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Term PROM-A Twelve Hour Expectant Management

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OBJECTIVE – To compare the expectant management of term premature rupture of membranes (PROM) with immediate induction in terms of their effect on maternal and neonatal outcomes. **METHODS** – Ninety primigravidas and an equal number of multigravidas were included in this prospective randomised controlled trial. They were randomized into two groups for expectant management or immediate induction. Statistical analysis was performed using Student 't' test, test of proportions and Fischer's exact test. **RESULTS** – Twenty percent primigravidas and 46.7% multigravidas delivered without the need for oxytocin infusion. The difference in admission to delivery interval in primigravidas between the two groups was seven hours. Though this was statistically significant, the cost of hospital stay did not increase. There was no difference in cesarean section rates and maternal and neonatal morbidity. **CONCLUSION** – An expectant management of 12 hours will allow a good number of women to go into labor spontaneously without an increase in cesarean section rate and cost of hospitalization.

Introduction

Seventy five percent of pre-labor rupture of membranes (PROM) occurs at term. It occurs in 8% of all term pregnancies[1]. With expectant management, 80-85% of patients will progress spontaneously into labor with a latent period of around 24 hours[2]. As the latent period extends, the risks of antepartum and puerperal febrile morbidity increases[3]. But early intervention seems to trade off these risks for an increase in cesarean section rate either due to failed induction or fetal distress[4]. There are controversies regarding the need for induction, timing of induction and method of induction. Hence the management of PROM at term presents the obstetrician with a dilemma.

We conducted this study to compare the maternal and neonatal outcomes in women with PROM at term in the immediate and delayed induction groups.

Material and Methods

This prospective randomized control trial was conducted over a period of two years. On admission to labor room, all patients with term PROM underwent clinical examination to confirm the presentation and presence of uterine contraction. Speculum examination was done to confirm fluid leak, to obtain a sample to check for ferning and to see the colour of liquor. PROM was diagnosed by observing the fluid leak and positive ferning. External cardiotocography was done in all patients. All low risk women between gestational age 259-293 days with pre-labour rupture of membrane and normal cardiotocography who presented to labor room within 12 hours of rupture of membranes were included in the study. If the inclusion criteria were satisfied, they were allotted to either group A – immediate induction group or group B–delayed induction group. Randomisation was done using a table of random numbers. Women with evidence of infection, malpresentation, multiple pregnancy, meconium stained amniotic fluid and non-reactive NST were excluded from the trial. Women in group A underwent pelvic examination to assess Bishop's score. Labor was induced immediately thereafter with oxytocin infusion. Intermittent auscultation was used for routine fetal monitoring and if abnormalities were picked up, electronic fetal monitoring was used. Decisions regarding the mode of delivery were taken by the consultants on call according to the general policies of labor management. Women in group B were observed for 12 hours from the time of admission. Pelvic examination was performed only if spontaneous contractions appeared during this period. Labor was augmented with oxytocin if contractions were assessed to be inadequate. All other patients underwent pelvic examination at the end of 12 hours and oxytocin infusion was started. Subsequent management was as for patients in group A. Antibiotics were not used for prophylaxis.

Infants were managed as per the following protocol. Leucocyte counts were done if the interval between PROM and delivery time was more than 12 hours. If the counts were abnormal, blood cultures were done. Antibiotics were started if the leucocyte count was more

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than 20,000/mm³ or less than 5,000/mm³ or the bandform/neutrophil ratio was more than 0.2. Antibiotics were discontinued if blood culture was sterile but continued for 14 days if culture grew bacteria. Statistical analysis was performed using Student T test, test of proportions and Fischer's exact test.

Results

One hundred and eighty women were included in the study; 90 primigravidas and 90 multigravidas, with 45 of each randomized to be in group A and 45 in group B. There were no significant differences in terms of age and gestational age between the two groups in both primigravidas and multigravidas (Table I).

Twenty-five (55.5%) multigravidas and 16 (35.6%) primigravidas went into spontaneous labor while under observation. Of these, four multigravidas and nine primigravidas required augmentation with oxytocin. In all, 46.7% multigravidas and 20% primigravidas delivered without the need for oxytocin infusion. There was a statistically significant difference in the PROM delivery interval and admission delivery interval in immediate and delayed induction groups both among primigravidas and multigravidas (Table II). The cesarean section rates were not different between the two groups either with primigravidas and multigravidas (Table II). Eight women in immediate induction group and three in delayed induction group received antibiotics for puerperal fever, wound infection and endometritis. The maternal morbidity was not significantly different between the groups and subgroups.

