



THE ROLE OF ORAL PGE1 IN INDUCTION OF LABOUR AND THE OUTCOME OF PREGNANCY

Gynaecology

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ABSTRACT

Objective: It is a prospective randomized study to see the efficacy of PGE1 in cases of PROM from 28wks to term gestational age evaluating the mode of delivery with perinatal and maternal outcome. This study was conducted at Mahavir Institute of Medical Sciences, Vikarabad during 1/1/2018 to 30/12/2018.

Methodology: Women with PROM history with unfavourable cervix misoprostol 25micrograms orally 4th hrly up to a maximum of 6 doses given. Bishops score was assessed and labour augmented using oxytocin as and when required. Contractions monitored with CTG. Vaginal examination done 4-6hrly to assess the progress of labour.

All the women were monitored with continuous CTG. Primary (time interval from induction to delivery, percentage of women delivered within 24 hrs. vaginally, rate of LSCS) and Secondary (need of oxytocin acceleration, neonatal morbidity and mortality, maternal morbidity and mortality) outcomes noted.

Results: Out of 100 cases 81 delivered vaginally, 19 cases LSCS done. In term PROM cases -100% survival. Among preterm PROM 21/100, 2 were IUD on admission, 3 neonatal deaths. Total perinatal mortality 3% in 100 cases of PROM No. of NICU admissions 10/100-10%. According to birth weights IUD babies were 750, 800gms. NND two were <1.2kg. NND 1 baby was 1.8kg. Mean birth weight of NND -1.2kg. Birth weight of >1.8kgs all the babies survived.

Conclusion: PGE1 Misoprostol is effective for cervical ripening and inducing labour in PROM cases as seen in our study with 100% perinatal survival in term PROM and LSCS rate of 19%. In our study we did not have PPH or hyper stimulation. Hence low dose PGE1 25 micrograms is efficient and cost effective as an inducing agent orally also.

KEYWORDS

PROM-preterm rupture of membranes, PG Prostaglandin, PGE1-prostaglandin E1, NICU-neonatal intensive care unit, NND-neonatal death, IUD-intrauterine death, CTG-cardiotocography, LSCS-lower segment caesarean section, FHR-fetal heart Rate, PPH-Post-partum haemorrhage.

INTRODUCTION:

Prostaglandins (PG) are long chain fatty acids containing 20 carbon atoms including a 5 carbon ring derived from Arachidonic acid. They have autocrine and paracrine actions. Of all the PGs PGE2, PGE1 Misoprostol are the main prostaglandins used for induction of labour.

Misoprostol-15 deoxy-16 hydroxy-16 methyl misoprostol. It was originally used for gastric and duodenal ulcers disease related to chronic non-steroidal anti-inflammatory drugs. But now the American college of Obstetrics and Gynaecologists (2019) reaffirmed (1) its recommendation for use of this drug for induction of labour due to its proven safety and efficacy. Currently it is the preferred prostaglandin for cervical ripening at Parkland Hospital. In one review of 234 women administered misoprostol, no instances of asthma exacerbation were associated with its use, and the risk of this was calculated to be <2% (Rooney Thompson 2015). It is cheap, stable at room temperature and readily available in many developing countries. Woman prefer oral route because it is less painful, gave more privacy, comfort, satisfaction and more convenient for cervical ripening and labour induction (3, 4).

Peak plasma levels reached more rapidly (8) when taken orally results in a shorter activity period (5) and has the lowest possibility of CS (6) without risks of adverse maternal and perinatal outcomes and less PPH. Uterine hyper stimulation with non-reassuring FHR changes were more prevalent with vaginal application compared with oral route this is dose related (7), with misoprostol use higher apgar scores, less PPH and better neonatal outcomes at birth (2) observed.

The optimal dosage and timing of interval of misoprostol is 25 micrograms every 3-6hrs are effective for cervical ripening and induction of labour.

Use of misoprostol in a previous LSCS should be avoided because of possibility of uterine rupture. (9)

PG E1 can be used orally, vaginally, buccal and sublingually. The WHO and others have suggested 25 micrograms every 2 hours (10). Two systematic reviews suggested misoprostol doses of 20 to 25 micrograms orally at two hour interval (11).

Apart its action on cervix, it acts on other target organs causing side effects of nausea and vomiting, diarrhoea and fever. It is easily metabolized in the body by conversion of 15 hydroxyl group to ketones by the enzyme 15 hydroxyl prostaglandin dehydrogenase.

Methodology: Women with PROM history, confirmed with speculum exam/Nitrazine test, who have fulfilled the inclusion criteria with unfavourable cervix, misoprostol 25 micro grams orally 4 hrly upto a maximum of 6 doses given. Woman with 28-40wks GA with singleton with vertex presentation, Diagnosed with PROM and Normal CTG were included in our study.

Previous scar, Uterine tenderness with foul smelling vaginal discharge, baby with >3.5kgs were excluded in our study. Women with >18 hrs. of PROM or intrapartum fever---antibiotics given.

Bishops Score was assessed and labour augmented using oxytocin as and when required. Contractions monitored with CTG. Vaginal examination done 4-6 hrly to assess the progress of labour.

All the women were monitored with continuous CTG. Primary (time interval from induction to delivery, % of women delivered within 24 hrs. vaginally, rate of CS) and secondary (need of oxytocin acceleration, neonatal morbidity and mortality, maternal morbidity and mortality) outcomes noted.

Side Effects: Nausea and Vomiting, diarrhoea, fever, PPH, were noted.

Sample size: 110, but 10 patients were dropped, so 100 patients included.

