

INTRACERVICAL PGE₂ GEL VS INTRA VENOUS OXYTOCIN IN THE INDUCTION OF LABOUR IN POST-TERM PREGNANCIES

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SUMMARY

Intracervical PGE₂ gel was compared with IV Oxytocin infusion for induction of labour in singleton uncomplicated post-term pregnancies with vertex presentation and unripe cervix.

PGE₂ gel emerged out as a well tolerated safe and efficient method with significantly higher success rate (73.3% vs 55.5%), lower induction delivery interval (16.4 hours vs 27.9 hours), and lower caesarean section rates (13.3% vs 44.4%) and remarkably good for improving the Bishop's score i.e. cervical ripening. Although Oxytocin augmentation was required in 54.5% cases of PGE₂ gel the dose in these cases was very less. Caesarean section for foetal distress, maternal PPH and hyperstimulation did not show significant differences. Puerperal sepsis rate was higher (13.3% vs 4.4%) in Oxytocin group. Neonatal outcome was better in PGE₂ group with lesser incidence of neonatal jaundice and sepsis. The 5' Apgar score was less than 7 in 13.3% babies of oxytocin group as compared to only 4.4% in Cerviprime group.

PGE₂ Gel is therefore safe, efficient, well tolerated and acceptable method for induction particularly with unripe cervixes.

INTRODUCTION

A post-term pregnancy i.e. pregnancy

beyond completed 41 weeks of gestation is associated with increased perinatal morbidity and mortality and increased maternal morbidity. Success of induction

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of labour in such cases largely depends on pre-induction condition of the cervix. An unripe cervix (long, firm and closed) is unfavourable and is met with often. With the easy availability of a stable intracervical PGE₂ preparation (Cerviprime), cervical ripening can be achieved.

The aim of our study was to evaluate the efficacy of intracervical PGE₂ gel as cervical ripening agent for induction of labour and compare it with intravenous Oxytocin in uncomplicated post-term pregnancies with unripe cervix.

MATERIAL AND METHODS

This study included 90 patients with uncomplicated singleton pregnancies who had completed 41 weeks of gestation with unripe cervix and vertex presentation. Gestational age was confirmed by reliable menstrual history and ultrasonography performed between 20-30 wks. GA. Fetal well being was determined by a recent reactive "NST" in all and "Fetal Biophysical Profile Scoring" in some. A per vaginal examination was done at the time of admission and patients with unripe cervix (Bishop's score 0-4) were included in the study (Bishop, 1964).

PATIENTS WERE DIVIDED INTO TWO GROUPS

Group I. 45 patients were given Oxytocin infusion as a primary method of induction at a dose of 2 mu/mt. doubling the dose 1/2 hourly till good uterine contractions (3 contractions in 10 mts.) or a maximum dose of 10 mu/mt. with close watch on fetal heart rate and uterine action. After 14 hours (BAM-10PM) of infusion, a 10 hours rest period was given at night. The

infusion was restarted at BAM and patient reassessed after 6 hours. Amniotomy was performed in cases where labour was well established. Failure was considered when labour was not established even after 2 trials of 14 and 6 hours of Oxytocin.

Group II. Consisted of 45 patients who received 0.5 mg. intracervical PGE₂ gel (Cerviprime Astra IDL). Patient was kept strictly in bed for 30 minutes with close monitoring of vital parameters, uterine activity and fetal heart rate. A repeat pelvic examination was done after 24 hours and Bishop's score reassessed. If it was < 5, a second insertion of PGE₂ gel was done and cervical condition reassessed after 6 hours. If no improvement was observed in the Bishop's score it was considered a failure and intravenous Oxytocin infused. If Bishop's score was > 5 but good uterine contractions were not established, labour acceleration was done with intravenous Oxytocin. "Spontaneous labour" was said to have occurred with PGE₂ when no augmentation was required.

THE ASSESSMENT OF EFFICACY WAS DONE BY

1) The interval from application of PGE₂ gel or Oxytocin infusion to the onset of regular painful uterine contraction and interval from this point to delivery.

2) Type of delivery, amount of blood loss in IIIrd stage or any notable complications.

3) The 5' Apgar score, neonatal jaundice, septicemia, fetal distress and perinatal mortality were compared.

Observations - As per the tables I - V

RESULTS AND DISCUSSIONS

No significant difference existed in the two groups as regard maternal age and parity.

Table No. I shows the mean Bishop's score in both the groups prior to induction. Mean Bishop's score was 3.26 in Oxytocin group and 2.58 in Cerviprime group.

The outcome of induction of labour is depicted in table No. II. In PGE₂ group 73.3% patients had successful induction

as compared to 55.5% in Oxytocin group. Out of those successfully induced in group-II, 22 patients (66.6%) went into spontaneous labour after single insertion of PGE₂ gel and 06 patients (18.1%) required second insertion while 18 patients (54.5% required Oxytocin infusion for augmentation. However the total Oxytocin required for delivery was significantly less than in patients of group-II. This clearly indicates the superiority of PGE₂ in terms for efficacy

Table I
Mean Bishop's Score

PARITY	GROUP — I	GROUP — II
	OXYTOCIN	PGE ₂
PRIMI	3.14	2.50
MULTI	3.66	2.75
MEAN	3.26	2.58

Table II

OUTCOME	Gr.—I (Oxytocin)		Gr.—II (PGE ₂)		
			Single	Double	Oxytocin
Success	25 (55.5%)	33 (73.3%)	22 (66.6%)	06 (18.1%)	18 (54.5%)
Failure	20 (44.5%)	12 (26.7%)			

as compared to Oxytocin for induction.

