

Compare the Effectiveness of Prostaglandin E2 Vaginal Gel Versus Vaginal Tablets for the Induction of Labour at Term

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ABSTRACT

Objective: To compare the effectiveness of prostaglandin E2 vaginal gel versus vaginal tablets for the induction of labour at term.

Study Design: Retrospective comparative study

Place and Duration of Study: This study was conducted in Gynaecology and obstetric unit B, Lady Reading Hospital Peshawar, from 1st January 2013 till 31st December 2014.

Materials and Methods: Study population was women with singleton, term pregnancy with cephalic presentation undergoing induction of labour after 37 weeks of gestation. Prostaglandin E2 (PGE2) vaginal tablets (3 mg) or vaginal (2 mg) was administered at 6-hourly intervals, two doses administered. Main outcome measured was rate of failed induction of labour, besides failed induction in primigravida and multigravida and mode of delivery was also observed in both groups. Descriptive statistics was used to analyze the data and the results are expressed in the form of frequency and percentages.

Results: The number of patients induced with PGE2 tablet (3mg) were 39.74 % (n=503) while 60.20 (n=761) were induced with PGE2 gel (2mg). It was observed that failed induction was more in patients induced with PGE2 tablets 14.11 % (n=71) as compared to PGE2 gel 8.67% (n= 66). Sub analysis showed failed induction was more in primigravida as compared to multigravid women. Spontaneous vaginal birth was found to be the most common mode of delivery 75.31 % (n=952)

Conclusion: Prostaglandin E2 vaginal gel is superior to vaginal tablets for the induction of labour.

Key Words: Induction of labour, Failed induction, Prostaglandin E2 tablet, Prostaglandin E2 Gel.

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INTRODUCTION

Induction of labour (IOL) is a common procedure, about 20% of women undergo IOL for different reasons.. Induction of labour is artificial initiation of uterine contractions resulting in birth of baby. IOL is indicated only when the benefits of delivering the baby is more than continuing the pregnancy.¹

There are different methods of IOL at term gestation, commonly used methods are artificial rupture of membrane, oxytocin and prostaglandins. Vaginal PGE2 is the preferred method of induction of labour, unless it is contraindicated. It can be given in form of gel, tablet or controlled release pessary. The endorsed regimens is that two doses of vaginal PGE2 tablets or gel is administered 6 hours apart if labour is not established (up to a maximum of two doses) or one cycle of vaginal PGE2 controlled release pessary only one dose over 24 hours. In case of uneffaced cervix

artificial rupture of the fetal membranes is usually difficult, the likelihood of failed induction of labour is less if PGE2 is administered in these cases.^{2,3}

Failed induction is defined as failure to establish labour after one cycle of treatment, which is administration of two vaginal PGE2 tablets (3 mg) or gel (1–2 mg) at 6-hourly intervals, or one PGE2 controlled released pessary (10 mg) over 24 hours. It is estimated that a failed induction occur in 15% of cases .

Failed induction of labour with PGE2 tablet versus Gel is not analysed in previous studies till date, these studies reported that need for augmentation of labour with oxytocin was reduced with PGE2 gel , and that there is no difference among the two in terms of achievement of vaginal delivery or need for caesarean section. One study in which primary outcome analyzed was overall time interval from induction to delivery reported that PGE2 vaginal gel is more effective as compared to vaginal tablets for the induction of labour.⁴⁻¹⁰

This study was conducted to compare the clinical effectiveness of the two formulations (PGE2 gel and tablet) in terms of failed induction which is not analyzed in previously conducted studies.

