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Research Article

Comparative study of Misoprostol (PGE_1) and Dinoprost gel (PGE_2) for cervical ripening in induction of labour in postdated pregnancy

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Abstract: Comparative study of intracervical Dinoprost gel (PGE_2) and intravaginal misoprostol (PGE_1) in cervical ripening for induction of labour. The need for other method of augmentation of labour like oxytocin infusion. The perinatal and maternal outcome in both. It is a clinical prospective study conducted in Department of Obstetrics and Gynaecology, Kamla Raja Hospitals, Gwalior from 1st Jan 09 to 30 June 09.We divided 100 postdated women in two groups: Group 1 : Misoprostol (PGE_1), Group 2 : Dinoprost gel (PGE_2), Among 100, women 50 women given Tab. Misoprostol and 50 women dinoprost gel. Gestation greater than 41 weeks. Vertex presentation with single fetus. Bishop score less than 6. No cephalopelvic disproportion. No history of renal disease, bronchial asthma, heart disease. 1st trimester USG for confirmation of EDD were used in study and excluded those having Transverse lie or presentation other than cephalic. Previous operation on uterus. Placenta previa. Polyhydramnios. There was significant difference in induction-established labour interval in both groups ($p<0.05$). Induction delivery interval was shorter in PGE1 group than PGE2. Less no. of patients in PGE1 group required oxytocin augmentation than PGE2 group. No significant difference in neonatal outcome in either group. secret of success in labour induction lies in replicating the process of spontaneous parturition as closely as possible. Use of PGE_1 is a less invasive more natural event then PGE_2 gel which requires intravenous oxytocin infusion more. To reduce the maternal morbidity and mortality in postdated pregnancy misoprostol is very effective, long lasting and very potent drug. It is a promising drug for labour induction.
Keywords: Induction of labour by Misoprostol, Induction of Labour by Dinoprost gel, Comparison of PGE1 & PGE2 in induction of labour, cervical ripening by PGE1 & PGE2

INTRODUCTION

Induction of labour has become one of the most important tools in an obstetricians armamentarium. The spectrum of inductions has increased to the point, where the slightest risk to the mother or fetus is considered as sufficient indication for induction of labour like postdated pregnancy. It is defined as gestational beyond 294 or 42 weeks completed days from the date of first day of LMP[3,4].

Most of studies indicated that about 11% of all pregnant women remain undelivered after 42 weeks, so timely induction thus reduce the perinatal morbidity and mortality[3].

The key factor for a successful induction is the status of cervix. Most of the induction of labour is done when cervix is unripe. So, for cervical ripening we use biochemical method like prostaglandin especially PGE1 (misoprostol) and PGE2 (Dinoprost gel) act by causing breakdown of collagen and ground substance, they also potentiate the action of oxytocin[1,2,5,6].

Aims And Objectives

- Comparative study of intracervical Dinoprost gel (PGE_2) and intravaginal misoprostol (PGE_1) in cervical ripening for induction of labour.
- The need for other method of augmentation of labour like oxytocin infusion.
- The perinatal and maternal outcome in both.

MATERIAL & METHODS

It is a clinical prospective study conducted in Department of Obstetrics and Gynaecology, Kamla Raja Hospitals, Gwalior from 1st Jan 09 to 30 June 09.

We divided 100 postdated women in two groups:
Group 1 : Misoprostol (PGE_1)
Group 2 : Dinoprost gel (PGE_2)
Among 100, women 50 women given Tab. Misoprostol and 50 women dinoprost gel.

Inclusion criteria

- Gestation greater than 41 weeks.
- Vertex presentation with single fetus

- Bishop score less than 6.
- No cephalopelvic disproportion
- No history of renal disease, bronchial asthma, heart disease.
- 1st trimester USG for confirmation of EDD.

Exclusion criteria

- Transverse lie or presentation other than cephalic.
- Previous operation on uterus.
- Placenta previa.
- Polyhydramnios.

Material

- Tab. Misoprostol (PGE_1)
- Dinoprost gel (PGE_2)
- Inj. Oxytocin

RESULTS

Table No. 1: **Distribution of patients according to induction of established labour interval**

Time	PGE_1		PGE_2	
	n=50	%	n=50	%
0-2 hours	25	95	10	51
2-4 hours	22		15	
4-6 hours	2	3	9	18
6-8 hours	1	2	6	12
8-10 hours	0	0	6	12
10-12 hours	0	0	2	4
> 12 hours	0	0	2	3

The average interval from starting of induction to established labour was 2.46±1.98 hours in PGE_1 group and 4.07±2.74 in PGE_2 group ($p<0.05$) that was statistically significant.

