

Endocervical Application of Prostaglandin Gel (PGE₂) to Improve Bishop's Score.

R. N. Ray, Kalyani Mukherjee, Sumitra Paul, S. Singh

Dept. of Obstetrics and Gynaecology, B. R. Singh Hospital and Centre for Medical Education and Research Eastern Railway, Calcutta 700 014

Summary

The state of cervix greatly influences the outcome of induction of labour. Prostaglandin gel was used endocervically in 200 cases of unfavourable cervix. The results revealed, that there was marked improvement in the Bishop's score in 96% cases, out of which 69.5% went into spontaneous labour. Duration of labour, Caesarean section rate and induction failure rate were low in patients treated with intracervical prostaglandin gel. The side effects were minimal. Neonatal outcome was not affected. Hence the drug can be recommended for routine use for induction of labour with unfavourable cervix.

Introduction

Many maternal and foetal conditions exist in which there is a need to terminate pregnancy before the patient goes into spontaneous labour. Patients with poor Bishop's score near term, induction of labour by standard technique like, I.V. oxytocin infusion has been tried but often fails – resulting in high Caesarean Section rate. Application of prostaglandin gel in such cases has improved the Bishop's score and facilitates induction of labour. As a result Caesarean section rate has been lowered.

Objectives

To determine the effect of endocervical instillation of prostaglandin-E₂ gel-

- To improve Bishop's score.
- To reduce induction delivery interval.
- To reduce Caesarean section rate and induction failure rate.

Materials and Methods

Two hundred (200) patients with Bishop's score

between 0 and 4 were selected from Maternity Ward of B. R. Singh Hospital and Centre for Medical Education and Research. All the women had singleton foetus with cephalic presentation. The indications of induction were post-dated pregnancy, Mild PIH, IUFD, Post Caesarean section at term, etc.

Proper history, general examination and obstetrical examination of patients revealed no high-risk factor. By pelvic examination Bishop's score of all the patients was evaluated and CPD was excluded. Score revealed 0-4.

Procedure

0.5 gm of prostaglandin gel was introduced endocervically by standard technique, patient was assessed after 6-8 hours. Where the cervix was not favourable second dose was instilled. All the patients were monitored clinically, under close supervision.

Analysis of Result

Results were analysed on age, parity indications, success rate of induction, outcome of

induction and Caesarean section rate.

During the period from 1.1.97 to 31.12.98 there were 2510 deliveries in this hospital. Prostaglandin E₂ gel was used in 200 patients. 125 were primigravida and 75 were multigravida. Table I shows age and parity distribution. 76.8% of primigravida were in the age group of 20-25 years and 54.7% of multigravida were in the age group of 26-30 years.

Table II shows distribution of the indication for induction of labour. 69% were postdated pregnancy and 14.5% were PIH.

Table III shows Bishop's score at the time of application of initial dose of PGE₂ gel, after 6 hours and after 12 hours. 93.6% primigravida and 89.3% multigravida had initial Bishop's score 0-2. Rest had Bishop's score 3-4. 57.6% primigravida and 64% multigravida (Total 60%) had Bishop's score >5 after single instillation of PGE₂

gel. 41.6% primigravida and 36% multigravida required repeat application of PGE₂ gel. 3.5% remained unfavourable even after repeat application of gel.

139 (69.5%) of the patients went into spontaneous labour. The time interval between application of gel and onset of labour variable. 53 (26.5%) patients required amniotomy followed by oxytocin augmentation. Table IV shows labour outcome. 81.5% had vaginal delivery and 18.5% had Caesarean section. Out of 37 (18.5%) Caesarean sections 7 were due to persistence of unfavourable cervix (prostaglandin failure). 24 primigravida and 3 multigravida underwent Caesarean section because of meconium stained liquor and foetal distress. 2 multigravida had cord prolapse one had uterine hyperstimulation and foetal bradycardia. There was no major complication, except postpartum haemorrhage in two patients and hyperstimulation in a patient.

