Comparison of intravenous oxytocin infusion versus intracervical dinoprostone followed after 6 hours by intravenous oxytocin infusion for labor induction in prelabor rupture of membranes: A randomized controlled trial

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ABSTRACT

Background: A prolonged interval from prelabor rupture of membranes to delivery is associated with an increase in the incidence of maternal and neonatal morbidities and mortality. Various agents have been tested to improve the cervical Bishop score to expedite the delivery of the fetus and lessen the maternal and neonatal complications.

Objective: To compare two protocols for labor induction in pregnant women with prelabor rupture of membranes (PROM).

Population: Subjects were recruited from the University of Santo Tomas Hospital (Private Division and Clinical Division). Pregnant women with a live, term, singleton fetus, cephalic presentation, a reactive Non stress test, who presented with PROM and a Bishop score of ≤5, with no previous Cesarean section, or other uterine surgery.

Methodology: This is a two-arm superiority, open label, randomized controlled trial. Pregnant women with a live, term, singleton fetus, cephalic presentation, a reactive Non stress test, who presented with PROM and a Bishop score of ≤5, and with no previous Cesarean section or other uterine surgery were randomly assigned to receive either intravenous (IV) oxytocin infusion or intracervical dinoprostone 0.5 mg gel followed 6 hours later by IV oxytocin infusion.

Results: Vaginal delivery within 24 hours of labor induction increased significantly with intracervical dinoprostone gel followed by IV oxytocin infusion (87% versus 61%; RR: 1.43; 95% CI: 0.99 – 2.06; P<0.044). Comparable result was observed for nulliparous women included in the study population. The time interval from labor induction to active phase was significantly shorter in the dinoprostone-oxytocin group than in the oxytocin alone group (2.4 ± 2.1 versus 6.3 ± 1.4 hours; p<0.001). The time interval from labor induction to delivery was also significantly shorter in the dinoprostone-oxytocin group (6.3 ± 1.5 versus 10.4 ± 1.4 hours; p<0.000). Cesarean delivery rates were statistically similar in the dinoprostone-oxytocin and oxytocin alone groups (17% versus 40%; p=0.102). The neonatal outcomes were comparable in both groups, except for birth weight.

Conclusion: Intracervical dinoprostone 0.5 mg gel followed 6 hours later by an oxytocin infusion in term women presenting with PROM and an unfavorable cervix (Bishop Score of 5 or less) was associated with a higher rate of vaginal delivery within 24 hours, shorter time interval from labor induction to active phase of labor, and shorter time interval from labor induction to delivery, and no difference in maternal and neonatal complications was observed compared with oxytocin infusion alone.

Keywords: intravenous oxytocin infusion, intracervical dinoprostone, labor induction, prelabor rupture of membranes (PROM)

INTRODUCTION

Prelabor rupture of membranes (PROM) is the spontaneous rupture of membranes at or after 37 weeks AOG but prior to the onset of labor. It complicates approximately 5% to 10 % of pregnancies.[1] In the Philippines, from the period of 1999-2008, 1.72% of all obstetric deliveries from accredited hospitals by the Philippine Obstetrics and Gynecologic Society (POGS) were complicated with PROM.[2] Also, according to the POGS, 67% of patients who had PROM from 1999 to 2008 delivered vaginally and 33% delivered abdominally.[3] A prolonged interval from rupture of membranes to delivery is associated with an increase in the incidence of chorioamnionitis and neonatal sepsis.[4] The management of PROM at term especially if the Bishop score is low

has always been controversial. The Bishop score is a quantifiable method that can be used to predict the outcome of labor induction. As favorability of Bishop score decreases, the rate of induction to effect vaginal delivery also declines. A Bishop score of 9 conveys a high likelihood for a successful induction. For research purposes, a Bishop score of 4 or less is considered an unfavorable cervix and may be an indication for cervical ripening.[5] Management options include immediate labor induction once the diagnosis of PROM has been made versus expectant management. Several studies have reported an increase in maternal and neonatal morbidity associated with expectant management. Immediate induction of labor however has been associated with a shorter interval from the time of PROM to delivery reducing this risk of maternal and neonatal morbidity.