Table No. 2: **Distribution of patients according to induction of cervical ripening interval**

Time	PGE_1		PGE_2	
	n=50	%	n=50	%
0-4	32	86	15	68
4-8	10		19	
8-12	4	9	9	19
12-16	2	4	4	8
16-20	2	1	1	2
> 20	0	0	2	3

Time required for cervical ripening was significantly shortened in PGE_1 group 3.44±2.27 hours than PGE_2 group 7.12±5.47 hours ($P<0.05$).

Table No. 3: **Distribution of patients according to oxytocin augmentation requirement**

Oxytocin augmentation required	Number	p
In PGE1 group	10	< 0.05
In PGE2 group	32	

Oxytocin augmentation required in significantly less number of patients in PGE1 group than PGE2 group ($p<0.05$).

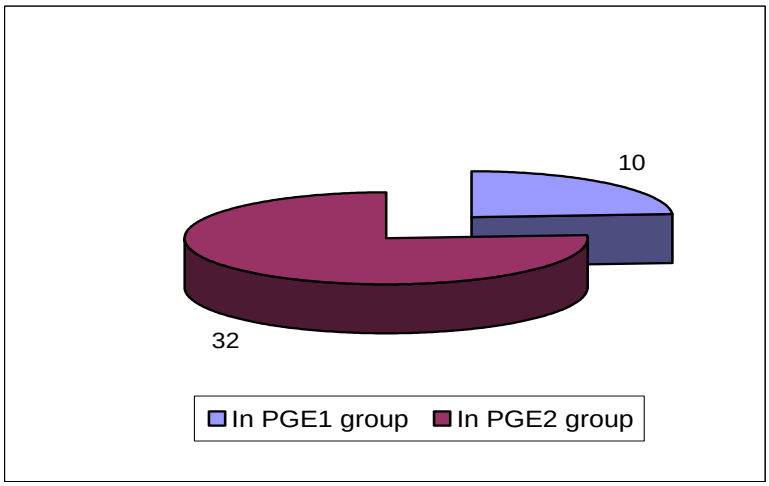

Fig-1: Distribution of patients according to oxytocin augmentation requirement

Table No. 4: **Distribution of patients according to induction delivery interval**

Time				
	n=50	**%**	**n=50**	**%**
< 4 hours	18	77	6	46
4-8 hours	20		17	
8-12 hours	9	18	10	20
12-16 hours	2	4	7	15
16-20 hours	1	1	8	16
> 20 hours	0	0	2	3

Induction delivery interval was significantly shorter in PGE_1 group 6.08±2.70 hours than PGE_2 group 12.9±6.92 hours.

Table No. 5
Distribution of patients according to neonatal outcome

Apgar Score < 7	**PGE_1**	**PGE_2**	**Significance**
1 min	15	16	p>0.05
5 min	6	7	p>0.05
Meconium passage	6	7	p>0.05
NICU admission - Hyperbilirubinemia - Septicemia	2 2	3 3	p>0.05

There was no significant in difference in group 1 and group 2 in neonatal outcome.

