ORIGINAL ARTICLE

Comparison of Induction and Expectant Management of Prelabour Rupture of Membranes at Term for Maternal Outcome

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ABSTRACT

Aim: To compare the outcome of active versus expectant management in patients with PROM at term.
Results: The frequency of mode of delivery of patients. There were 187(67%) patients were SVD in group A and 109(39%) patients were in group B. Fetal distress had 63(22%) patients in group A and 100(36%) in group B. Similarly failed induction observed in 15(5%) patients in group A. There was comparison of lower segment caesarean section in both groups. Ninety three (33%) patients were delivered as LSCS in group A while 171(61%) patients were in group B. (p <0.001), comparison of chorioamnionitis of patient in both groups. There were only 15 (5%) patients of chorioamnionitis in group A while 71(25%) patients had in group B, (p <0.001).
Conclusion: Active management with induction decreases the risk of chorioamnionitis, usually patients are delivered within 24 hours without increasing caesarean delivery rate and decreases the need for oxytocin augmentation.
Keywords: Induction management, expectant management, prelabour rupture of membranes

INTRODUCTION

Spontaneous rupture of membranes may occur prior to onset of labour at or beyond 37 weeks of gestation. Frequency of PROM at term is 8% of pregnancies, 95% of these will go into spontaneous labour within 28 hours of ruptured membranes.[1] The term “prelabor rupture of membranes” is a new but more appropriate term as compared to “premature rupture of the membranes”. The membranes at the stage of rupture are fully developed so cannot be designated as premature[2]. The duration of “Term” pregnancy extends from 37 to 42 completed weeks of gestation i.e., 259-294 days[3].

The incidence of spontaneous prelabor rupture of membranes is reportedly between 6 to 10%. Over 60% of these women at term go into spontaneous labor within 24 hours and over 95% deliver spontaneously within 72 hours of PROM[4].

The initial evaluation of all pregnancies in which pre-labour rupture of membranes (PROM) is suspected should include confirmation of membranes rupture, confirm gestation age, and assessment of fetal well-being. The major issue in managing a woman with PROM at term is whether to follow her expectantly or proceed for delivery[5]. Among the factors to consider are possibility of failed induction, caesarean delivery, length of labour, cost, length of hospitalization and risk of maternal and neonatal infection.

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As risk of maternal and fetal infection increases with the passage of time after PROM at term before the start of labor so, induction is highly recommended.[6] Another study showed that waiting for spontaneous onset does not increase fetal or maternal compromise and the risk of operative delivery is less but the risk of maternal and fetal infection is increased in these patients[7].

Induction of labour results in shorter time to delivery and decreased risk of maternal and neonatal infection[8,9] but can result in failed induction and operative delivery. Patients treated expectantly have longer interval till delivery, prolonged hospital stay, risk of cord accidents and maternal dissatisfaction.

For active management of PROM at term prostaglandin (misoprostol) is safe and effective for cervical ripening and induction of labour in patients with unfavourable bishop score[10].

This study was to rule out controversies about active and expectant management of PROM on previous literature[11] on a larger sample size to get more reliable results.

METHODOLOGY

A total of 560 cases (280 cases in each group) presenting in Obstetrics and Gynaecology Department Unit III, Sir Ganga Ram Hospital, Lahore, through emergency department, between 18-35 years, Primigravida to gravida four, Term pregnancy ≥37 weeks, Single pregnancy, Cephalic presentation, and Rupture of membranes <4 hours duration were included in the study while cases with evidence of

chorioamnionitis, in labour with evidence of regular uterine contraction <10 minutes apart, Diagnosed cases of gestational diabetes and hypertension, scarred uterus, fetal distress (non-reactive CTG trace at time of enrolment) and Fetal malformations were excluded from the study. Informed consent was taken regarding usage of personal information for purpose of study. Their demographic detail including name, age, gestational age was noted. All of them were divided in two groups, randomly using lottery method. Group-A was allotted to PROM at term with active management (i.e., patients induced with misoprostol) and Group-B to the PROM at term with expectant management.

Women's in group "A" were induced with misoprostol (100 micrograms) sublingually up to 5 doses 4 hours apart (as required) and women in group "B" were managed expectantly. In expectant management patient were observed for uterine contractions for 24 hours, sterile pad, antibiotic cover and fetal heart rate monitoring was done in both groups. Outcomes in term of mode of delivery (LSCS), and chorioamnionitis were observed for both groups. Patients were strictly monitored throughout labour, C-section was decided by consultant due to any indication, like failed induction, fetal distress etc. according to departmental protocol. All this information was collected on pre-designed proforma.

The collected data was entered and analyzed by SPSS version 16. Computer based software programme for data analysis. In both groups mean & standard deviation was calculated for age and gestational age. Frequency and percentage of women developing chorioamnionitis, lower segment caesarean section was calculated. Chi square test was used for comparison of outcome (i.e., chorioamnionitis, LSCS) in both groups. P value $\leq$0.05 taken as significant.

RESULTS

The mean age of patients in group A (PROM induced with misoprostol) was 25.35±4.43 years while in group B (PROM expectant management) mean age was 26.38±4.89. (Table 1) The mean gestational age of patients in group A was 39.07±1.41 weeks while in group B the mean gestational age was 38.35±1.37 weeks (Table 2).

Table 3 shows the frequency of mode of delivery of patients. There were 187(67%) patients were SVD in group A and 109(39%) patients were in group B. Fetal distress had 63(22%) patients in group A and 100(36%) in group B. Similarly failed induction observed in 15(5%) patients in group A.

There was comparison of lower segment caesarean section in both groups. Ninety three (33%) patients were delivered as LSCS in group A while 171 (61%) patients were in group B. Statistically there was significant difference between both groups (p <0.001) (Table 4).