Ekman Ordeberg et al in 1985, randomly assigned 20 nulliparous women with PROM at term and unfavorable cervices to immediate induction of labor with either intravenous (IV) oxytocin or prostaglandin (PG)E2 intravaginal gel. They noted fewer instrumental deliveries (cesarean sections plus operative vaginal deliveries) in the PG-treated group and concluded that PGE2 use might mitigate any increased risk for cesarean section with labor induction.[6] In a randomized controlled trial of 94 nulliparous women with PROM at term and unfavorable cervices for labor induction, Chua et al found that PGE2 pessaries conferred no advantage over IV oxytocin for the outcomes of interest, including length of labor or risk for cesarean delivery.[7] In a study by Larrañaga-Azcárate, they have documented the safety and efficacy of dinoprostone vaginal pessary for labor induction in term patients with PROM.[8] Neonatal intensive care unit (NICU) admission, variable decelerations, and primary cesarean delivery rates are positively correlated with a longer admission to labor onset interval in women with PROM.[9] In a study by Kemal Güngordük et al, women with PROM and a Bishop score of 5 or less were randomly assigned to receive either an IV oxytocin infusion or a dinoprostone pessary followed 6 hours later by an IV oxytocin infusion. They have demonstrated that sustained released dinoprostone followed 6 hours later by oxytocin infusion is an alternative method for the induction of labor, along with oxytocin infusion alone, in term pregnant women with PROM because it has a higher vaginal delivery within 24 hours with no difference in induction–delivery interval or maternal–neonatal complications. No significant difference in maternal outcome with respect to postpartum hemorrhage, chorioamnionitis, or postpartum endometritis was found between the 2 groups. The incidence of 3rd and 4th degree lacerations did not differ significantly between the groups. No maternal death, uterine rupture, and hysterectomy occurred. In terms of the neonatal outcomes, neonatal weight, appearance, pulse, grimace, activity, and respiration (Apgar) score, and NICU admission did not differ significantly between the groups. The duration of NICU stay ranged from 1 to 6 days, and all babies were discharged home with their mothers.[10]

