COMPARISON OF MANAGEMENT OUTCOME OF INDUCTION OF LABOR WITH EXPECTANT MANAGEMENT FOR TERM PRELABOR RUPTURE OF MEMBRANES

Abstract

Objective: To compare the management outcome of induction of labor with expectant management in patients with term prelabor rupture of membranes (PROM).

Study Design: Randomised control trial (RCT)

Place and Duration of Study: Department of Obstetrics & Gynaecology Combined Military Hospital Gujranwala, and Department of Obstetrics & Gynaecology Combined Military Hospital Peshawar, from Dec 2006 to June 2008.

Patients and Methods: The study was carried in maternity wards and labour rooms of both the hospitals. One hundred and fifty patients fulfilling the inclusion criteria were selected for this study. They were divided into two groups (A and B, 75 each). Patients in group A were induced with tablet prostaglandin E2 placed in posterior vaginal fornix. Group B patients were managed expectantly for 24 hours. Fetal heart rate was monitored one hourly and maternal vital signs were monitored six hourly.

RESULTS: The mean duration between PROM to onset of active labor in group A was 8.6±1.7 hours and in group B was 9.3±1.2 hours. The mean duration between PROM to delivery in group A was 16.2±1.5 hours and in group B was 21.9±1.2 hours. In group A, 68 (90.7%) patients delivered by SVD and 7 (9.3%) patients by LSCS. In group B, 67 (89.3%) patients delivered by SVD and 8 (10.7%) patients by LSCS. In group A, 6 (8%) patients developed chorioamnionitis and 10 (13.3%) patients in group B. In group A, there were 3 (4%) cases of neonatal sepsis and 4 (5.3%) patients in group B.

Conclusion: Management outcome of induction of labor in term prelabor rupture of membranes is better than expectant management.

Introduction

Prelabor rupture of membranes (PROM) at term is rupture of membranes prior to the onset of labor at or beyond 37 weeks gestation. Occurs in approximately 8-10% of pregnancies1,2.

Most patients enter in spontaneous labor within 24 hours when they experience rupture of membranes at term3. Prelabor rupture of membranes at or near term increases the risk of infection for the woman and her baby4. Evidence supports the idea that induction of labor as opposed to expectant management decreases the risk of chorioamnionitis without increasing the caesarean delivery rate5,6.

Prelabor rupture of membranes (PROM) occurs in approximately 10% of pregnancies, and 90% of patients enter spontaneous labor within 24 hrs7. Induction of labor (IOL) as opposed to expectant management, decreases the risk of chorioamnionitis and morbidity due to neonatal infection without increasing the caesarean delivery rate, hence, active management of PROM is indicated8.

Pre-induction bishop score is of critical importance to determine induction delivery interval. If the cervix is unfavorable (Bishop Score <6), cervical ripening is warranted prior to induction9,10. Methods available in our country are: PGE2 vaginal tablet, misoprostol, mechanical methods (bipolar cautery, local anesthesia), and medical methods (intravenous oxytocin, intravaginal dinoprostone, intramuscular methergin). 

This study was conducted to compare the effects of induction of labor versus expectant management, on maternal and fetal well-being, in women with term prelabor rupture of membranes. The significance of study is that if it proves that induction of labor in term prelabor rupture of membranes is better than expectant management, it will be helpful in 1) avoiding unnecessary delay for waiting spontaneous onset of labor, 2) better maternal outcome in terms of lesser caesarean deliveries and lesser cases developing choioamnionitis and 3) better neonatal outcome in terms of better Apgar scores and lesser cases of neonatal sepsis (in first 24 hours).

Patients and Methods

This study was carried out in the Department of Obstetrics and Gynaecology, Combined Military Hospital Peshawar and Combined Military Hospital Gujranwala from 10th Dec 2006 to 30th June 2008. A total of 150 patients fulfilling the criteria were included and were randomly divided into two groups (A & B) of 75 patients in each group. Patients between 20 to 35 years with PROM at or beyond 37 weeks of gestation having singleton pregnancy with cephalic presentation and history of previous normal delivery (one or more) were included. Patients in active labor with multiple pregnancy, intrauterine growth restriction (IUGR), intrauterine demise (IUD), polyhydramnios, previous caesarean section and pregnancies with medical disorders were excluded from the study. Patients fulfilling the inclusion criteria, with history suggestive of per vaginal leaking were admitted, which was confirmed by speculum examination. The purpose and procedure of the study were explained to the patients and an informed consent was obtained. Patients were divided by convenience sampling technique. After requesting routine investigations, patients in group A were induced with tablet prostaglandin E2 placed in posterior vaginal fornix. Group B, comprised of patients who were managed expectantly for 24 hours. Fetal heart rate was monitored one hourly and maternal vital signs were monitored six hourly. If patients in group B did not go into labor till 24 hours, they were induced with tablet prostaglandin E2. The management outcomes were measured in terms of mode of delivery (spontaneous vaginal or caesarean section), development of chorioamnionitis (criteria was maternal pulse >100bpm, temperature >38°C, fetal heart rate >160bpm, TLC >13000x109/L), Apgar score and neonatal sepsis within first 24 hours after birth (criteria was respiratory rate >60/min, presence of chest reccesions, temperature >100°F and reluctance to take feeds). All data was entered in research proforma.

