

ORIGINAL RESEARCH

Dinoprostone gel (PGE2) if used for Induction of Labour, its effect on Fetomaternal Outcome; A Case control study in tertiary care centre of middle east India

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ABSTRACT

Background: Modern obstetrics aims at improving the safety of the mother and the fetus during antenatal period as well as parturition. When the risks of continuation of pregnancy either to mother or to fetus is more the induction of labor is indicated^[1]. The aim of induction of labor is to perform safe vaginal delivery before term.

Objectives: Induction of labor with Dinoprostone gel (PGE2) and measuring its effect on fetal and maternal morbidity and mortality and to study the percentage of vaginal delivery verses caesareansection after induction with Dinoprostone gel.

Methods: A Clinical hospital based case control study done in pregnant women full filling inclusion criteria and excluding certain exclusion criteria's, primigravidas with singleton pregnancy beyond 35 weeks of gestation and with Bishop score of less than 5 were selected and study was conducted in labor Room of Department of Obstetrics and Gynecology, Kamla Raja Hospital, G.R. Medical College & J.A. Group of Hospitals, Gwalior (M.P). A Total sample size of 100 study cases and 100 control cases were taken for two years duration.

Result: In this study there was a significant difference in mode of delivery in both groups. In case group there was more number of newborn required NICU admission (39%). Apgar score at 5 min was < 7 in 35% cases in case group while 30% in control group. There was more number of maternal complication seen in case group, PPH was 20% in case group as compared to 18% in control group. In case group, 81% cases delivered vaginally and 19 cases required cesarean section, while 91% in control group delivered vaginally and only 9 control cases required cesarean section.

Conclusion: The present study shows that Dinoprostone gel is effective in improving Bishops score, also improvement in the Bishops score is dependent on the pre-induction Bishops score.

Although the vaginal delivered patients were more in control group. The cesarean section rate is increased in induction group cases. IOL is associated with a significantly increased risk of cesarean delivery in nulliparous women. The decisions to undertaken IOL need to be clear and clinically justified.

Keywords: Dinoprostone, Bishops score, pregnancy & labor.

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INTRODUCTION

Term pregnancy is defined as pregnancy 259 to 294 days i.e. 37 to 42 weeks traditionally have elapsed since first day of last menstrual period. Probably it reappears spontaneously "the labor". When the risks of continuation of pregnancy either to mother or to fetus is more the induction of labor is indicated^[1]. Gestational age less than 37 completed weeks of pregnancy is

classified as preterm pregnancy. Whereas those beyond this interval, more than 42 completed weeks with estimated date of delivery with added 14 days are classified as post term^[2]. Approximately 5-10% of the pregnant women continue to at least 42 weeks of gestation³. Postterm pregnancy are associated the increased fetal and maternal risk. Perinatal mortality and morbidity at 42 weeks of period of gestation is 2

fold of that at 40 weeks (4-7 verses 23 per 1000 deliveries respectively) and also increases 4fold at 43 weeks and 5-7 fold at 44 weeks^[3]. At term it has been suggested that if active management of low risk pregnancy through the use of preventive labor induction much prior to development of utero-placental insufficiency or CPD we can improve birth outcome, neonatal morbidity and mortalities and also can reduce the increasing LSCS section rate^[4].

MATERIAL & METHOD

A Clinical hospital based case control study done in pregnant women attending hospital with Postdatism, IUGR and PIH in all primigravidas with singleton pregnancy beyond 35 weeks of gestation, conducted in labor Room of Department of Obstetrics and Gynecology, Kamla Raja Hospital, G.R. Medical College & J.A. Group of Hospitals, Gwalior (M.P).For the purpose of standardization, patients with singleton live fetus in cephalic presentation with gestational age of 35 completed weeks or above and Bishop score of less than 5 were selected. Controls were all women's with singleton pregnancy beyond 35 weeks of gestation who were in spontaneous labour. In patients where the date of the last menstrual period was not known dating of pregnancy was estimated by an early ultrasound, with sample size of 100 study cases and 100 control cases for two years.

RESULTS

The study comprised of total 100 cases and 100 control who came in Department of Obstetrics & Gynecology, Kamla Raja Hospital, Gwalior for delivery.

INCLUSION CRITERIA

- Primigravida
- Maternal age group 18-35 years
- Singleton pregnancy, reliable dates, previous regular menstrual cycles, not conceived during lactational amenorrhea.
- Cases in which gestation dating is confirmed by ultrasonography performed in 1st trimester / early (12-22 weeks) 2nd trimester.