METHODOLOGY

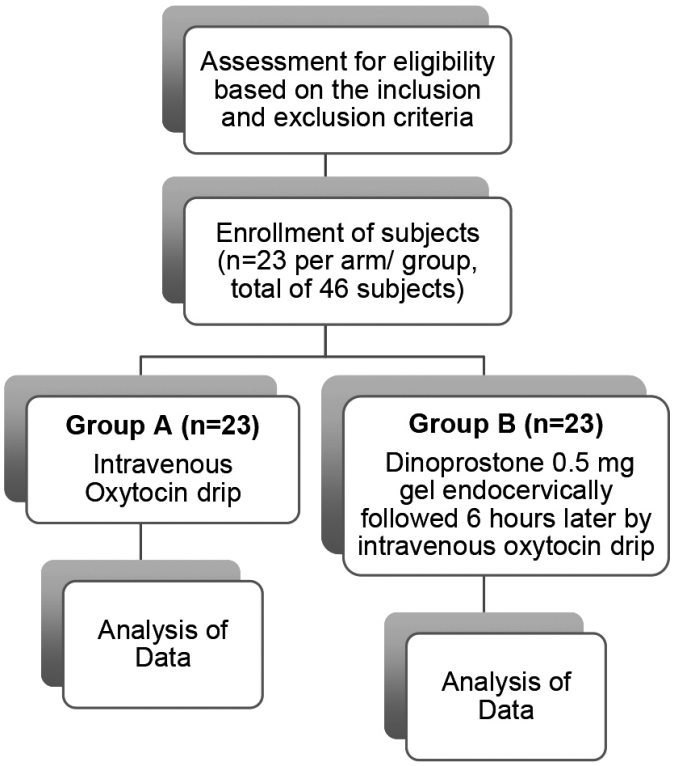

Figure 1. Sampling and Methodology Frame

This study was conducted in the University of Santo Tomas Hospital (USTH; Private Division and Clinical Division). Pregnant women who are 18 years old and above, with a live, term, singleton fetus, cephalic presentation, a reactive Non stress test, who presented with PROM and a Bishop score of ≤5, and had no previous Cesarean section or uterine scar were included in the study. Ruptured membranes was diagnosed upon visualization of pooling of fluid in the posterior fornix. In the absence of pooling, Actim PROM immunoassay or the Ferning test was done. The presence of a Ferning pattern on low power microscopy or a positive Actim PROM test indicates positive identification of amniotic fluid. The duration of ruptured membranes or duration of leakage of amniotic fluid as well as the color and smell of the fluid were noted.

Pregnant women who fulfilled the inclusion criteria were invited to participate in the study while those who fulfilled the exclusion criteria were not invited to participate. An informed consent in English and Tagalog

was obtained from the participants. For subjects recruited from the Private Division, the principal investigator asked permission from the attending physican if she or he allowed his or her patient to participate in the study. For private patients of Dr. Leah Rivera, the informed consent was not obtained by the principal investigator and not by Dr. Leah Rivera because of the authority she has over her patients. The participants were randomly assigned to a treatment group – Group A – intravenous oxytocin infusion or Group B – intracervical dinoprostone 0.5 mg gel followed 6 hours later by IV oxytocin infusion. Blinding of the participants and obstetricians was not possible because of the differences in the techniques used.

Internal examination was done by a single senior resident on duty to ascertain the Bishop score. All fourth year senior residents for the year had an inter-observer variability of their internal examinations measured. A Non stress test using an external electronic fetal monitor was used to assess fetal well being. Only those with a reactive Non stress test was allowed to participate in the study.

Patients in Group A received an oxytocin infusion – 10 units of oxytocin into 1 L of D5NR IV fluid to run initially at 10 to 15 gtts/min and titrated at increments and decrements of 5 gtts/min until adequate uterine contractions (3 to 4 contractions in 10 minutes) was achieved. Patients in Group B received dinoprostone 0.5 mg gel injected into the endocervix for cervical ripening and dilatation prior to labor induction. After 6 hours, if the subject still does not have adequate uterine contractions (3 to 4 contractions in 10 minutes), labor induction was started by giving oxytocin infusion - 10 units of Oxytocin into 1 L of D5NR IV fluid to run initially at 10 to 15 gtts/min to be titrated at increments and decrements of 5 gtts/min until adequate uterine contractions (3 to 4 contractions in 10 minutes) is achieved. In both groups, all patients were hooked continuously to an electronic fetal monitor and intermittent tracings were done every 2 hours. Once oxytocin infusion has been started, it was continued until delivery unless otherwise indicated.

Antibiotic prophylaxis against chorioamnionitis was given. The usual prophylactic regimen of Ampicilin two grams intravenously as loading dose followed by 2 grams intravenously every 6 hours until delivery was given.

All data were collated using Microsoft Excel 2013, and all statistical calculation were performed using the Statistical Package for Social Science (SPSS) Version 20. Descriptive statistics was used to summarize the clinical characteristics of the patients. Frequency and proportion were used for nominal variables and mean and SD for interval/ratio variables. Independent Sample T-test and Chi-square test were used to determine the difference of mean and frequency between groups, respectively. All valid data were included in the analysis. Missing variables were neither replaced nor estimated. Null hypothesis was rejected at 0.05% level of significance.

RESULTS

The demographic profile of patients is summarized in Table 1. Overall, there were 46 women randomized to treatment with IV oxytocin infusion (n=23) or dinoprostone 0.5 mg gel followed 6 hours later by IV oxytocin infusion (n=23). No patient withdrew from the study. There were more nulliparous patients in the dinoprostone group than in the oxytocin group (91% versus 83%), whereas in the oxytocin group, there were more multiparous patients (17% versus 9%). Based from the study, the patient's age, gestational age at delivery, pre-induction Bishop score, or PROM to induction interval had no significant differences between groups. A lower number of antenatal risk factors in dinoprostone group was observed than in oxytocin group (16% versus 30%).

