

## Original Article

## A REVIEW OF THE MATERNAL AND FETAL OUTCOMES IN PATIENTS PRESENTING WITH PREMATURE RUPTURE OF MEMBRANE

Nuzhat Amin<sup>1</sup>, Naseem Akhtar<sup>1</sup>, Himasa Gul<sup>1</sup>, Naila Noor<sup>1</sup>, Nablia<sup>1</sup>, Wagma<sup>2</sup>

<sup>1</sup>Department of Obstetrics & Gynecology, Mardan Medical Complex, Mardan - Pakistan

<sup>2</sup>TMO, Khyber Teaching Hospital, Peshawar KP - Pakistan

### ABSTRACT

**BACKGROUND:** Preterm premature rupture of membrane is a phenomenon that affects women before 37 weeks of gestation and can be caused by different factors. Aim of this study is to evaluate the maternal and fetal outcome after recommended treatment for PPRM, and to observe maternal and fetal outcome after that recommended treatment.

**METHOD:** This study has been conducted in Mardan medical complex hospital gynae A Ward in 2019. We recruited 100 patients of PPRM in our study. Throughout our study, we monitored Maternal and fetal condition from the beginning until the end including prenatal care, childbirth, and postnatal care including weight of the baby, Apgar score along with maternal and neonatal monitoring.

**RESULTS:** Thirty out of 100 pregnant women that we recruited for our study had pre-term premature rupture of their membranes (PPROM) away from term and 70 women had PPRM near to term.

The latency decreased as PPRM approached the term. Out of 100 patients 90 patients delivered vaginally but 10 patients had LSCS. 20 patients had developed maternal morbidity however 80 patients were stable though out the study period. About 95 babies delivered live however 5 were still birth. Babies had RDS and 20 had neonatal septicemia.

**CONCLUSION:** Delivery of a premature infant needs intensive monitoring during delivery and NICU care after delivery. The management is only possible in tertiary care hospitals where better NICU facility is available. The decision of conservative management and induction should be taken by senior obstetrician.

**KEY WORDS:** Preterm Premature Rupture of Membrane (PPROM), Neonatal Death (NND), Neonatal Sepsis (NNS), Intraventricular Hemorrhage (IVH), neonatal intensive care unit (NICU)

### INTRODUCTION

Premature membrane rupture (PPROM) occurs when the foetal membranes burst before 37 weeks of pregnancy. In majority of cases it happens near term that is 37weeks however some cases also happens at very premature condition that is very difficult to manage. PPRM affects 3% of pregnancies and accounts for 30% of premature births.<sup>1</sup> Prematurity is the cause of 85% of neonatal morbidity and mortality. Nevertheless, it decreases with near-term gestational age PPRM and delivery, which is linked

#### Correspondence:

**Dr. Nuzhat Amin**

Associate Professor

Department of Gynecology Bacha Khan Medical College, Mardan - Pakistan

Email:k.shahbaz50@yahoo.com

Cell: +92-316-9001827

with very high perinatal morbidity and death.<sup>1</sup>

Good management of PROM remote from 37 weeks has a very better impact on perinatal morbidity and mortality. The obstetrician taking care of the PPRM patients should have knowledge of the management of PPRM as well as they should be competent enough to identify any complication and how to manage it.<sup>2</sup>

In PROM patients there is high risk of cord prolapse and compression, high risk of chorioamnionitis and its 5 morbidity. These patients are at increased risk of operative deliveries More than 70% of PROM patients deliver within 48 hours. The time of conservative management depends upon the time between the membranes rupture and onset of labor or any complication which need urgent delivery.<sup>3</sup>

The aim of PROM management is to minimize complications like sepsis and improve maternal morbidity and perinatal morbidity and mortality. Infection can be subclinical without any maternal

Signs that why biochemistry of such patients should be repeated after every 48 hours. These patients are given amoxicillin in injection form or if sensitive to it than erythromycin prophylactically to prevent any sepsis and any complications.<sup>4,5</sup>

## MATERIAL AND METHODS

This observational study has been carried out at the Department of Obstetrics and Gynecology Mardan medical complex Mardan. 100 patients of PPROM had been recruited in this study in July 2018 to August 2019. Complete history and examination of all patients had been performed and all base line investigations as well as ultrasound examination performed as well. Complete obstetric history and examination also performed and a sterile speculum examination had been done to look for collection of liquor in posterior fornix of vagina.

After confirmation of PPROM with speculum examination an ultrasound examination performed for reduced amniotic fluid. Blood group, haemoglobin percentage, total and differential white cell count, and ESR were among the laboratory tests that were conducted on these patients. In patients who had some symptoms of infection we did vaginal swab for and sent for culture and sensitivity. PPROM who had no sign and symptom of infection were given conservative management however those who had signs of infection were actively managed.

Prophylactic antibiotics are given during conservative management and include initial intravenous amoxicillin 2gm followed by 1gm IV every hour for 24 hours, and then 250mg amoxicillin taken orally every 8 hours for 10 days. Patients who are allergic to penicillin received oral erythromycin 500mg every 8 hours. Also dexamethasone 12mg was administered intramuscularly twice, separated by 12 hours, in pregnancies that were shorter than 34 weeks along.

Both mother and fetus were monitored for development of fever and signs of chorioamnionitis as well as labour. Fetuses also followed for any

compromise by 2 weekly ultrasound examination. Mothers are followed for the signs of infection by temperature recorded and (Temperature of more than 38 C), uterine tenderness, maternal and fetal tachycardia and foul smelling amniotic fluid.