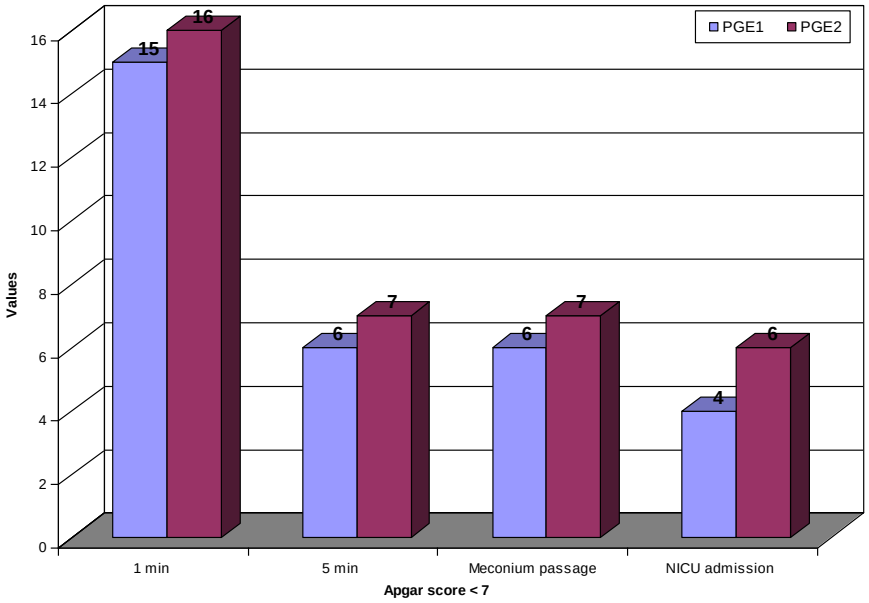

Fig-2: Distribution of patients according to neonatal outcome

DISCUSSION

There was a significant difference in induction - established labour interval in both groups ($p<0.05$). The average interval from start of induction to established labour was 2.46±1.98 hours in PGE1 group and 4.07±2.74 in PGE2 group. This is comparable with the study done by Wing DA et al[1], Jouatte F et. al.[2].

The time required for cervical ripening was significantly shorter in PGE1 group 3.44±2.27 hours than PGE2 group 7.12±5.47 ($p<0.05$). Cervical ripening occurred within 8 hours in 86% patients in PGE1 group and 68% patients in PGE2 group. This is comparable with the study done by David Buser et al [3].

Induction delivery interval was significantly shorter in PGE1 group 6.08±2.70 hours than PGE2 group 12.9±6.92 hours ($p<0.05$). Majority of the PGE1 group delivered within 12 hours that is 95% and 68% patients in PGE2 group. This study is correlated with the study conducted by Herabutya Y et al[3].

Significantly less number of patients in PGE1 group (21%) required oxytocin augmentation than PGE2 group (63%) ($p<0.05$). This is correlated with the study of Varaklis et al [4], Shetty A et al [5]. Nanda S et al[6].

There was no significant difference in neonatal outcome in either group. Neonatal Apgar score at 1 minute was < 7 in 30% patients in PGE1 group and 33% in patients in PGE2 group. Apgar score at 5 minutes was < 7 in 12% patients in PGE1 group and 14% patients in PGE2 group ($p>0.05$). Meconium passage was observed in 12% patients in PGE1 group and 14% patients in PGE2 group ($p>0.05$). Comparable to the study of Frank J, Chuck et al[2].

CONCLUSION

- The secret of success in labour induction lies in replicating the process of spontaneous parturition as closely as possible.
- Use of PGE_1 is a less invasive more natural event then PGE_2 gel which requires intravenous oxytocin infusion more.
- To reduce the maternal morbidity and mortality in postdated pregnancy misoprostol is very effective, long lasting and very potent drug. It is a promising drug for labour induction.

REFERENCES

1. Wing DA, Jones MM, Rahall A, Goodwin TM, Paul RH; A comparison of misoprostol and prostaglandin E2 gel for preinduction cervical ripening and labour induction. Am J Obstet Gynecol, 1995;172(6):1804-1810.
2. Jouatte F, Subtil D, Marquis P, Plennevaux JL, Puech F; Medical indications of labor induction: a comparison between intravaginal misoprostol and intravenous prostaglandin E2. Journal de gynecologie, obstetrique et biologie de la reproduction, 2000; 29(8):763-771.
3. Herabutya Y, O-Prasertsawat P, Pokpirom J; A comparison of intravaginal misoprostol and intracervical prostaglandin E2 gel for ripening of unfavorable cervix and labor induction. J Obstet Gynaecol Res, 1997;23(4):369-374.
4. Varaklis K, Gumina R, Struglefield PG; Randomized controlled trial of vaginal misoprostol and intracervical prostaglandin E2 gel for induction of labour at term. Department of Obstetrics & Gynaecology, Boston University Medical Centre,

Boston City HOspital, 818 Harrison Avenue, Boston MA 02118.
5. Shetty A, Danielian P, Templeton A; A comparison of oral and vaginal misoprostol tablets in induction of labour at term Department of Obstetrics and Gynaecology, Aberdeen Maternity Hospital, UK, 2001.
6. Nanda S, Singhal SR, Papneja A; Induction of labour with intravaginal misoprostol and prostaglandin E2 gel: a comparative study. Trop Doct. 2007; 37(1): 21-4.