In Table 2, the primary and secondary outcomes are shown. For both groups, all patients delivered within 24 hours. Vaginal delivery within 24 hours of labor induction is significantly higher in the dinoprostone group than in the oxytocin group (87% versus 61%; RR: 1.43; 95% CI: 0.99 – 2.06; p=0.044). The number of subjects who had vaginal delivery within 12 hours and the number of subjects who achieved active phase were both higher in the dinoprostone group (74% versus 57% and 91% and 78%, respectively), which are both not significant (p=0.216 and p=0.218, respectively).

There is no significant difference in the number of patients who had vaginal or cesarean delivery, however, it is notable that there were more patients who underwent cesarean delivery in the oxytocin group (40% versus 17%; p=0.102; RR: 1.36; 95% CI: 0.93 – 1.98). The indications for cesarean delivery are listed in Table 2. Failed induction (22%) is the most common indication for cesarean delivery in the oxytocin group followed by Arrest in cervical dilatation (13%) and Arrest in descent (4%). In the dinoprostone group, the indications for cesarean were failed induction (4%), arrest in descent (4%), arrest in cervical dilation (4%), and subclinical chorioamnionitis (4%).

The mean time from induction to active phase interval for the dinoprostone group is 2.4 hours, which is significantly shorter compared to that of the oxytocin group, which is 6.3 hours (p<0.001; R:1.36; 95% CI: 0.20 – 0.75). Half of the patients in the dinoprostone group delivered after cervical priming alone, and intravenous oxytocin infusion after 6 hours was no longer needed. The mean time from induction to delivery is also significantly shorter in the dinoprostone group (6.3 hours versus 10.4 hours; p<0.000; RR: 0.49; 95%CI: 0.31 – 0.73).

Table 1. Demographic Profile of the Patients

Demographic	Group A	Group B	p-value[a]
Age,[b] years	27.96±6.5	27.78±5.9	0.925
Gestational age at delivery,[b] weeks	38.96±1.1	38.39±1.0	0.069
Nulliparous, n (%)	19 (83)	21 (91)	
Multiparous, n (%)	4 (17)	2 (9)	
Pre-induction Bishop score[b0]	4.30± 0.9	4.04±0.8	0.319
PROM to induction interval,[b] hours	6.57±7.0	6.35±15.31	0.733
Antenatal risk factors, n (%)			
None	16 (70)	19 (84)	
Gestational hypertension	0	0	
CHVD	0	0	
CHVD with Superimposed pre-eclampsia	0	0	
Pre-eclampsia	0	0	
Gestational Diabetes	5 (22)	1 (4)	
Overt Diabetes	0	0	
Intrauterine growth restriction	0	0	
Others			
Teenage pregnancy	0	1 (4)	
Subclinical hypothyroidism	0	1 (4)	
Hypokalemic periodic paralysis	0	1 (4)	
Hyperthyroidism	1 (4)	0	
Subclinical hyperthyroidism	1 (4)	0	

[a] Significant at 5% level of significance.
[b] The data are expressed as mean ± SD.
Group A: intravenous oxytocin infusion
Group B: dinoprostone gel followed 6 hours later by intravenous oxytocin infusion