Data analysis:
The data was analysed using SPSS version 13.0. Mean and standard deviation (SD) were calculated for quantitative variables while frequency and percentage were calculated for qualitative variables. Chi Square test was applied for comparison of qualitative variables and independent samples t-test was applied for the comparison of quantitative variables between both the groups. p-value < 0.05 was taken as significant.

RESULTS:
The mean age in group A was 26.7±4.5 years and in group B was 26.9±4.3 years. The mean height of the patients in group A was 162.6±2.1 cm and in group B, it was 163.0±2.3 cm. The mean weight of the patients in group A was 63.6±4.2 kg and in group B was found to be 64.8±5.8 kg. Same was the case with gestational ages ie, in group A it was 38.3±1.1 weeks and in group B it was 38.4±1.2 weeks. Both the groups were comparable with respect to age (p>0.05), weight (p>0.05), height (p>0.05) and gestational age (p>0.05). The mean duration between PROM and onset of active labor in group A was 8.6±1.7 hours and in group B was 9.3±1.2 hours, thus shorter duration was observed in group A (p=0.002). The mean duration between PROM to delivery is described in table-1.
and shows shorter duration in group A. Difference in mode of delivery between both the groups was insignificant (Table-2).

In group A 6 (8%) patients developed chorioamnionitis and in group B, there were 10 (13.3%) patients having chorioamnionitis. Although, more patients in group B developed chorioamnionitis, but statistically it was not significant. (p=0.18). Regarding Apgar score at 1 minute, in group A, there was 1 (1.3%) patient of Apgar score of <5 as compared to 3 (4%) patients in group B. In group A, there were 74 (98.7%) patients of Apgar score of >5 and in group B there were 72 (96%) patients of Apgar score of >5 (p= 0.83). Apgar score at 10 minutes of >7 was found in 100% patients in both groups.

In group A, 3 (4%) patients developed neonatal sepsis whereas in group B, there were 4 (5.3%) patients having neonatal sepsis (p=0.67).

**DISCUSSION**

Prelabor rupture of membranes (PROM) at term is rupture of membranes prior to the onset of labor at or beyond 37 weeks gestation. Most of these patients enter in spontaneous labor within 24 hours. The major question regarding management of these patients is whether to allow them to enter labor spontaneously or to induce labor. Evidence supports the idea that induction of labor decreases the risk of chorioamnionitis without increasing the caesarean delivery rate. Some favor early induction of PROM because of risk of infections and others favor expectant management with fetomaternal monitoring.

In our study, the length of prelabor rupture of membranes to active labor interval was shorter in patients with induction group which is 8.6±1.7 hours as compared to the expectant group, which is 9.3±1.2 hours. It is comparable to the study of Chaudhri and Naheed in which interval from PROM to active labor was also shorter i.e. 10.2 vs 15.4 hours. In another study of Snehamay et al in which interval from PROM to delivery in induction group was 17.1±10.3 vs 16.2±1.5 hours in our study. So our results are comparable with the results of above mentioned studies.

The caesarean section rate was 9.3% in the induction group and 10.7% in the expectant group. Our results are similar with and comparable to Chaudhry and Naheed in which caesarean section rate was 11.1% vs 15.8%. In another study conducted by Snehamay et al the caesarean section rate was 17.8% vs 28.5%. However, significant high caesarean section rate was observed in local study of Malik and Na14 in induction group than ours. SVD was 9.3% in our study which is comparable with the study of Snehamay et al in which SVD was 66% vs 48% which are also comparable with our study. Although high rate of chorioamnionitis was found among conservatively managed women but could not reach the statistical significance. So, none of the method is associated with significantly increased maternal infectious morbidity.

The chorioamnionitis was 8% in induction group as compared to 13.3% in expectant group. While in the study of Chaudhri and Naheed15 the chorioamnionitis was 8% vs 12% in expectant group. In another study conducted by Hannah et al the chorioamnionitis was 4% vs 8.6%. In the study of Snehamay et al the chorioamnionitis was not observed in any patient in both groups. Therefore our results are comparable with the results of the above mentioned studies. Many studies indicates low rate of intra-amniotic infection with use of prophylactic antibiotics at term.

The APGAR score of baby <5 at 1 minute was 1.3% vs 4% in expectant group which is comparable with the study of Snehamay et al.
found the APGAR score as 6% vs 8%. Chaudhri and Naheed found the APGAR score as 6% vs 8%. Chaudhri and Naheed found 10.67% and 13.3%. Our results of the APGAR score of baby >7 at 10 minutes are comparable with the studies of Snehamay et al.16.

In our study the neonatal sepsis was 4% in induction group and 5.3% in expectant group. In the study of Chaudhry and Naheed, the neonatal sepsis was also 4% vs 5.3%, so our results are same and comparable. In another study of Hannah et al the neonatal sepsis was 2% vs 2.8%. In the study of Snehamay et al 2016 the neonatal infection was 3% vs 4%. So, our study also supports the low number of patients with neonatal sepsis in induction group as observed in other studies.

CONCLUSIONS

Although both methods are safe and can be successfully employed for the management of term PROM, the present study shows that induction management is more advantageous to women in terms of duration of PROM deliveries. Spontaneous deliveries, lesser caesarean sections, lesser chorioamnionitis and lesser neonatal sepsis were observed in induction group than in expectant management, but it could not approach significance.

Reference