EXCLUSION CRITERIA

- Maternal age group <18 and >35 years.
- Unknown dates, irregular menstrual cycle, anomalous fetus, malpresentation, maternal complication like diabetes and cardiac disease in pregnancy.
- All women who reported in spontaneous labor.
- Contraindication to vaginal delivery (e.g. placenta previa)

Study adhered to ICMR guidelines of experiment on human participants and the subjects were included after obtaining informed consent. Total 100 study cases and 100 control cases who attended the antenatal clinic and labor room fulfilling the criteria were included in the study. Induction is done with Intracervical PGE2 gel and followed by IV Oxytocin infusion for augmentation.

Table 01: Pregnancy characteristics

Age of the patients (years)	N	Mean	Std. Deviation	T
Controls	100	24.6	3.12	0.68
Cases	100	24.3	3.16	p value 0.500
<i>POG (Period of gestation)inweeks</i>	N	Mean	Std.deviation	T
Controls	100	38.75	0.6417	2.07
Cases	100	38.99	0.979	p value 0.04
<i>BS (Bishop score)</i>	N	Mean	Std.deviation	T
Controls	100	2.07	1.007	2.96
Cases	100	1.68	0.851	p value 0.003

Table 03: Distribution of patients according to maternal complications

Complication	Cases		Control	
	No.	%	No.	%
PPH	20	20	18	18
Cervical tear	10	10	14	14
Perineal tear/episiotomy extension	8	8	9	9
No complication	62	62	59	59
Total	100	100	100	100

$\chi^2 0.72$ df = 2 p value = 0.69. The above mentioned table shows that slightly more complications were seen in cases group. The difference is not statistically significant.

Table 04: Distribution of patients according to perinatal morbidity

Perinatal morbidity	Cases		Control	
	No.	%	No.	%
Birth asphyxia	7	7	3	3
MSL	17	17	12	12
RDS	10	10	10	10
MAS	4	4	0	0
Other	2	2	0	0
No complication	60	60	75	75
Total	100	100	100	100

$X^2 = 10.129$, $df = 5$, p value = 0.0717. The above mentioned table shows fetal complications in cases group and control group. Birth asphyxia was found in 7% cases in cases group while 3 % in control group. MSL (meconium stained liquor) was found in 17% cases group and 12 % in control group. RDS and MAS was 10 % and 4 % in cases group while 10 % and 0 % in control group respectively. So majority of complications seen in cases group. The above table shows the perinatal morbidity as follows...MSL>RDS>BIRTH ASPHYXIA>MAS while there was no perinatal mortality, NICU admission was around 39 percentage.

Table 05: Distribution of patients according to mode of delivery

Mode of Delivery	Cases		Control	
	No.	%	No.	%
FTND	81	81	91	91
LSCS	19	19	9	9
TOTAL	100	100	100	100

In the present study 81% of the INDUCED pregnant women delivered vaginally. zero cases underwent instrumental delivery.

Table 08: NICU admission

NICU admission	Cases		control	
	No.	%	No.	%
Yes	39	39	35	35
No	61	61	65	65
Total	100	100	100	100

In the present study of total 100 induced delivered cases 39 babies were admitted in NICU for one or another reason.

DISCUSSION

In present study, we have seen the increased rate of cesarean section in study group induced with Dinoprostone gel. Postpartum hemorrhage is more common in cases group, F. Thangarajah et al (2016) [5] study had similar results. Although it is not statistically significant. In our study, we have seen that birth asphyxia 7% versus 3%, MSL 17% versus 12% and RDS 10% versus 10%, MAS 4% versus 0% respectively are more common in induction group.

Punitayadav et al (2017) [6] have done a similar study and seen that risk of birth asphyxia was more in induction group. Paliulyte et al (2010) [7] also done a similar study with similar results. Vandana Verma et al (2017) [8] study shows 6.41% neonates developing MAS. More number of NICU admissions could be because of our hospital provision to keep moderately asphyxiated child in NICU for observation for at least 24 hours. So finally we have seen that in induction group more intensive fetal monitoring is required [8].

CONCLUSION

The present study shows that Dinoprostone gel is effective in improving Bishops score, also improvement in the Bishops score is dependent on the pre – induction Bishops score. Although the vaginal delivered patients were more in control group. The Cesarean section rate is increased in induction group cases. IOL is associated with a significantly increased risk of cesarean delivery in nulliparous women. The decisions to undertake IOL need to be clear and clinically justified.

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