Table 3 summarizes the adverse effects and complications during delivery. One patient in the oxytocin group had a fever of 37.8 – 38.10C with no other signs and symptoms of chorioamnionitis such maternal and fetal tachycardia, uterine tenderness, or foul smelling vaginal discharge. The placenta was sent for histpathologic examination which showed unremarkable chorioamnionic membranes and tri-vessel umbilical cord. The following maternal complications were observed in the oxytocin group: chorioamnionitis (1 subject), third degree laceration (1 subject), and vulvovaginal hematoma (1 subject). The patient in the Oxytocin group who developed Chorioamnionitis delivered via cesarean section due to failed induction of labor. She did not manifest with signs and symptoms of intra-amniotic infection such fever > 38.10C, maternal and fetal tachycardia, uterine tenderness, or foul smelling vaginal discharge. However, postpartum the patient developed fever with a maximum temperature of 40.10C. Placenta was sent for histopathologic examination which showed third trimester placenta with chorioamnionitis and unremarkable tri-vessel umbilical cord. The only maternal complication in the dinoprostone group was subclinical chorioamnionitis (1) patient. During the course of her labor, the patient did not develop any signs and symptoms of intra-amniotic infection such as fever > 38.10C, maternal and fetal tachycardia, uterine tenderness, or foul smelling vaginal discharge but serial monitoring of serum CRP, WBC and differential count every 6 hours showed an increasing trend (from baseline WBC count of 11.0 x10^9 /L, segmenters 0.78, serum CRP 2.34 mg/L on admission to a WBC count of 17.10 x10^9 /L, segmenters 0.82, and serum CRP of 12.03 mg/L on the 12th hour of admission). Postpartum, the patient did not develop signs and symptoms of intra-amniotic infection. Placenta was sent for histopathologic examination which showed third trimester placenta with mild choriomanionitis and unremarkable tri-vessel umbilical cord.

Table 4 shows the neonatal outcomes of the patients. The mean weights of the newborn babies were 2.86 kg for dinoprostone group and 3.18 kg for oxytocin group, which differ significantly (p=0.025), while the gender, 5-minute Apgar score, and 7-minute Apgar score did not. The number of babies roomed in and babies admitted to the newborn service unit are similar for both groups. The indications for admission to the newborn services unit were the following: neonatal pneumonia (1 case each), neonatal tachypnea (1 case for dinoprostone group), and neonatal sepsis (1 case for oxytocin group).

Table 2. Obstetric Outcome

Outcomes	Group A	Group B	p value[a]	RR (95% CI)
Primary outcome, n (%)				
Vaginal delivery within 24 hours	14 (61)	20 (87)	0.044	1.43 (0.99, 2.06)
Secondary outcomes, n (%)				
Delivery within 24 hours	23 (100)	23 (100)	N/A	N/A
Vaginal delivery within 12 hours	13 (57)	17 (74)	0.216	1.31 (0.85, 2.02)
Achieved active phase	18 (78)	21 (91)	0.218	1.17 (0.91, 1.50)
Mode of Delivery, n (%)				
Vaginal delivery	14 (61)	19 (83)	0.102	1.36 (0.93, 1.98)
Spontaneous vaginal delivery	14 (61)	17 (74)		
Assisted vaginal delivery	0	2 (9)		
Cesarean section	9 (40)	4 (17)		
Induction to active phase interval,[b] n(%)	6.3 ± 1.4	2.4 ± 2.1	<0.001	0.39 (0.20, 0.75)
Delivered after cervical priming alone and no longer needed intravenous oxytocin infusion after 6 hours	0	12 (51)		
Never reached active phase of labor	5 (22)	2 (9)		
0 hour (already in the active phase at the time intravenous oxytocin infusion was started)	0	2 (9)		
0.5 - 4 hours	8 (34)	2 (9)		
4.5 - 8 hours	5 (22)	5 (22)		
8.5 - 12 hours	5 (22)	0		
Induction to delivery interval, n (%)	10.4±1.4	6.3±1.4	<0.000	0.49 (0.31, 0.73)
Delivered after cervical priming alone and no longer needed intravenous oxytocin infusion after 6 hours	0	12 (52)		
0.5 - 4 hours	0	2 (9)		
4.5 - 8 hours	9 (40)	4 (17)		
8.5 -12 hours	8 (34)	5 (22)		
12.5 - 16 hours	6 (26)	0		
16.5 - 20 hours	0	0		
20.5 - 24 hours	0	0		
Indications for cesarean section, n (%)				
Fetal distress	0	0		
Failed induction	5 (22)	1 (4)		
Arrest in descent	1 (4)	1 (4)		
Arrest in cervical dilatation	3 (13)	1 (4)		
Subclinical chorioamnionitis	0	1 (4)		

