

A COMPARATIVE STUDY OF INDUCTION OF LABOUR BY PROSTAGLANDIN E₂ AND OXYTOCIN AND ITS OUTCOME

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SUMMARY

This study was conducted in 150 patients, all of whom were term by dates 36-41 weeks by USG, to evaluate the efficiency of PGE₂ by intra-cervical inducing labour as against I/V infusion of oxytocin. Maternal biochemical, haematological profile and foetal profile for well being was ascertained by USG and CTG. Out of 150 patients studied, 110 were induced by PGE₂ with or without oxytocin, while 40 were induced by oxytocin only.

In the Prostaglandin category 80 showed a favourable response and labour progressed without any complications. In the remaining 30 patients, 12 needed further augmentation by oxytocin, 18 underwent lower segment caesarean section (4 for non progress of labour, 14 for foetal distress). In primigravidae the induction delivery interval was longer as compared to multigravidae. Induction for IUD needed further augmentation by I/V oxytocin. The group of 40 patients induced by oxytocin alone, 20 patients had to be induced for 2 consecutive days till labour pains started. In remaining 20 effective contractions started in 3 to 8 hours.

Thus it is concluded that PGE₂ is safe for induction of labour in Indian perspective where time and money both matter much to the patient.

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INTRODUCTION

Local application of PGE₂ is known

to cause dramatic biochemical and morphological changes in the cervix. Ferguson et al 1988 claimed a marked cervical softening following PGE₂ instillation intracervically. This combined with rapid dilatation in active phase demonstrated a marked change in cervical compliance. Lamont et al 1991 showed that PGE₂ gel has a positive beneficial effect on cervical compliance during the pre-established phase of labour resulting in its myometrial effort during established labour.

The aim of the present study is to see the effect of PGE₂ in induction of labour in unfavourable cervix (Bishops Score <5) and the effect on induction of labour by oxytocin following cervical ripening by PGE₂.

MATERIAL & METHOD

The present study was conducted in 150 antenatal cases admitted in S.R.N. Hospital, and Kamala Nehru Memorial Hospital, Allahabad. Detailed history was taken clinical examination done and Bishops Score was done by vaginal examination. The cases were eligible for cerviprime instillation when there was intact membrane, singleton vertex presentation at term, lack of regular contractions, adequate pelvis and absence of CPD. Patients with caesarean scar, hypersensitivity to prostaglandin, history of Asthma or glaucoma, pre-existing foetal distress, multipara, bleeding per vagina were contraindications for PGE₂ instillation.

Maternal biochemical, haematological profile and foetal profile for foetal well being was ascertained by U.S.G. and C.T.G.

The cases were divided into three groups

a. those treated with PGE₂ only.

b. those treated with oxytocin only.
c. those given intra cervical PGE₂ application

followed by I/V oxytocin 12 hours later for augmentation of labour.

PGE₂ gel Dinoprostone (0.5mg) available as cerviprime Astra IDL was instilled in endocervical canal starting from internal Os upto the external Os. In some cases 0.5 mg. PGE₂ was inserted in the post fornix intravaginally. Patient was kept in Trendelenberg's position for 1 hour. Maternal vitals, foetal heart rate and uterine contraction was monitored half hourly for 12 hours. The cervical state was reassessed after 6 hours and if no response, cerviprime was reinstilled after 6 hours. The cases were augmented by oxytocin whenever required.

The group that was treated with oxytocin only have I/V infusion of oxytocin in 5% dextrose with escalating dose was started till satisfactory uterine contractions appeared. The neonatal outcome was assessed by the standard Apgar Score.

RESULT

Majority of patients belonged to age group of 21-30 years.

- 52.0% cases were primigravida, 48.0% were multipara.

- Maximum 62% patients belonged to lower socioeconomic status.

Common indication for induction was postdated pregnancy, PET and IUD (Table I). Out of 150 patients, 110 (73.3%) were induced by PGE₂ gel and 40 (26.6%) were induced by oxytocin alone. In the PGE₂ category 80 (72.7%) cases showed a favourable response to prostaglandin (Table II).

Table I
SHOWING DISTRIBUTION OF CASES OF PGE₂ AND OXYTOCIN

Mode of Induction	No.	Percentage
PGE ₂	110	73.32%
PGE ₂ + Oxytocin		
Oxytocin alone	40	26.66%
	150	99.99%

Table II
SHOWING INDICATION OF INDUCTION

Sl. No.	Indication	No.	Percentage
1.	Postdated pregnancy	70	46.66%
2.	P E T	40	26.66%
3.	B O H	4	4.0%
4.	Foetal anomalies	10	6.66%
5.	I U D	20	13.33%
6.	Hydramnios	4	2.66%
		150	100%

In remaining 30 patients 12 (10.9%) needed further augmentation by oxytocin. 18 (16.36%) underwent lower segment caesarean section for non progress of labour and foetal distress. (Table III).

The group of 40 patients induced by a oxytocin alone 20 (50.0%) were induced for two consecutive days (50% effective contraction was started in 3-8 hours. Vaginal delivery occurred in 24 patients (60.0%).

Table III
SHOWING MODE OF DELIVERY

Mode of delivery	No.	Percentage
Vaginal	80	72.7%
Augmentation by Syntocinon	12	10.9%
Caesarean Section	18	16.3%
	110	99.9%

Table IV
SHOWING PREGNANCY OUTCOME IN
OXYTOCIN INDUCED PATIENTS

Mode of delivery	No.	Percentage
Per vaginum delivery	26	60%
Caesarean section	16	40%
	40	100%

Table V
SHOWING INDUCTION DELIVERY INTERNAL

Mode of induction	Parity	Induction delivery interval in hours
PGE 2	Primi	16.33
	Multi	10.22
Oxytocin	Primi	22.5
	Multi	12.40

Caesarean section rate was (40.0%) which is higher as compared to 1st group. (Table IV).

The induction delivery interval was longer in primigravida as compared to multigravida.

Induction delivery interval was 16.33 hours in primigravida and 10.22 hours in multigravida in PGE2 group as compared to induction by oxytocin along (22.5 hours in primi and 15.30 hours in multi). (Table V)

Complication withh PGE2 gel was minimum. Side effect like nausea vomiting was not present in any case. One patient had vigorous uterine contraction following PGE2 gel instillation probably due to some amount of gel instilled beyond internal Os. This patient responded with Pentazocine injection.

DISCUSSION

In present study 73.3% cases were induced by PGE2 gel intracervically whereas 26.6% were induced by oxytocin alone. 72.7% of cases induced PGE2 gel showed favourable response. No augmentaion was required. This finding was consistent with the finding of Ferguson et al 1988.

Caesarean section rate was higher in oxytocin group (40.0%) as compared to PGE2 induced patients (16.36%), vaginal delivery was 83.66% in PGE2 group as compared to oxytocin induced patients (60.0%).

Induction delivery interval was 16.33 hours in primi, induced by PGE2 whereas it was 22.50 hours in oxytocin group. In multipara, induction delivery interval was 10.33 hours in PGE2 group as compared to 15.30 hours in oxytocin group. The induction delivery interval was less if cervical score was more than 6. This finding was supported by Mahmood et al 1992, Uldjerg et al 1981 noted 20% increase in the concentration of sulphated glycosaminogly cases which is responsible for successful induction.

CONCLUSION

This study concluded that PGE2 with or without oxytocin augmentation may play a significant role in induction of labour, as compared to oxytocin. The induction delivery interval and caesarean section rate was also lowered in cases induced by intracervical PGE2 gel than oxytocin induction alone.

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