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MATERIALS AND METHODS

This study was retrospective comparative study conducted in Gynae B unit LRH from 1st January 2013 till 31st December 2014. Patients with singleton term pregnancy with cephalic presentation induced with prostaglandin E2 tab/gel were included in this study, patients with multiple pregnancy, previous one or more caesarean sections were excluded. Those patients with bishop score of more than 6 were also not included. Total number of patient induced with PGE2 were 1264, out of these 39.74 % (n=503) were induced with PGE2 tablet (2mg) and 60.20 (n=761) were induced with prostaglandin E2 gel, failed IOL was noticed in both groups. A criterion of failed induction was, failure to initiate labour after one cycle of treatment, which consist of the vaginal administration of two PGE2 tablets (3mg) or gel (2 mg) at 6-hours apart ⁽³⁾. Besides failed induction of labour was also observed in primigravida versus multigravida and mode of delivery was also noticed in patients induced with PGE2 tablet and Gel. Descriptive statistics was used to analyze the data and the results are expressed in the form of frequency and percentages.

RESULTS

Total numbers of patients fulfilling the induction criteria were 1264. Out of them 59.24% (n= 749) were primigravida while multigravida were 40.74% (n=515) Failed induction was more in PG as compared to multigravida as shown in table 1.

Table No.1: Failed IOL in primigravida versus multigravida

Induction of labour	No.		Failed IOL	
	No.	%	No.	%
Primigravida	749	59.24	88	11.74
Multigravida	515	40.76	49	9.51

Table No.2: Failed IOL with PGE2 Tablet and PGE2 gel

	No.		Failed IOL	
	No.	%	No.	%
IOL with PGE2 Tablet	503	39.74	71	14.11
IOL with PGE2 gel	761	60.20	66	8.67

Table No.3: Mode of delivery

Mode of delivery	PGE2 Tablet		PGE2 gel		Overall	
	No.	%	No.	%	No.	%
Caesarean section	71	14.1	66	8.7	137	10.8
Instrumental delivery	74	14.7	101	13.3	175	13.8
Spontaneous vaginal birth	358	71.2	594	78.0	952	75.4

The main outcome observed was failed induction in both groups. It was observed that failed induction was

more in patients induced with PGE2 tablets as compared to PGE2 gel as shown in Table 2. Mode of delivery was observed and Spontaneous vaginal birth was found to be the most common mode of delivery (75.31%) in both groups, caesarean section were more in patients induced with PGE2 tablet as compared to PGE2 tablet as shown in table 3.

DISCUSSION

The rate of induction of labour (IOL) is increasing throughout the world along with rise in cases of failed induction, it has a psychological impact on patient as well as on her management plan, method of induction should be evaluated for each patient accordingly. Vaginal PGE2 is favoured method of induction of labour Few studies are available comparing PGE2 tablet and gel.^{3, 11}

In this study it was observed that failed induction of labour is more in case of PGE2 tablet 14.11%(n=71) as compared to PGE2 gel 8.67% (n= 66), while another similar study reported nearly similar results, where women administered with PGE2 tablet had increase rate of failed induction of labour (10.84 versus 1.22%).¹⁰

Nulliparity is risk factor for failed induction. In our study failed induction was observed more in primigravida as compared to multigravida (11.74% versus 9.51%), these results are comparable to another study where ripening of cervix was observed in primigravida induced with PGE2 tablet and gel and it was found that number of patients requiring Caesarean section is less in PGE2 gel group as compared to those induced with PGE2 tablet (30 vs. 15%). Another study comparing multiparous and nulliparous patients reported that Failed induction was 4.6 times more likely in nulliparous patients.^{4,12}

Mode of delivery was observed in both groups and it was found that in patients induced with PGE2 tablet rate of caesarean section (14.11% versus 8.67%) and instrumental delivery was high as compared to PGE2 gel group (14.71% versus 13.27%), in similar study rate of caesarean section was 33.7% (n=28) in PGE2 tablet group versus 35.37%(n=29 in patients induced with PGE2 gel while instrumental delivery was 24.1% (n=20) versus 16.85% (n=13).¹⁰

CONCLUSION

In conclusion PGE2 gel should be used in preference over PGE2 tablet, as there are fewer cases of failed induction and caesarean section with PGE2 gel.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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