CI=confidence interval; na=not applicable; RR=relative risk; SD=standard deviation
[a] Significant at 5% level of significance
[b] The data are expressed as mean ± SD.
Group A: intravenous oxytocin infusion
Group B: dinoprostone gel followed 6 hours later by intravenous oxytocin infusion

The subgroup analysis by parity (nulliparous/ multiparous) is separately presented in Table 5. The proportion of vaginal deliveries achieved within 24 hours was significantly higher in the dinoprostone group than in the oxytocin group in nulliparous women (86% versus 53%; RR: 1.63; 95% CI: 1.03 – 2.58; p=0.023) and was similar in multiparous women (100% for both groups). Amongst nulliparous women, it was observed that the number of patients who underwent cesarean delivery was higher in the oxytocin group (47% versus 19%). Amongst multiparous women, no patients underwent cesarean delivery in both the dinoprostone group and the oxytocin group.

In both groups, all (100%) multiparous women delivered vaginally within 12 hours and achieved active phase. In nulliparous women, the rate of vaginal delivery within 12 hours and the rate of women who achieved active phase were similar for both groups (p=0.121 and p=0.342, respectively).

Table 3. Maternal Adverse Effects and Complications

Variable	Group A	Group B
Maternal adverse effect, n (%)		
Nausea	0	0
Vomiting	0	0
Diarrhea	0	0
Vaginal irritations	0	0
Abdominal and backpain	0	0
Headache	0	0
Dizziness	0	0
Fever ≥ 38 C	1 (4)	0
Maternal complication, n (%)		
Subclinical Chorioamnionitis	0	1 (4)
Chorioamnionitis	1 (4)	0
Postpartum hemorrhage	0	0
Third degree laceration	1 (4)	0
Fourth degree laceration	0	0
Ruptured uterus	0	0
Hysterectomy	0	0
Endometritis	0	0
Others:		
Vulvovaginal hematoma	1 (4)	0

Group A: intravenous oxytocin infusion
Group B: dinoprostone gel followed 6 hours later by intravenous oxytocin infusion

DISCUSSION

In many studies, an increase in maternal and neonatal morbidity associated with expectant management or PROM have been reported, whereas early induction of labor can be initiated to reduce the risk of maternal infection and shorten the delivery time in term pregnancies complicated with PROM. Thus, this study was conducted to compare the two protocols, the IV oxytocin infusion and the dinoprostone 0.5 mg gel followed 6 hours after by IV oxytocin infusion, for labor induction in pregnant women with PROM and a Bishop score of ≤5 in the USTH. In this study, a Bishop score of ≤5 was considered an unfavorable cervix and was an indication for cervical ripening prior to labor induction which is similar to the literature.[10]

In the present study, intracervical dinoprostone 0.5 mg gel followed 6 hours after by IV oxytocin infusion significantly shortened the time interval from induction to active phase and the time interval from induction to delivery when compared with those who received IV oxytocin infusion only. It is also important to note that the use of dinoprostone 0.5 mg gel followed by oxytocin for induction of labor led to a significantly higher proportion of women with vaginal delivery within 24 hours of induction (87% versus 61%), and a small proportion of women who had cesarean delivery compared with the use of IV oxytocin infusion alone (17% versus 40%). Furthermore, there were more women who underwent cesarean delivery due to failure of induction with the use of IV oxytocin infusion alone compared with those who received dinoprostone 0.5 mg gel followed 6 hours later by oxytocin (4% versus 22%). In the study by Kemal Güngordük et al, amongst pregnant women with PROM a Bishop score of ≤5, induction failure was 2 times more frequent in the oxytocin group (33 cases vs 16 in the sustained-released dinoprostone followed by oxytocin group).[10]

Furthermore, after performing a separate analysis according to parity (nulliparous/multiparous), we found out that the rate of vaginal deliveries achieved within 24 hours was significantly higher in the dinoprostone-oxytocin group than in the oxytocin group in nulliparous women, but was the same for multiparous women. These results are similar with the study conducted by Kemal Güngordük et al in 2012.