Table No. III shows the outcome of induction of labour in relation to initial Bishop's score. Although in both the groups, with the increase in Bishop's score there was increase in successful induction rate and decrease in LSCS rate but with the same initial Bishop's score success rate of induction was significantly higher in PGE₂ group with lower LSCS rate thereby proving that PGE₂ helps in improving the Bishop's score by cervical ripening thereby successful induction and increased chances of vaginal delivery.

PGE₂ group showed successful induction in approx. 60% as compared to 0% in Oxytocin group with Bishop's score "1 and 2". 78.2% success was noted with PGE₂ as compared to 57.1% in Oxytocin with Bishop's score "3" and 80% as compared to 65.4% with score "4". Similar results have been reported by John Owen et al (1991) and S. Stampe et al (1985).

The various labour characteristics of both groups are compared in table No. IV. The mean induction onset interval was significantly lower in PGE₂ group (10.2 hours) than in Oxytocin group (18.3 hours). The onset delivery interval was also low (6.2 hours) as compared with Oxytocin (9.6 hours). More significant is the difference in the interval from induction to onset of regular uterine contraction (later phase of labour) which is much shorter with PGE₂. This is probably because PGE₂ helps in early ripening of the cervix.

The total mean duration of labour was observed to be 16.4 hours in PGE₂ group and 27.9 hours in Oxytocin group. This includes the successful as well as the failed inductions. In successful inductions the mean induction-delivery interval (IDI) was 11.2 hours with PGE₂ and 18.8 hours with Oxytocin.

Wingerup (1979) reported mean IDI of 10 hours with PGE₂. G. Ekman et al (1983)

Table III

Outcome in relation to initial BISHOP'S SCORE

BISHOP'S SCORE	GROUP — I (OXYTOCIN)						GROUP—II (PGE ₂)					
	Success		Failure		LSCS		Success		Failure		LSCS	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
01	-	-	02	100	02	100	03	60	02	40	02	40
02	-	-	03	100	03	100	04	57.1	03	42.9	02	28.5
03	08	57.1	0	42.9	06	42.9	18	78.2	05	22.8	02	8.7
04	17	65.4	09	34.6	09	34.6	08	80	02	20	-	-

10.7 hours, Kenneth (1985) 13.3 hours and S. Stampe et al (1985) 11.8 hours, all with Bishop's score of < 5.

As regards mode of delivery - Vaginal delivery was seen in 80% cases with PGE₂ as compared to 46.7% with Oxytocin. Moreover all failed inductions underwent caesarean section in Oxytocin group while after a failed induction with PGE₂ it was possible to have a successful induction with Oxytocin. Caesarean section for failure was done in 44.4% in Oxytocin group but in only 13.3% in Cerviprime patients. Caesarean section for foetal distress was

done in 6.6% cases from Oxytocin group and only 4.4% of Cerviprime group which is not significant. Similar results have been reported by Oven et al (1991).

Maternal complications like hyperstimulation and PPH were similar in both the groups. Purperal sepsis was observed with higher frequency (13.3%) in Oxytocin as compared to (4.4%) PGE₂ group. This could be probably related to increased duration of labour and Caesarean section rate.

No significant systemic side effect was observed in either groups.

Neonatal outcome is compared in table

Table IV
Labour Characteristics of both groups

Labour Characteristics	Gr.—I (Oxy.)	Gr.—II(PGE ₂)	P—Value
Mean Induction Onset Interval	18.3 Hrs.	10.2 Hrs.	<0.01
Mean Onset Delivery Interval	9.6 Hrs.	6.2 Hrs.	<0.05
Mean Induction Delivery Inter.	27.9 Hrs.	6.4 Hrs.	<0.001
Mean Ind. Del. Int. (successful)	18.8 Hrs.	11.2 Hrs.	
Vaginal Delivery	21 (46.7%)	36(80.0%)	<0.01
Forceps Delivery	5 (11.1%)	6 (13.3%)	NS
LSCS for Failure	20 (44.4%)	6 (13.3%)	<0.001
LSCS for Distress	3 (6.6%)	2 (4.4%)	NS
LSCS for other causes	3 (6.6%)	2 (4.4%)	
Post-Partal Haemorrhage	8 (17.7%)	5 (11.1%)	NS
Hyperstimulation	3 (6.6%)	2 (4.4%)	NS
P. Sepsis	6 (13.3%)	2 (4.4%)	<0.05

Table V

Neonatal Outcome

Neonatal Outcome	Group I (n = 45)	Group II (n = 45)
Neonatal Jaundice	10 (22.2%)	05 (11.1%)
Neonatal Sepsis	08 (17.7%)	05 (11.1%)
5' Apgar Score >7	06 (13.3%)	02 (4.4%)
Neonatal Mortality	01 (2.2%)	01 (2.2%)
Neonatal Weight	2.71 Kgs.	2.89 Kgs.

No. V. Jaundice and sepsis were observed more in oxytocin group. Significantly more number of neonates (13.3% : 4.4%) had 5' Apgar score <7 in Oxytocin group which could probably be attributed to long, painful labour and higher Oxytocin concentrations. Except one in each group, all neonates were discharged from the hospital in good condition.

CONCLUSION

Cerviprime (PGE₂) was compared to Oxytocin in this study for induction of labour in post-term pregnancies with unripe cervixes. Our results proved PGE₂ gel superior to Oxytocin as it was well tolerated with no side effects and was associated with lower induction-delivery interval, lower Caesarean section rate and good for improving Bishop's score (i.e. cervical ripening).

Maternal complications were more with Oxytocin group due to long duration of

labour and operative interference.

Neonatal outcome was certainly better with Cerviprime in terms of Apgar score as well as occurrence of neonatal jaundice and septicemia.

To conclude, Cerviprime is a safe & acceptable method for induction of labour, particularly more efficient for cervical ripening in patients with unripe cervixes as compared to Oxytocin.

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