

Comparison of Local PGE₂ gel & I.V. Oxytocin in Induction of Labour

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Summary

Thirty Patients requiring induction of labour for various indications beyond 36 weeks of gestation were included in the study.

15 Patients were included in Group A (PGE₂ gel group) & 15 in group B (Oxytocin group).

The mean induction onset of labour interval was 4.4 hrs. \pm 2.5 hrs. in Group A and 4.9 hrs. \pm 2.3 hrs. in Group B.

The mean induction delivery interval was 11.2 hrs. \pm 5.7 hrs. in Group A and in Group B + 4.6 hrs.

Successful induction was achieved in a total of 90% of patients with 46.6% in Group A & 43.4% in Group B.

Gastro intestinal Side effects were more common in Group A. Foetal distress was more common in Group B.

Neonatal outcome was similar in both groups. PGE₂ gel was found to be an effective method for induction of labour.

Introduction

In this modern era, newer obstetric techniques have greatly increased the safety and reliability of labour. Nevertheless, induction of labour remains as one of the major challenges in obstetrics. In this era of low risk practice, the spectrum of indications for induction of labour has greatly increased, to obtain an optimum pregnancy outcome in the interest of mother and the foetus.

Over the years, different labour inducing agents have been developed. I.V. Oxytocin has been a major drug for induction of labour which has stood the test of time. Recent development of local PGE₂ gel has revolutionised the method of induction of labour (Bygdeman, 1984 and Karim, 1971).

Objective

The Principal objective of this study was to evaluate the efficacy of PGE₂ gel in dealing with unfavourable cervix in comparison with I.V. Oxytocin for induction of labour.

Material & Methods

This study was carried out at Dr.Parikh's Maternity & Gynaec Hospital, Mumbai from January 1999 to June 1999.

A total of 30 patients, all attending antenatal clinic with unfavourable cervix (Bishop's Score 0-4) were included in the study.

All patients were over 36 weeks of gestation with a single lie foetus with vertex presentation and intact membranes. CPD was ruled out in all patients. Primigravida as well as multigravidae were included in the study.

The major exclusion criteria were hypersensitivity to prostaglandins, previous caesarean section, previous major uterine surgery, CPD, patients with foetal distress. Medical conditions such as heart disease, asthma & Glaucoma were also ruled out.

Informed consent was taken from all patients.

Detailed history, general & obstetric examination was carried out. Investigations such as sonography were also carried out.

Patients were randomly assigned to Group A (PGE₂ gel) and Group B (I.V. Oxytocin).

Group A Procedure: The patient is placed in lithotomy position. A lubricated speculum is introduced and cervix is exposed. The PGE₂ gel is introduced into the cervical canal below the level of the internal OS with the help of presterilised cannula and syringe. The woman is kept in head low position for about ½ hour. The F.H.S. & maternal uterine contractions are monitored periodically for a period of 6 hours. After 6 hours P.V. examination is done to assess the Bishop's score. If the score does not exceed 6 a second instillation can be done. If the cervix is ripe and Bishop's score more than 6 amniotomy is performed and later augmentation of labour with I.V. Oxytocin if required.

Group B Procedure: An oxytocin drip was started in 5% dextrose. Escalation of the initial dose of 5 units is done at 15 min. intervals until an optimum response of 4 sustained contractions / 10 min. is achieved. The dose is titrated against the uterine contractions. With the establishment of effective uterine contractions & 3-4 cms. of cervical dilatation, amniotomy was performed and oxytocin infusion continued with titrating dosages. The patients vitals & F.H.R. are closely monitored.

The induction onset of labour, induction - delivery interval, length of labour, maternal and neonatal side effects were noted and compared.

Results

30 women were included in the study of which 15 were in Group A & 15 were in Group B.

The indications for induction of labour are

given in Table -I.

Table - I
Indications for induction of Labour

Indications	Gr. A (Pts.)	Gr. B (Pts.)
Postdatism	8	9
PIH	3	2
Rh neg	2	2
IUGR	2	3

Induction of labour was successful in all except 3 cases. The indications for caesarean section in these patients is given in Table-II.

Table -II
Indications for C. Section

Indications	Gr. A (Pts.)	Gr. B (Pts.)
Non-Progress of Labour	-	1
Foetal distress	-	1
Failed Induction	1	-

The mean induction to onset of labour interval in Group A 4.9 hrs. ± 2.5 hrs.
In Group B 4.4 hrs. ± 2.3 hrs.

The mean induction - delivery interval in Group A 11.2 hrs ± 5.7 hrs.
In Group B 12.6 hrs. ± 4.6 hrs.

The labour outcome has been outlined in Table - III.

Table -III
Labour Outcome

PGE ₂ Group (Pts.)	Oxytocin Group (Pts.)
Successful Induction	Successful Induction
1 st Application 8	1 st Induction 4
2 nd Application 2	2 nd Induction 9
Oxytocin Augmentation 4	
Caesarean Section 1	Caesarean Section 2

Side effects in both groups are given in Table - IV.

Table -IV
Side Effects

Side Effects	Gr. A Pts. (%)	Gr. B. Pts. (%)
Foetal Distress	-	2 (6.66%)
Hyperstimulation	1 (3.33%)	1 (3.33%)
Vomiting	1	(3.33%)
PPH	-	1 (3.33%)

Neonatal outcome was similar in both groups.

Mean neonatal Weight in Group A was 2.8 kg.
 in Group B was 2.75 Kg.
 Mean APGAR score in Group A was 8.4
 in Group B was 8

Discussion

An ideal method of induction includes safety for mother & foetus, short induction – delivery interval, absence of side effects, convenience for the patient and the doctor.

Our study outlines the differences between the use of PGE₂ gel and Oxytocin in the induction of labour.

The percentage of successful indications in Group A was 93.3% and in Group B was 86.6%.

Other studies also having reported similar results is shown in Table-V.

Table – V
Results of other studies for induction of labour using PGE₂

Study	% of Vaginal delivery	% of C. Section.
Bhide & Daftary (1993) Mumbai	90%	10%
Patki et al (1993) Mumbai.	92.5%	7.5%
Kore et al (1996) Mumbai.	88%	12%

With Oxytocin the success rates varied from 70-93% (Agarwal et al, 1994; Hingorani et al, 1988, Kelly et al, 1973). Elder (1975) reports 100% success rate with Oxytocin. However in that patients had amniotomy prior to induction.

The mean induction onset of labour interval & mean induction delivery interval are not significantly different. Other studies having reported similar results. (Elder 1975, Agarwal et al, 1994; Kelly et al, 1973; Nelson & Bryans, 1976).

Caesarean section rate was 6.6% in PGE₂ gel group & 13.3% in Oxytocin group.

Gastro-intestinal side effects were more common in prostaglandin group than oxytocin. However foetal distress was seen more often with Oxytocin. Hyperstimulation was seen with both.

The neonatal outcome was also similar in both groups.

Conclusion

From this study we can conclude that intracervical PGE₂ gel & I.V. Oxytocin are effective methods for induction of labour. However the final choice has to be individualised for each case. The role of PGE₂ gel & Oxytocin are complimentary & not competitive.

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