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To compare successful induction of repeat intracervical prostaglandin E2 gel insertion and intravenous oxytocin infusion after first application of intracervical prostaglandin E2 gel for induction of labour.

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Abstract

Background: The success of induction of labour depends largely on the parity and the pre-induction state of cervix. It is the prelabour softening, effacement and eventual dilatation that culminates in spontaneous labour.

Methods: A hospital based prospective comparative study was conducted in the Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur from April 2018 to November 2018.160 patients at term attending antenatal clinic in Obstetrics and Gynaecology, in SMS Medical Collage, Jaipur were enrolled for the study.

Results: In present study, in Group-A, 84.00% primi gravida successfully delivered and 67.00% multi para successfully delivered. In Group-B, 84.78% primi gravida successfully delivered and 97.05% multipara successfully delivered.71.4% of primi gravidas and 89.6% of multi gravidas in the prostaglandin group delivered vaginally within 24 hours with a mean induction delivery interval of 15.30 hours and 11.27 hours respectively.

Conclusion: There is no statistical significant difference between the gel group and gel+oxytocin group in terms of patient's successful induction.

Keywords: PGE2, Oxytocin, Successful.

Introduction

Whenever further continuation of pregnancy is considered hazardous, termination of pregnancy is sought for. The aim of induction is to achieve a safe vaginal delivery for the fetus without causing harm to mother. Failed induction may be associated with, besides a poor neonatal outcome, great physical and mental trauma to the mother.¹

The success of induction of labour depends largely on the parity and the pre-induction state of cervix. It is the prelabour softening, effacement and eventual dilatation that culminates in spontaneous labour. Important structural and biochemical changes take place during ripening of cervix. There is a gradual dissociation and scattering of previously densely packed collagen along with qualitative and quantitative changes in proteoglycan content within ground substance.² In developed countries, up to 25% of all deliveries at term, now involve induction of labour. In developing countries, the rates are generally lower, but in some

setting they have been found to be as high as 30%.³

Material & Methods

Study Design: Randomized comparative study

Study Type: Hospital based comparative analysis

Place of Study: Dept. of Obstetrics and Gynecology, SMS Medical College, Jaipur.

Duration of Study: April 2018 to November 2018.

Selection Criteria

Inclusion Criteria

- All term singleton pregnancy with cephalic presentation
- Pregnant women give consent for participation in the study.

Exclusion Criteria

- Previous uterine scar
- Allergic to Prostaglandins and Oxytocin
- Contraindicated to vaginal delivery

Methodology

Pregnant women attending the antenatal clinics were screened for possible participation in the study after explaining the nature of the study. All selected women were thoroughly evaluated regarding complete history, parity, thorough clinical examination, per-abdominal examination, pelvic examination and all risk factors were evaluated. A written informed consent was taken from all the cases. Total 800 patients were induced with single Dinoprostone intracervical gel (0.5 mg), 640 patients went in active labour out of them, so they were excluded from the study, because single intracervical Dinoprostone gel is also very good for induction of labour, remaining 160 patients were included in our study.

This study was conducted on 160 patients with 80 patients in each arm. In Group-A (Study group) patients received second dose of 0.5 mg of Dinoprostone gel which is repeated after 6 hours of first dose of Dinoprostone gel (cervical ripening agent). After application of gel intracervical the patient is made to remain recumbent for 30 minute to avoid spillage of gel.

In Group-B (Control group) patients received low dose oxytocin after 6 hours of first dose of Dinoprostone gel (cervical ripening agent).

Statistical Analysis

All data thus collected was entered in excel sheet and was subjected for statistical analysis. Quantitative data was summarised as mean and SD whereas qualitative data as percentage. Significant difference in means was analysed by using unpaired student's t test and difference in proportion was analysed by using Chisquare' test.

Observations & Discussion

This study was conducted on 160 patients with 80 patients in each arm. In Group-A (Repeat Gel) patients were received second dose of 0.5 mg of Dinoprostone gel which is repeated after 6 hours of first dose of Dinoprostone gel (cervical ripening agent). After application of intracervical gel the patient is made to remain recumbent for 30 minute to avoid spillage of gel. In Group-B (Gel + Oxytocin) patient were receive low dose oxytocin after 6 hours of first dose of Dinoprostone gel (cervical ripening agent).

