Original Research Article

A study of outcome of patients with preterm premature rupture of membranes in a tertiary care hospital

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Abstract

Background: The aim of this study was to study maternal and perinatal outcome in patients with preterm premature rupture of membranes. **Design**: This observational study was conducted in the obstetrics ward of Bharati Vidyapeeth (Deemed to be) University Medical College and Hospital, Sangli, Maharashtra from January 2020 to June 2020. Women admitted in obstetrics ward and having preterm premature rupture of membranes were included in the study after taking written informed consent. The patients were divided into two study groups Group I and Group II according to the time interval between the rupture of membranes to delivery. The maternal and perinatal outcome was noted in both the groups. **Result**: The maternal morbidity in both the groups was noted in terms of wound infection, PPH, Puerperal pyrexia. In Group I there was maternal morbidity of 16.2% and in group II there was a morbidity of 30.2%. p value is 0.72 which is not significant. Neonatal morbidity was noted in terms of RDS, Sepsis, Hyperbilirubinemia, IVH, Birth Asphyxia and HIE. Neonatal morbidity in Group I was 13.5% and in Group II it was 46.1%. Neonatal mortality in group I and group II was 5.4% and 23% respectively. p value is 0.87 which is not significant. **Conclusion:** Objective of our study was to compare the maternal and perinatal morbidity as the time interval from PPROM to delivery increased. However no statistically significant difference was noted with increased number of hours of PPROM.
Key words: Infection, Postpartum haemorrhage. Birth asphyxia, Sepsis.

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INTRODUCTION

Preterm premature rupture of membranes (PPROM) is defined as the spontaneous rupture of foetal membranes prior to the onset of labour and before 37 completed weeks of gestation.[1] It occurs in 2- 3% of all pregnancies. Premature rupture of membranes occurs in 30-40% of preterm births. Most of these patients deliver within 48 hours to 7 days.[2] Premature rupture of membranes occurs in 8% of full-term pregnancies.[3]. It can cause chorioamnionitis, postpartum haemorrhage and wound infection in the mother. Prematurity of the neonate leads to significant morbidity and mortality. Neonatal complications include sepsis, pulmonary hypoplasia, cord prolapse. Risk Factors for PPROM include maternal infections, polyhydramnios, multiple pregnancy. A novel mechanism which has been implicated in preterm premature rupture of membranes is infection induced thrombin production[4]. Diagnosis of PPROM is made by per speculum examination. Detection of Insulin like growth factor binding protein I (IGFBP-I) or placental alpha microglobulin I (PAMG I) in the vaginal fluid can also be used for diagnosis. RCOG guidelines recommend

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prophylaxis with antibiotics like erythromycin following diagnosis of PPROM. Women with gestational age between 24 to 33.6 weeks should be given corticosteroids for foetal lung maturity. Magnesium sulphate is also recommended for gestational age between 24 to 29.6 weeks if patient is in labour.[3] Timely management of these patients with proper antibiotics and corticosteroids help to improve neonatal outcome without causing an increase in maternal morbidity due to infection.

Aim

To study maternal and perinatal outcome in patients with preterm premature rupture of membranes.

Objectives

To study the outcome of labour in patients with preterm premature rupture of membranes. To find out the maternal and perinatal morbidity and mortality in preterm premature rupture of membranes.

MATERIALS AND METHODS

This observational study was conducted in obstetrics ward of Bharati Vidyapeeth (Deemed to be) University Medical College and Hospital, Sangli from January 2020 to June 2020

Study population: Women admitted in obstetrics ward of Bharati Vidyapeeth (Deemed to be) University Medical College and Hospital, Sangli and having preterm premature rupture of membranes with a viable pregnancy were included in the study after obtaining written informed consent.

Inclusion criteria

All pregnant women with singleton pregnancy between 28-36 weeks of gestational age with preterm premature rupture of membranes

Exclusion criteria:

1. Multiple pregnancies
2. Uterine anomalies
3. Patients who do not give consent
4. Gestational age < 28weeks

Methodology

Study was conducted in obstetrics ward of Bharati Vidyapeeth (Deemed to be) University Medical College and Hospital, Sangli, Maharashtra after obtaining approval from Institutional Ethical Committee. The study included all patients delivered at our hospital and having a viable pregnancy with preterm premature rupture of membranes. It included patients delivered vaginally as well as by cesarean section. The patients were divided into 2 groups

Group I: It included patients who delivered within 12 hours of PPROM

Group II: It included patients who delivered 12 hours after onset of PPROM. The patients in both the groups were given antibiotics according to the institutional protocol. Injectable steroids were also given for foetal lung maturity. The patients were observed for the development of signs of infection like fever, foul smelling vaginal discharge, gaping or discharge from the episiotomy or LSCS suture site. Puerperal infection causing subinvolution of the uterus manifesting as postpartum haemorrhage (PPH) was also noted in both the groups. Neonates were observed for the development of Respiratory Distress syndrome(RDS), signs of sepsis, Birth Asphyxia, Hyperbilirubinemia, Intraventricular Haemorrhage (IVH) and Hypoxic Ischemic Encephalopathy (HIE). Neonatal mortality was also compared in both the groups.