Table I
Age and Parity

Age in yrs	Primigravida		Multigravida		Total	
	No.	%	No.	%	No.	%
20-25	96	76.8	19	25.33	115	57.5
26-30	22	17.6	41	54.67	63	31.5
31-35	7	5.6	10	13.34	17	8.5
>35	-	-	5	6.67	5	2.5
Total	125	100.0	75	100.0	200	100.0

Table II
Indication

	Primigravida		Multigravida		Total	
	No.	%	No.	%	No.	%
Post-dated pregnancy	80	64.0	58	77.4	138	69.0
PIH	23	18.4	6	8.0	29	14.5
Elderly primi	12	9.6	-	-	12	6
IUFD	8	6.4	4	5.3	12	6
Post CS at term	-	-	7	9.3	7	3.5
Anencephaly	2	1.6	-	-	2	1
Total	125	100.0	75	100.0	200	100.0

Table III
Induction - Favourable Bishop's Score

	0-2		3-4		>5	
	Primigravida	Multigravida	Primigravida	Multigravida	Primigravida	Multigravida
Initial	117 (93.6%)	67 (89.3%)	8 (6.4%)	8 (10.6%)	-	-
After 1 st dose 6hrs (apx)	12* (9.6%)	-	41 (32.8%)	27 (36.0%)	72 (57.6%)	48 (64.0%)
After 2 nd dose Approx 12 hrs	4 (3.2%)	-	3 (2.4%)	-	45 (36.0%)	27 (36.7%)

*One patient developed uterine hypertonicity with foetal bradycardia, after single application of PGE₂ gel.

Table : IV
Labour Outcome

	Primigravida		Multigravida		Total	
	No.	%	No.	%	No.	%
ND after single						
Application of gel	62	49.6	48	64	110	55
ND after RPI	31	24.8	22	29.3	53	26.5
Oxytocin augmentation						
Of labour	46	34.8	7	9.3	53	26.5
LSCS	32	25.6	5	6.6	37	18.5

Table : V
Showing C. S. Rate and their indications for the Period of 1994-1998.
Age and Parity

Years	Total Delivery	Vaginal delivery	LSCS	Post dated pregnancy	PIH	Others
1994	1564	724 (46.3%)	840 (53.7%)	129 (15.4%)	76 (9.0%)	635 (75.4%)
1995	1568	741 (47.3%)	827 (52.7%)	122 (14.8%)	74 (9.0%)	631 (76.3%)
1996	1226	691 (56.4%)	535 (43.6%)	34 (6.4%)	47 (8.8%)	454 (84.8%)
1997	1287	712 (55.3%)	575 (44.7%)	10 (1.7%)	18 (3.1%)	547 (95.1%)
1998	1223	678 (55.4%)	545 (44.6%)	8 (1.5%)	19 (3.5%)	518 (95.0%)

The overall Caesarean section rate and their indications for a period of 5 years (1994-1998) were critically analysed. The table V shows there is a significant (9-10%) decrease in overall Caesarean section rate in recent years (1996-1998), the period of prostaglandin gel used, in comparison to previous years (1994-1995). The same table shows, gradual but significant decrease in Caesarean section rate due to postdated pregnancy (From 15.4% to 1.5%) and PIH (From 9% to 3.5%). But the other indications like foetal distress, post Caesarean section pregnancy, CPD, BOH, non-progress of labour, PROM, etc remain unchanged or increased.

The overall Caesarean section rate of our Hospital is very high because it being the Central Hospital of the East Zone (Railway), most of the high risk patients and complicated labour cases (about 35% of total admission) are referred and managed here.

Discussion

The use of PGE₂ gel facilitates cervical ripening and even initiates labour (Calder and Embrey, 1973), (Verma and Norman, 1984)

Williams and Wilderson (1985) reported that 87.5% showed successful cervical ripening and 37.5% went into labour.

Jayaram VK et al (1994) in their study with PGE₂ gel showed success rate of 86%, out of which 44% went into spontaneous labour and 42% showed improvement

in the Bishop's score.

Our study showed 96% cervical ripening, out of which 69.5% went into spontaneous onset of labour

Handa et al (1994) reported that intracervical PGE₂ gel instillation is more a method to induce labour than to ripen the cervix, as their study showed nearly three fourth of the patients went into labour. Our study also correlating with this result. In our study Caesarean section rate was 18.5% which was very close to result (14.3%) of Handa et al (1994). The major indication of C.S. was meconium stained liquor and foetal distress.

The present study confirmed its utility for reduction of induction failure of the cases of unfavourable cervix, which in turn reduces the overall C.S. rate. PGE₂ gel can be recommended as a useful and potent method of induction of labour with unfavourable cervix.

References

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