

Preterm Prelabor Rupture of Membranes At 34-37 Weeks: Conservative Versus Active Management

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ABSTRACT

Objective To compare the fetal and maternal morbidity in terms of fetal distress, chorioamnionitis and mode of delivery in conservative and active management of preterm prelabor rupture of membranes (PPROM) at 34-37 weeks of pregnancy.

Study design Quasi experimental study.

Place & Duration of study Department of Obstetrics and Gynaecology, Bahawal Victoria Hospital, Bahawalpur from January 2007 to December 2007.

Methodology A total of 100 cases were included in the study and divided into two groups of 50 each. Group "A" patients were managed conservatively and group "B" underwent active management with immediate induction of labor.

Results Eighteen (18%) patients developed chorioamnionitis. Out of these 13 (26%) were in conservatively managed group and 5 (10%) in actively managed group. Twelve (12%) patients developed fetal distress, 7 (14%) in conservatively managed group and 5 (10%) in actively managed group. A total of 20 (20%) patients underwent cesarean section. Out of these 11 (22%) were from conservatively managed group and 9 (18%) from actively managed group.

Conclusions Induction of labor at presentation is a better option than conservative management in terms of chorioamnionitis but the results are not significantly different for the fetal distress and mode of delivery.

Key words Fetal distress, Chorioamnionitis, Preterm rupture of membrane.

INTRODUCTION:

Preterm prelabor rupture of membranes is defined as rupture of the fetal membranes at least one hour prior to the onset of labor at less than 37 completed weeks of gestation. PPRM is an important clinical problem and a dilemma for the gynecologist. PPRM complicates up to 2% of all pregnancies and is the cause of 40% of all preterm births.^{1,2} The optimal management of women with PPRM prior to 37

weeks is not known. Intact fetal membranes with normal amniotic fluid are necessary for normal fetal growth and development.³ Membranes also serve as a barrier that separates the sterile fetal environment from the bacteria colonized in vagina. PPRM is the leading cause of the preterm birth and perinatal morbidity with tremendous socio-economic impact in society.⁴ In the US, preterm births account for 12% of all births, 75% of all neonatal mortality and 50% of long-term neurological impairment in children, 33% of healthcare spending on infants and 10% of spending on children.⁵

There are two options for managing PPRM, expectant management (a wait and see approach) or early planned birth. On the one hand, awaiting spontaneous labor increases the probability of

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infectious disease for both mother and child, whereas on the other hand induction of labor leads to preterm birth with an increase in neonatal morbidity (e.g. respiratory distress syndrome - RDS and a possible rise in the number of instrumental deliveries).⁶ Infection is the main risk for women in which management is expectant. This risk needs to be balanced against the risk of iatrogenic prematurity if early delivery is planned. Expectant management results in prolonged antenatal hospitalization while planned early delivery may necessitates intensive care of the neonate for problems associated with prematurity.⁷

The gestational period between 34-37 weeks is the most controversial period. During period fetal lungs are not mature enough to allow induction of labor without the risk of acute respiratory distress syndrome. Fetus is also not that premature to bear the risks of PPROM.⁸ This study was conducted to provide evidence on the optimal care for women with PPROM close to term (34–37 weeks gestation) especially in our circumstances where the neonatal facilities are not up to the mark.

METHODOLOGY:

A quasi experimental study was conducted with the objective of comparing the fetal and maternal morbidity and mode of delivery in conservative and actively managed PPROM at 34-37 weeks of pregnancy. All pregnant patients in Obstetrics and Gynecology department BVH, admitted with the complaint of watery discharge per vaginum constituted the study group. Patients with advanced labor and those with already developed complications of PPROM were excluded. Patients who were not suitable for conservative management i.e. intra uterine fetal death or pre eclampsia, eclampsia, antepartum hemorrhage, maternal diabetes and patients who were not fit candidates for vaginal delivery i.e. having cephalopelvic disproportion, previous two or more cesarean sections, malpresentation or placenta previa were also excluded. The demographics were noted. Diagnosis was established on the basis of history, examination and investigations. Merits and demerits of the study were explained and their written informed consent was taken from study participants. The patients were allocated to groups randomly by offering them to pick up any one of the two folded slips bearing letter "A" and "B". Group A was managed conservatively and in group B active management planned according to the following protocols.

In conservatively managed group continued clinical monitoring of mothers and fetuses was done every

four hour. Fetal heart rate was monitored with cardiotocogram (CTG) for at least 10 minutes. They were advised rest and oral antibiotic, erythromycin 500mg 6 hourly and metronidazole orally 400 mg 8 hourly, for seven days or earlier if she they developed any maternal or fetal complication. The total leukocyte count (TLC) was performed on daily basis. Patient who developed chorioamnionitis or fetal distress without labor underwent emergency cesarean sections. In patient where labor started spontaneously without any complications, delivered vaginally. Patients who attained fetal maturity (37 completed weeks) were subjected to active management i.e. induction with oxytocin.