Table 5 shows the comparison of chorioamnionitis of patient in both groups. There were only 15(5%) patients of chorioamnionitis in group A while 71(25%) patients had in group B which is statistically significant (p <0.001).

Table 1: Age distribution of patients in both groups (n=560)

Age in years	Group A	Group B
18-26	171(61%)	145(52%)
27-35	109(39%)	135(48%)
Total	280(100%)	280(100%)
Mean+sd	25.35±4.43	26.38±4.89

Table 2: Gestational age distribution of patients in both groups (n=560)

Gestational age in weeks	Group A	Group B
37-40	214(76%)	221(79%)
>40	66(24%)	59(21%)
Total	280(100%)	280(100%)

Table 3: Frequency of Mode of Delivery of Patients in Both Groups (n=560)

Mode	Group A	Group B
SVD	187(67%)	109(39%)
Fetal distress	63(23%)	100(36%)
Failed induction	15(5%)	-
Chorioamnionitis	15(5%)	71(25%)

Table 4: Comparison of lower segment caesarean section (LSCS) in both group (n=560)

LSCS	Group A	Group B
Yes	93(33%)	171(61%)

P value: <0.001

Table 5: Comparison of chorioamnionitis of patients in both groups (n=560)

Chorioamnionitis	Group A	Group B
Yes	15(5%)	71(25%)

P value : <0.001

DISCUSSION

Pre-labor rupture of membrane is an obstetric conundrum with an obscure etiology and therefore management strategies are often diverse and controversial. Questions arise about appropriate management for both pre-labor rupture of membranes and spontaneous rupture of membranes after labor has begun. These questions are primarily related to concerns about infection.

Increasing duration of time following rupture of the membranes is clearly a risk factor for infection. Research conducted in the 1960s showed that

perinatal morbidity and mortality increased significantly if birth did not occur within 24 hours of rupture[12,13]. Research on factors that are true risks for chorioamnionitis, postpartum endometritis, and neonatal infection suggest that the risk of infection gradually increases with increasing duration of rupture[14,15,16].

When a pregnancy reaches term, women normally expect labour to begin spontaneously, without medical or surgical assistance. However, for approximately 8% of women, the membrane rupture but labour does not begin spontaneously within the next few hours. Because the risk of maternal and fetal infection is known to increase with increasing duration. Between membranes rupture and delivery, artificial labour induction may be preferable for these women and their babies. Others believe that waiting for labour to begin spontaneously is preferable if there is no evidence of fetal or maternal compromise, because the risk of caesarean section may be lower. Because of limited information available it was difficult to determine which approach is better and thus a clinical trial was called for[17].

In our study age of the patients was between 18-35 years. Out of total 560 patients, most of the patients were between 18-26 years of age in both groups. One hundred seventy one (61%) of patients in group A between 18-26 years of age and 145(52%) patients were in group B. Between 27-35 years of age there were 109(39%) patients in group A while 135(48%) patients were in group B. The mean and standard deviation was 25.35±4.43 in group A while 26.38±4.89 in group B which is statistically not significant. A similar study reported by Fabiana[8] there were 15(20%) patients >30 years of age in group A and 14(18.7%) in group B with mean and standard deviation 23.6±6.1 in group A while 23.7±6.2 in group B which is statistically not significant.

In our study the gestational age of the patients were between 37-41 weeks. Out of total 560 patients most of the patients were between 37-40 weeks of gestational age in both groups. Two hundred fourteen (76%) of patients in group A were between 37-40 weeks of gestational age and 221(79%) patients were in group B. There were only 66(24%) patients of >40 weeks of gestational age in group A while 59(21%) patients were in group B. The mean and standard deviation was 39.07±1.41 in group A while 38.35±1.37 in group B which is statistically not significant. In a similar study reported by Fabiana[8] there were 25(33%) patients between 37-38 weeks of gestational age in group A and 23(30%) in group B which is statistically not significant which is comparable with our study.

In this study, spontaneous vaginal delivery was achieved in 67% in induced with misoprostol management as compared with 39% of expectant management group. This results is comparable with study carried out by Shetty et al.[18] This is also similar to the study done in obstetrics and gynaecology by Ara[19] at Dow University of Health Services and Civil Hospital, Karachi.

In our study there were 63(22%) patients had fetal distress in group A while 100(36%) patients had fetal distress in group B. In comparison with our study a similar study conducted by Fabiana[8] there were 6 (8%) patients had fetal distress in Misoprostol group and 11(15%) patients had fetal distress which is slight difference with our study. The present study shows the failed induction in 15.

In our study the lower segment caesarean section rate was 33% in patients in induced group and 61% in expectant management group which is statistically significant. This is similar to the results reported by some other studies[20,21]. Another study reported by Kausar[6,] misoprostol group had a significantly lesser LSCS rate (24% Vs 34%) which is comparable with our study.

In another study carried out by Kausar[6] Misoprostol group had a significant lower rate of choroamnionitis (3% vs 7.8%), which is comparable with our study.

Therefore, although misoprostol showed to be a more effective option for term PROM, this situation could perhaps be adequately addressed using either vaginal misoprostol or a relatively short period of expectancy (24 hours) followed by induction of labour with oxytocin only if really necessary, considering that the majority of women experience the onset of labour within this period. In practical and clinical terms, this second option would only imply in a relatively longer period of labour and maternal hospital stay, but perhaps with a slightly higher chance of caesarean section.

CONCLUSION

It is concluded that active management with induction decreases the risk of chorioamnionitis, usually patients are delivered within 24 hours without increasing caesarean delivery rate and decreases the need for oxytocin augmentation.

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