Age Group	Group-A (Repeat Gel)		Group-B (Gel + Oxytocin)		
(in yrs)	No.	%	No.	%	
20 - 25	31	38.75	32	40.00	
26 - 30	43	53.75	44	55.00	
31 - 35	6	7.50	4	5.00	
Total	80	100.00	80	100.00	

Table 1: Age Wise Distribution

p = 0.808

In our study, maximum patients in both groups were 26-30 yrs age group. The mean age in Group-A in our study was 26-30 yrs and in Group-B it was 26-30 yrs. There was no statistical significant difference between the mean age of cases and controls (p = 0.808).

Table 2: Booking Status Wise Distribution

The findings of our study were consistent with the findings reported by Mundle WR et al $(1996)^4$ and Bartha TL et al $(2000)^5$ observed that mean age of patients was 26.2 yrs

Booking Status	Group-A		Group-B		
	(Repeat Gel)		(Gel + Oxytocin)		
	No.	%	No.	%	
Booked	63	78.75	63	78.75	
Unbooked	17	21.25	17	21.25	
Total	80	100.00	80	100.00	

p = 0.99

In present study, maximum patients in both groups were booked for ANC. There was no statistical significant difference between the two groups (p-value Table 3: Association between Successful Induction and Parity = 0.99). Our hospital was tertiary care hospital. Emergency services, OPD services and ANC services were present all time.

	Group A (Repeat Gel)				Group B (Gel + Oxytocin)				
	Primipara		Multipara		Primipara		Multipara		p-value
	No.	%	No.	%	No.	%	No.	%	
Successful Induction	42	84.00	20	67.00	39	84.78	33	97.05	0.154

In present study, in Group-A, 84.00% primi gravida successfully delivered and 67.00% multi para successfully delivered. In Group-B, 84.78% primi gravida successfully delivered and 97.05% multipara successfully delivered.

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71.4% of primi gravidas and 89.6% of multi gravidas in the prostaglandin group delivered vaginally within 24 hours with a mean induction delivery interval of 15.30 hours and 11.27 hours respectively.

Table 4: Bishop's Score at 0 Hour

Our findings are at variance with that of Ulmsten U et al $(1983)^6$ who reported only 53% of delivery in first 24 h. Trafalter KF et al $(1985)^7$ had also observed a mean induction delivery interval of 13.3 hours.

Bishon's Score	Group-A (Repeat	Gel)	Group-B (Gel + Oxytocin)		
	No.	%	No.	%	
0	0	0.00	1	1.25	
1	22	27.50	25	31.25	
2	37	46.25	37	46.25	
3	17	21.25	17	21.25	
4	4	5.00	0	0.00	
Total	80	100.00	80	100.00	

p = 0.268

In present study, in Group-A, 27.50% patients bishops score was observed 1, In Group-A, 46.25% patients Bishop's score was observed 2, 21.50% patients bishops score was observed 3. In Group-B, 31.25% patients Bishop's score was observed 1, 46.25% patients Table 5: Bishop's Score at 6 Hours Bishop's score was observed 2, 21.50% patients Bishop's score was observed 3.

These results were quiet consistent with the study conducted by Buser D et al $(1997)^8$, Belfrage P et al $(2000)^9$ and Neiger R et al $(2001)^{10}$.

Bishop's Score	Group-A (Repeat Gel)		Group-B (Gel + Oxytocin)		
	No.	%	No.	%	
0	0	0.00	0	0.00	
1	10	12.50	10	12.50	
2	17	21.25	15	18.75	
3	29	36.25	36	45.00	
4	24	30.00	19	23.75	
Total	80	100.00	80	100.00	

p = 0.169

In present study, in Group-A, 12.50% patients Bishop's score was observed 1, 21.25% patients Bishop's score was observed 2, 36.25% patients Bishop's score was observed 3. In Group-B, 12.50% patients Bishop's score was observed 1, 18.75% patients Bishop's score

was observed 2, 36% patients Bishop's score was observed 3.

Conclusion

There is no statistical significant difference between the gel group and gel+oxytocin group in terms of patient's successful induction.

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