In actively managed group, the patients were informed at initial consultation that induction of labor might be associated with failure where emergency cesarean section would have to be performed. The patients were subjected to induction of labor at the time of presentation with intravenous oxytocin infusion until patient delivered or developed any maternal or fetal complications. The infusion was set up and dose doubled every 30 minutes and titrated against the uterine activity till 3-4 moderately severe painful contractions observed. Continued clinical monitoring of the mother and the fetus was performed. Maternal pulse, temperature and color of liqor maintained four hourly. Monitoring of uterine contraction and fetal heart rate auscultation with the help of CTG were done every half hour.

The mode of delivery and any maternal or fetal complication were noted for each group and statistically checked using Chi square test.

RESULTS:

Hundred patients of PPROM at 34-37 weeks were included in the study. Chorioamnionitis was diagnosed in 13 cases (26%) in conservatively managed group, and in 5 cases (10%) of actively managed group (p - 0.037). Seven women (14%) in the conservatively managed group developed fetal distress as compared to 5 women (10%) of actively managed group (p - 0.538).

Eleven cases (22%) in the conservatively managed group ended up in cesarean delivery. Out of those 5 (10%) were performed due to chorioamnionitis, 3 (6%) due to fetal distress and 3 (6%) due to both complications. Nine cases (18%) in the actively managed group were delivered by cesarean section. Out of those 3 (6%) were due to chorioamnionitis, 3 (6%) due to fetal distress and 1 (2%) due to both complications. Two (4%) cesarean sections were performed due to failed induction of labor (p - 0.617).

Thirty nine gravida out of 50 (78%) women managed conservatively achieved vaginal delivery while 41 cases out of those 50 who were managed actively gave vaginal birth to their babies (p = 0.617).

DISCUSSION

Preterm prelabor rupture of the membranes is an important clinical problem and a dilemma for the obstetricians. On the one hand, awaiting spontaneous labor may lead to an increase in infectious disease for both mother and child, on the other hand induction of labor leads to preterm birth with an increase in neonatal morbidity due to prematurity. Prelabor rupture of the membranes occurs in 2% of all births and 40% of all preterm births.^{9,10,11} When prelabor rupture of the membranes occurs at term (PROM) there is good evidence that early delivery is associated with a lower incidence of maternal infection and increased maternal satisfaction compared with expectant management.¹²

PPROM near term is a management dilemma. Following membrane rupture the preterm fetus is at risk of a number of complications such as prematurity, placental abruption, ascending infection, intrapartum fetal distress and cord prolapse.^{12,14} Abruption of placenta complicates pregnancy for 5–6% of women with PPRM.¹⁵ Histological chorioamnionitis is more common in women with pregnancies complicated with PPRM compared with preterm or term controls.¹⁶ Infection is the main risk for women in whom management is expectant. These risks need to be balanced against the attendant risk of iatrogenic prematurity, if early delivery is planned.

At extreme preterm gestations (less than 30 weeks), in the absence of maternal or fetal compromise, there is unanimity that expectant management allows further fetal maturation and is desirable.¹⁷ This is because the preterm fetus born prior to 30 weeks has increased risk of neonatal mortality, intraventricular hemorrhage, hyaline membrane disease and necrotizing enterocolitis. These risks, associated with immaturity, are reduced as the gestational age extends beyond 30 weeks.¹⁸ At gestations nearer to term, it is uncertain, whether the fetus gains any benefit of pregnancy prolongation following PPRM. By 34 weeks it has been suggested that there is no extra benefit for the fetus in the face of risks of intrauterine infection.

Decisions to electively deliver a fetus preterm however, requires grounding in good clinical evidence as mild prematurity is associated with a significant health burden.¹³ On the other hand expectant management means mothers are often

hospitalized for prolonged periods with the consequent implications. There has been an increasing trend towards the active management of the patient of PPRM after 34 completed weeks. Results of this study confirms the results of other recent large studies like that of Mercer BM et al and demonstrates that active management is a better option when compared to conservative management and can be an option for the patients who opt for this treatment modality.

Infection of placenta and membranes i.e. chorioamnionitis is a feared complication of PPRM and the rationale for treatment with induction of labor is largely to avoid infection. Chorioamnionitis rate was lower in actively managed group (10%) as compared to conservatively managed group (26%). Results are comparable to many studies.^{13,14}

CONCLUSION:

In PPRM at 34 -37 weeks, active management reduces the risk of chorioamnionitis without reducing the rate of cesarean section and fetal distress therefore it is the preferred mode of management.

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