Table I : Maternal Age and Gestational Age

	Primigravidas			Multigravidas		
	Group A	Group B	P	Group A	Group B	P
Age (yrs)	23.0 ± 3.7	23.8 ± 3.2	NS	25.3 ± 3.4	25.7 ± 3.2	NS
GA (days)	272.7 ± 8.1	273.8 ± 7.4	NS	273.2 ± 8.5	272.8 ± 6.9	NS

Table II : Labor Characteristics and Outcome

	Primigravidas (n=90)			Multigravidas (n=90)		
	Group A N = 45	Group B N = 45	P	Group A N = 45	Group B N = 45	P
Admission delivery interval (hrs)	10.38 ± 5.3	17.06 ± 7.0	<0.01	8.2 ± 6	11.16 ± 6.0	< 0.05
PROM-delivery interval (hrs)	13.36 + 6.3	21.13 ± 7.2	<0.01	11.0 ± 6.2	14.30±6.3	< 0.05
LSCS	5	6	NS	2	2	NS
Labor < 12 hrs	28	10	<0.05	33	21	NS
Labor < 24 hrs	44	37	NS	44	43	NS
Neonatal sepsis evaluation	12	21	NS	9	20	NS
Baby blood culture +ve	3	9	NS	3	6	NS

All babies in both groups had five minute Apgar score more than six. Six babies in immediate induction group and 15 in delayed induction group had a positive blood culture. This difference was not statistically significant. Fifteen babies in group A and 21 in group B were observed in neonatal intensive care unit but all were transferred to their mothers' side in 48 hours.

Discussion

The management has remained controversial when PROM occurs in low risk term patients with vertex presentation. Although many studies are available in the literature, there is no definite protocol for management. The concerns with conservative management are infectious risks to mother and fetus whereas immediate induction can increase cesarean section rates. Hanna et al[5], in their randomized control trial had concluded that immediate induction and conservative management result in similar rates of neonatal infection and cesarean section, but immediate induction with intravenous oxytocin results in lower risk of maternal infection than with expectant management. In their study they observed the patients upto four days on conservative management. In our study where the expectant management was only upto 12 hours, the maternal and neonatal morbidity were not affected by it. Peleg et al[6] reported from their multicentric trial that prolonged PROM, especially more than 12 hours is a predictor of cesarean section. Histologically proven chorioamnionitis significantly correlated with interval between rupture of membranes and termination of pregnancy[7]. We had chosen 12 hours waiting after considering the increasing morbidity with increasing PROM delivery interval, at the same time allowing a good number of women to go into spontaneous labor. Hjertburg et al[8] reported similar cesarean section rates when expectant management was 12 or 24 hours. Shalev et al[9] found 12 hours and 72 hours expectant management of PROM comparable regarding infectious complications and pregnancy outcome although the longer wait prolonged the interval to delivery and increased hospitalization costs. Admission to delivery interval difference was only seven hours in primigravidas and three hours in multigravidas in our study. Even though this was statistically significant, it did not increase the expenses with the existing tariff.

In our study, 55.5% of multigravidas and 35.6% of primigravidas went into spontaneous labor within 12 hours. This is similar to the observation of Sperling et al[10] where 40% went into spontaneous labor within 12 hours. Thus, use of oxytocin can be avoided in a good number of women by delaying induction of labor without compromising maternal and neonatal condition.

We performed a speculum examination at admission in all women reserving pelvic examination to those women who went into labor and to others after 12 hours. This is probably the major contributing factor in the prevention of puerperal sepsis. Seaward et al[11] had identified an increased number of vaginal examinations as a predictor of neonatal infection. Hallak and Bottoms[12] suggested immediate induction for PROM at term especially if digital examination has been performed based on worse perinatal and maternal outcome with delayed labor induction when vaginal examination was part of initial evaluation of patients with PROM.

A larger number of babies born to mothers in the delayed induction group have been evaluated for sepsis in comparison to that of babies born to mothers in the immediate induction group. This is due to the policy in our institution to evaluate the babies for sepsis whenever the duration of rupture of membrane is more than 12 hours. Since extensive evaluation of sepsis will add to cost and anxiety, more cost-effective policies must be worked out in this regard. There was no difference in incidence of proven neonatal sepsis between the two groups.

Thus, in term pregnancies with PROM, it is not necessary to hasten the induction of labor. A delay of 12 hours will allow many women to go into labor spontaneously and reduce the need for oxytocin infusioin with no increase in cesarean section rate and maternal and neonatal morbidity.

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