Neonatal outcomes such as gender and Apgar score had a similar result in our study, which did not differ significantly between the groups. The present study also showed that there is no difference in maternal complication between the groups, which is similar to the literature.[10]

The randomization scheme is one of the strengths of this study, where its purpose of no difference between groups with regard to other variables was achieved. However, like other studies, this study contains some potential limitations. With the limitation, participants and obstetricians were not blinded to distribution; thus, the decisions to intervene might have been susceptible to

Table 4. Neonatal Outcomes

Outcomes	Group A	Group B	p value	RR (95% CI)
Birth weight, kg	3.18±0.50	2.86±0.42	0.025	
1.51 – 2.0	0	2 (9)		
2.0 – 2.5	1 (4)	0		
2.51 – 3.0	10 (44)	12 (52)		
3.01- 3.50	9 (39)	9 (39)		
3.51 – 4.0	2 (9)	0		
4.01 – 4.50	1 (4)	0		
Fetal gender, n (%)				
Male	7 (30)	9 (39)	0.536	1.286 (0.58, 2.86)
Female	16 (70)	14 (61)		
Apgar score at 1 minute	5.75±7.6	5.75±7.6	0.999	
1	1 (4)	1 (4)		
6	1 (4)	1 (4)		
7	1 (4)	1 (4)		
8	20 (88)	20 (88)		
Apgar score at 5 minutes	8.8±1.0	8.7±1.5	0.817	
4	1 (4)	1 (4)		
9	22 (96)	22 (96)		
Babies roomed-in, n (%)	21 (91)	21 (91)		
Babies admitted to the newborn services unit, n (%)	2 (9)	2 (9)		
Indication for admission to the newborn services unit, n (%)				
Neonatal tachypnea	0	1 (4)		
Neonatal pneumonia	1 (4)	1 (4)		
Neonatal sepsis	1 (4)	0		
Hypoglycemia	0	0		
Neonatal jaundice	0	0		

Group A: intravenous oxytocin infusion
Group B: dinoprostone gel followed 6 hours later by intravenous oxytocin infusion

Table 5. Subgroup Analysis by Parity

Variable	Group A	Group B	p value	RR (95% CI)
Nulliparous	n=19	n=21		
Vaginal delivery within 24 hours	10 (53)	18 (86)	0.023	1.63 (1.03, 2.58)
Vaginal delivery within 12 hours	9 (47)	15 (71)	0.121	1.51 (0.87, 2.60)
Achieved active phase	14 (74)	18 (86)	0.342	1.163 (0.84, 1.60)
Mode of delivery			0.56	1.54 (0.96, 2.47)
Spontaneous vaginal delivery	10 (53)	16 (76)		
Cesarean section	9 (47)	4 (19)		
Assisted vaginal Delivery	0	1 (5)		
Multiparous	n=4	n=2		
Vaginal delivery within 24 hours	4 (100)	2 (100)		
Vaginal delivery within 12 hours	4 (100)	2 (100)		
Achieved active phase	4 (100)	2 (100)		
Mode of delivery				
Spontaneous vaginal delivery	4 (100)0	1 (50)		
Cesarean section	0	0		
Assisted vaginal delivery	0	1 (50)		

bias. Moreover, this study had a relatively small sample size for investigation of parameters such as maternal and neonatal complications.

Nevertheless, the current study shows that dinoprostone 0.5 mg gel followed after 6 hours later by oxytocin infusion was a relatively more efficient method of labor induction compared with oxytocin infusion alone in pregnant women complicated with PROM with an unfavorable cervix (Bishop score ≤5) because it significantly shortened the time interval from induction to active phase and the time interval from induction to delivery and it resulted in a higher rate of vaginal delivery within 24 hours.

RECOMMENDATION

No major issues was encountered in data collection, but a larger sample size and longer duration of subject recruitment is desirable to be able to capture involvement through the whole research process from initial design through to dissemination. Based on the results of the study, it is also recommended to further investigate the maternal and neoanatal adverse effects and complications and the indications for cesarean, which adds to the stress and burden of both the mother and the obstetrician. Lastly, further research may be performed to determine the cost effectiveness. ■

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