- Puerperal pyrexia, wound infection and PPH were parameters used to evaluate maternal morbidity.
- Neonatal morbidity was evaluated in terms of RDS, Sepsis, Hyperbilirubinemia, IVH, Birth asphyxia and HIE. The results were compared in both the groups.

Statistical Analysis

The statistical significance of maternal morbidity in both the groups was compared using chi-square test. The neonatal morbidity and mortality according to the PPROM to delivery interval was also compared using chi- square test of significance.

Table 1: Analysis of cases according to PPROM to delivery interval

PPROM in hours	No. of cases	Percentage
< 12 hours	37	74%
>12 hours	13	26%
Total	**50**	**100%**

In Table 1 the patients are compared according to the time interval between PPROM to delivery. 74% of the patients were delivered within 12 hours of onset of PPROM while 26% took more than 12 hours to deliver.

Table 2: Association of Maternal Morbidity to interval between PPROM and delivery

PPROM to Delivery interval	No. of Cases	Puerperal Pyrexia		Wound Infection		PPH		Total Maternal Morbidity	
		No	%	No	%	No	%	No	%
<12 hours	37	2	5.4%	1	2.7%	3	8.1%	6	16.2%
>12 hours	13	1	7.6%	2	15%	1	7.6%	4	30.2%
Total	**50**	**3**	**6%**	**3**	**6%**	**4**	**8%**	**10**	**20%**

In Table No 2 an association of maternal morbidity with PPROM to delivery interval is compared. The percentage of patients developing puerperal pyrexia, wound infection increases from 5.4%, 2.7% respectively from group I to 7.6%, 15% in Group II. However PPH occurs in a less percentage of group II (7.6%) patients as compared to group I patients (8.1%). The p value for maternal morbidity is 0.724 which is not significant.

Table 3: Distribution of neonatal morbidity according to PPROM and delivery interval

PPROM to delivery interval	Total birth	RDS	Sepsis	Hyper Bilirubinemia	IVH	Birth asphyxia	HIE
< 12hours	37	3	0	2	0	0	0
>12hours	13	1	2	1	0	2	0

Table No 3 Compares the distribution of neonatal morbidity in both the groups.
Respiratory Distress Syndrome occurred in 3 neonates in group I and Hyperbilirubinemia occurred in 2 neonates in this group. In Group II Respiratory Distress Syndrome and Hyperbilirubinemia occurred in 1 neonate each while birth asphyxia and sepsis occurred in 2 neonates each.

Table 4: Distribution according to foetal outcome

PPROM to delivery interval	Neonatal morbidity	%	Neonatal mortality	%
< 12hours	5	13.5%	2	5.4%
>12hours	6	46.1%	3	23%
Total	**11**	**22%**	**5**	**10%**

Neonatal morbidity was 13.5% in Group I while neonatal mortality was 5.4% in this group. The neonatal morbidity and mortality were 46.1% and 23% respectively in Group II. The p value for neonatal morbidity and mortality is 0.871 which is not significant.

DISCUSSION

In a study conducted by Swathi *et al.*[5] the maternal morbidity was 9%. The results were different from our study where the maternal morbidity was observed to be 20%. 21% maternal morbidity was observed in a study conducted by Anjana *et al..*[6] Okeye *et al.*[7] found 20% maternal morbidity in their study. These findings were similar to the findings of our study. Neonatal morbidity was seen in 24% by Kamala jayaram[8]. Shehla Noor[9] observed a perinatal morbidity of 28.23%. In our study neonatal morbidity occurred in 22% while neonatal mortality occurred in 10% Neonatal mortality was seen in 5% by Anjana *et al.*[6]. Swathi *et al.*[5] observed a neonatal mortality of 12%.

CONCLUSION

From my study it is concluded that there is no significant increase in the maternal and neonatal morbidity if the duration of PPROM exceeds 12 hours. Nor does the maternal and neonatal morbidity decrease significantly if the patients are delivered within 12 hours of PPROM. However as the sample size for this study was small, more studies are required to draw a firm conclusion.

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