Any patient who developed any complication like fever, chorioamnionitis, fetal compromise and gestational age of 36 weeks or more were then delivered either by induction or C-section as per protocol. All of these patients had been monitored during pregnancy, labour, and delivery, as well as for 10 days following birth. Maternal indications of endometritis as well as the mode of delivery, the baby's weight, the baby's Apgar score, and the outcomes for both the mother and the foetus were all noted.

## RESULT

In this study, 30 women were between the ages of 30 to 40, while 60 patients ranged in age from 21 to 30 and the remaining were above 40 years Table No:1. There were no patients from the elite class; instead, 93% of the patients enrolled for our research belonged to a low socioeconomic level while 7% were from middle class, Table No: 2.

60 patients were primigravida, 25 were Gravida 2 and remaining 15 were having gravity of 3 or more. The patients who were having gestation age remote from term were having prolonged time of conservative management however patients who were of 36 weeks or more were delivered by induction or if needed C-section Table No: 3. 10 patients were having gestation from 25 to 30 weeks, 20 patients were having gestation from 31 to 35 week and the other all were above 35 weeks Table No: 4.

85 patients had vaginal delivery and 15 delivered by C-section. 5 patients were admitted in emergency with chorioamnionitis. The patients who were managed by conservative management didn't developed chorioamnionitis. 2 patients developed abruption, 3 had PPH and 10 patients had pyrexia Table No: 5. Moreover, out of all newborn's morbidities and comorbidities, respiratory distress syndrome was the most prevalent morbidity with an incidence of 80%, pneumonia with a 30% rate, and neonatal sepsis with a 10% rate. Table No: 6. Neonates who were very premature that is below 30 weeks of age had more complication as compare

to neonates having gestation more than 35 weeks. 40 neonates required nursery admissions. 15 delivered with low Apgar score. That is below 5 Apgar score.

**Table 1: Age of Patients**

Age in years	Patients No
21-30	60
30-40	30
40 & above	10

**Table 2: Socio Economic Status**

Socio Economic Status	Patients No
Poor	93
Poor	7
Upper	0

**Table 3: Gravidity of Patients**

Socio Economic Status	Patients No
60	PG
25	G2
15	G3 P3 Or More

**Table 4: Gestations of Patients**

No of Patients	Gestations
10	25-30 Weeks
20	31-35 Weeks
70	35 Weeks & above

**Table 5: Maternal Complications**

No of Patients	Maternal Complications
2	Abruption
3	PPH
10	Pyrexia

## DISCUSSION

Many national and international studies conducted on maternal and fetal outcomes in patients of PROM has found that patients belonging to lower socioeconomic groups has high perinatal morbidity and mortality as compared to high socioeconomic groups. <sup>6</sup> In a study conducted in Nigeria over 10 year on a large number of population for

fetal and maternal outcomes in patients of PPROM, they found that the most common maternal complications were secondary PPH, depression, pyrexia, psychosis. In their study most common perinatal morbidity was respiratory depression, neonatal enterocolitis, pneumonia and low Apgar score? They found 7% perinatal death in their study. <sup>7</sup>

When we compare our study to the study of Nigeria, we can see that our maternal and fetal complications are similar to them in spite of the fact that our study was for shorter time and on a smaller number of patients. <sup>8</sup> Natnaell E, Hailemarim B, Guesh W conducted a study on risk factors of premature rupture of membrane in public hospital at Mekele City. They mentioned in their study patients with past history of PPROM some risks in index pregnancy like genitourinary infections are more at risk of PPROM. However we didn't include this demographic parameter in our study. It is because we just focused our study on outcome of mother and neonates. <sup>9</sup>

In a Pakistani Study conducted by Saira Dar, Safia Malik, Dr Irum and Prof. Roshan in Liaquat University Hyderabad, Sind Pakistan. They also conducted their study on 100 patients of random age groups. According to them the PPROM patients mostly belonged to low socioeconomic groups that is 72%, 21% belonged to middle class and 7% to upper class. When we compare their study to that of ours, in our study 93% were poor, this may be because we conducted our study in a government hospital in which we receive daily poor patients. Otherwise the outcome of their study as well as ours is almost same. <sup>10</sup>

The incidence of PPROM in the study by Arij Faksh DOA Et Al was 64.5% in primigravida, 17.8% in gravida II, and 17.75% in multigravida. The incidence of PPROM was 7.2%, with 48.8% of cases occurring between 34 and 36 weeks, 26% between 31 and 33 weeks, 14.4% between 28 and 30 weeks, 3.4% at 27 weeks, and 7.2% occurring at less than 26 weeks, according to a research by Joelle M. Lieman et al. <sup>11</sup>

As compared to a research by Fatemeh Tauassoli et al., the caesarean section rate in the Tahir, Aleem M, et al. study was 32.0%. <sup>12</sup> In contrast to a prospective research by Fatemeh Tauassoli et al., which found a 5.8% placental abruption incidence

rate and a 5% chorioamnionitis incidence rate, our investigation found no chorioamnionitis cases. That may be as a result of our giving all of our patients antibiotics. Endometritis occurs after vaginal birth in 5-6% of women who are at high risk of infection due to membrane rupture, extended labour, and numerous cervical exams. The likelihood of a chronic uterine infection rises to 13% in the event of intrapartum chorioamnionitis.<sup>13</sup>

## CONCLUSION

The most frequent cause of preterm delivery, PPRM has a high neonatal morbidity & death rate as well as a high maternal morbidity rate. The cost of raising a preterm child strains the finances of both parents and the government. That is why accurate conservative management of PPRM is essential to overcome this burden. This can also be reduced by infection control in pregnant patients and improving their health and by regular antenatal checkup and correction of anemia in Pregnancy.

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