data Collection:

An informed consent was taken from each of the participants of the study. A semi-structured questionnaire was prepared and the data were collected by directly questioning the patients and by physical examination, daily follow up of patients till their discharge from the hospital. However, fetal outcome was also observed and recorded.

Results

Two patients had gestational age <34 weeks and ended with fetal loss. Among 48 newborns, male babies were 28 (58.33%) and female babies were 20 (41.66%) in number. The present study shows that 54.16% of babies had APGAR score at 5 minutes after birth was >7 and those needed no treatment. APGAR score was 7 in 45.82% babies; all of them were treated and cured (Table-I). It also shows that 52.08% babies had birth weight >2500 gm, 45.83% had their birth weight in between 1500 and 2500 gm, while 1 (2.08%) was between 1000 and 1500 gm (Table-II). In this study, out of 48 alive babies 22 (45.83%) were affected by the consequences of PROM and birth process. Among them, 36.36% developed jaundice, 29.27% developed birth asphyxia, 18.18% each developed acute respiratory infection (ARI) and neonatal sepsis. 15% babies were treated conservatively and 7% babies were treated in the neonatal ward being admitted into it (Table-III). However, there was no neonatal loss.

Table-I: APGAR score at 5 minutes (n=48)

APGAR score	Number of patients	Percentage (%)
>7	26	54.16
5-7	20	41.66
<5	2	4.16

Table-II: Weight at birth (n=48)

Weight (gm)	Number of patients	Percentage (%)
>2500	25	52.08
1500-2500	22	45.83
1000-1500	01	2.08

Table-III: Distribution of fetal outcome (n=48)

Disease	No. of babies (%)	Conservative treatment No. of bables (%)	Admission into neonatal ward No of bables (%)
No morbidity	26 (55.73%)		
Morbidity	22 (45.27%)		
Asphyxia	6(29.27%)	4(18.18%)	2(9.09%)
ARI	4(18.18%)	1(4.54%)	3(13.63%)
Jaundice	8(36.36%)	6(29.27%)	2(9.09%)
Neonatal sepsis	4(18.18%)	4(18.18%)	-

Discussion

Preterm premature rupture of membranes (PROM) at 16 through 26 weeks of gestation complicates approximately 1% of pregnancies in the United States and is associated with significant risk of neonatal morbidity and mortality[7,8]. Perinatal mortality is high if PROM occurs when fetuses are of previable gestational age. Moretti and Sibai[9] reported an overall survival rate of 50% to 70% after delivery at 24 to 26 weeks of gestation. Bangabandhu Sheikh Mujib Medical University (BSMMU) is a tertiary level teaching and specialized hospital and always burdened with referred and complicated cases[10]. Fetal morbidity and mortality following PROM is quite high in our country[11]. In the current study, the incidence of neonatal complications is also high. The number of neonatal complications documented in our study appears to be as same as those provided in previous studies in our country[10-13]. This result may be the effect of delivery occurred at an earlier gestational age. However, it may also possibly indicate that the complications witnessed are related more closely to the effects of premature birth rather than PROM[14]. Still the present study reported no neonatal loss which is exceptionally better than that of Akter et al[10], Sultana et al[11]. Tasnim and Bhuiyan[12], Chowdhury et al[13]. This may attribute to advance management and neonatal ICU support of Bangabandhu Sheikh Mujib Medical University (BSMMU) hospital, Dhaka.

Conclusion

Despite progress in obstetric and neonatal care over the past years, fetal outcome in pregnancies with PROM remains dismal. Thus, if expectant management is desired, obstetricians should counsel their pregnant patients thoroughly and well in advance with regard to the poor outcomes for neonates anticipated after this type of delivery. Moreover, we recommend further studies with larger study participants and both in rural and urban areas.

Acknowledgement

We would like to thank the authority of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, for the kind permission to carry out the study and the participants for their enormous cooperation.

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