Complications: Pyrexia 1, Plabruption 1.

RESULTS:

In our study of 100 patients, preterm PROM 21 cases and term PROM 79 cases. 75 cases were primi and others were multiparas. Unbooked cases were 60, booked cases were 40. In this total 81 patients delivered vaginally, in 19 patients LSCS was done. 54 patients delivered vaginally with one dose of misoprostol, with two doses of misoprostol

total 75 patients delivered vaginally.71% of patients delivered vaginally within 12 hrs, 77% of patients delivered vaginally within 24 hrs. Among 19 cases of LSCS 16 were primigravida. All term PROM 79/100. Among preterm PROM 21/100, two cases IUD on admission, 3 neonatal deaths. No. of ICU admissions were 10 cases.

MATERIALS AND METHODS:

Labour was induced in 100 cases of PROM with unfavourable cx with 25 mcg of PGE1 along with oxytocin acceleration in needed cases

Table 2:

No of doses of PGE1	PRIMI		G2		G3		G4		Total	
	Normal Delivery	LSCS	Normal Delivery	LSCS	Normal Delivery	LSCS	Normal Delivery	LSCS	Normal Delivery	LSCS
1	28	-	15	-	10	-	1	1	54	1
2	18	6	2	1	1	-	-	-	21	7
3	3	10	2	-	1	1	-	-	6	11
	49	16	19	1	12	1	1	1	81	19

Table 1:

Preterm PROM	21	21%
Term PROM	79	79%
<28 wks	1	75 cases primi
28-32 wks	5	25 cases multi's
33-36 wks	15	Total 100 cases
37-40 wks	79	

Table 3: In our study Observations

Unbooked cases	60-60%
Booked cases	40 -40%
Bishop Score	<6 -95%
	>6-5%

	Total	No. of Vaginal Deliveries	No. of LSCS
Primigravida	65	49	16
G2	20	19	1
G3	13	12	1
G4	2	1	1
	100	81-81%	19-19%

Table 4: Induction –Delivery interval

No of doses Of PGE1	12hrs	24hrs	>24hrs
1	43	02	02
2	25	02	01
3	04	02	-
Total	71-71%	6	03

71% of patients delivered vaginally within 12hrs.

77% of patients delivered vaginally within 24hrs.

LSCS 19-19%

1. Failure to Progress 13
2. Big Baby with CPD 3
3. Fetal distress 3

Among 19 cases of LSCS 16 were primigravidae

DISCUSSION:

Unlike PGE1, oxytocin requires continuous IV access and fetal monitoring and also restricts the mobility even in early labour. Whereas PGE1 effective in inducing labour, it is cheap, stable at room temperature can be given orally unlike PGE2. The purpose of this study is to study the safety and efficacy of oral misoprostol in inducing labour in women with PROM.

The time interval from induction to delivery is reduced if misoprostol is used, which gives maternal satisfaction. But there may be hyper stimulation in some cases. It is a better drug when compared to other induction drugs as it can be given by any route (oral, SL, vaginal) and induction of delivery interval lessened and LSCS rate lowered. Neonatal and maternal outcome also comparable with the other induction drugs like oxytocin. With careful monitoring and dose adjustment we can lower the rate of hyperstimulation. Hence it is a good induction drug which can be used in cases of PROM.

Large sample size will have more statistical significance to know the efficacy and effectiveness of oral misoprostol in PROM.

CONCLUSION:

PGE1 is effective for cervical ripening and inducing labour in PROM cases as seen in our study with 100% perinatal survival in term PROM and LSCS rate of 19%.In our study we did not have PPH or hyperstimulation.

Hence low dose PGE1 is efficient and cost effective as an inducing agent orally also.

REFERENCES:

1. American College of Obstetricians and Gynaecologists: ACOG Practice Bulletin No.107: Induction of labor. Obstet Gynecol 2009 ; 114:386.Reaffirme d2019
2. AlfirevicZ; Aflaifel N, WeeksA. Oral misoprostol for induction of labour. Cochrane Database Syst Rev.2014;(6):Art.No:CD001338
3. NgaiSW, To WK, Lao T, HoPC. Cervical priming with oral misoprostol in prelabour rupture of membranes at term. Obstet Gynecol 1996;87:923-6
4. Dyar TR, Greig P, Cummings R, Nichols K. The efficacy and safety of oral versus vaginal misoprostol for the induction of term labor. Am J Obstet Gynecol 2000;182:S135
5. AriasF. Pharmacology of oxytocin and prostaglandins. Clin Obstet Gynecol 2000;43:455-468
6. AlfirevicZ, Keeney E, Dowswell T et al. Labour induction with prostaglandins: a systematic review and network meta-analysis.BMI 2015;350:217
7. World Health Organization (WHO), Dept of Reproductive Health and Research. WHO recommendations for induction of labour:Geneva;WHO,2011
8. KhanRV, EL-Refaeey H, Sharma S. et.al. Oral, rectal and vaginal pharmokinetics of misoprostol. Obstet Gynecol 2004;103:866
9. Lydon-Rochelle M, Holt VL, Easterling TR, Martin DP. Risk of uterine rupture during labor among women with a prior caesarean delivery. N.Engl J Med 2001; 345:3
10. Weeks AD, Navaratnam K, Alfirevic Z. Simplifying oral misoprostol protocols for the induction of labour. BJOG 2017;124:1642
11. Kundodyiya TW, Alfirevic Z, Weeks AD. Low dose oral misoprostol for induction of labour: a systematic review. Obstet Gynecol 2009;113:374