



A Comparative Study of Prostaglandins (Intravaginal PGE₁ & Intracervical PGE₂) with Oxytocin Infusion for Induction of Labour

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Introduction

Induction of labour is the deliberate initiation of labour before spontaneous onset anytime after the period of viability with the aim of delivery per vagina as a matter of urgency either for the foetus or the mother or both. Although smooth muscle contracts when stretched but in pregnancy effective uterine contractions do not begin before term. It is the alteration of the oestrogen-progesterone ratio with appearance of prostaglandins synthesis and building up of oxytocin receptors in the myometrium, decidua's and placenta. Oxytocin release in spurts from maternal neurohypophysis, acts on the sensitized myometrium and starts the uterine contraction. At the same time the foetal pituitary starts secreting both oxytocin and vasopressin, either as a result of stress or because of a genetically controlled trigger mechanism.). The PGE₂ acts mainly in the cervix to enhance uterine contraction and PGI₂ protects the vascular endothelium thus ensuring uterine blood flow and proper oxygenation to the foetus during forceful uterine contraction. The increase myometrial contraction leads to rupture of membrane, which in turn augments the

production of prostaglandins that help in the final expulsion of the foetus through the fully effaced and dilated cervix.

Several physical factors, biochemical and hormonal controls have important role in initiation of labour. When one or more of these get deranged remedial measure is required to bring about labour. Timely induction plays an important role where spontaneous onset of labour does not occur. There is a chance of increased foetal and/or maternal danger if the pregnancy is allowed to continue though it may or may not pass the expected date of delivery (EDD). It may obviate many unnecessary caesarean sections. When all the facilities of obstetrics, anaesthesia, paediatric, labour room personnel and hospital beds are available a planned delivery improves obstetric efficiency and patient care. If the induction fails or foetal and/or maternal complications develop, caesarean section is a safe and early solution.

Aims and Objective

My aim is to study the induction of labour by prostaglandin PGE₁ (misoprostol intravaginal),

PGE₂ (intracervical dinoprostone) & oxytocin infusion separately and to compare among them with

- Mode of delivery
- Induction – delivery interval
- Their rate of success

Materials and Methods

The present study consisted of 100 (one hundred) patients of which 81 (eighty one) were primigravidae and 19 (nineteen) were multigravida, where labour was induced with misoprostol, dinoprostol gel and oxytocin separately. These cases were taken from the Maternity ward of Katihar Medical College Hospital during the period April 2017 to April 2018.

Induction with misoprostol (PGE₁) was done with 25microgram misoprostol tablet given in posterior vaginal fornix, repeated 4hrly upto 4 doses. Caesarean Section was done in case of fetal distress or non-progress of labor in spite of good uterine contraction.

Induction with dinoprostol gel (PGE₂) was done with 0.5mg of dinoprostol gel deposited into the cervix. 2nd dose was repeated after 6hours =. If labor was not established within 12hours, induction was discontinued and caesarean section was done.

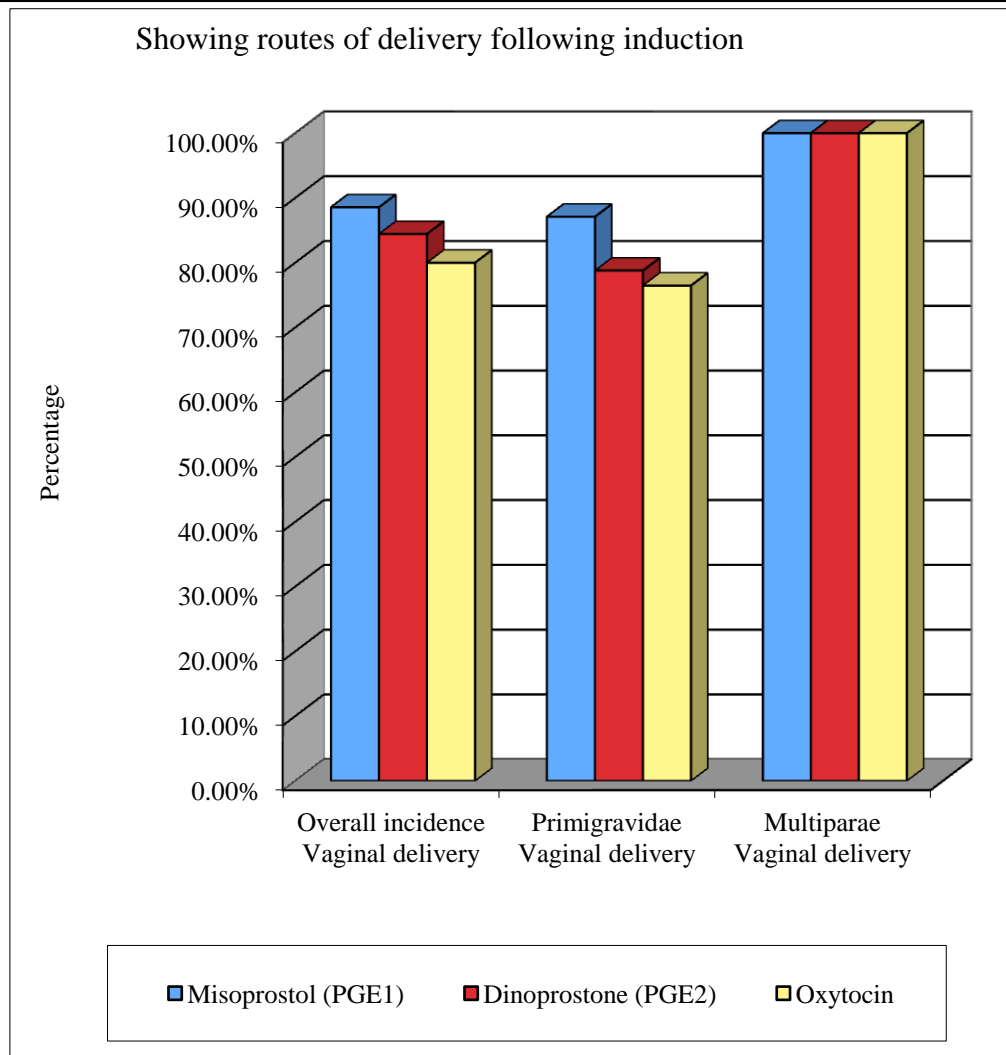
Induction with oxytocin was done by 500ml of ringer lactate solution with 3units of oxytocin, starting at 15 drops/min & gradually increasing by 15 drops every 20min. Induction was discontinued if labor was not established within 12 hours.

Showing routes of delivery following induction

	Overall incidence		Primigravidae		Multipara	
	Vaginal delivery	LSCS	Vaginal delivery	LSCS	Vaginal delivery	LSCS
Misoprostol (PGE ₁)	(88.57%)	(11.43%)	(87.1%)	(12.9%)	(100%)	(0%)
Dinoprostone (PGE ₂)	(84.45%)	(15.55%)	(78.79%)	(21.21%)	(100%)	(0%)
Oxytocin	(80%)	(20%)	(76.47%)	(23.53%)	(100%)	(0%)
Total cases	(85%)	(15%)	(81.49%)	(18.51%)	(100%)	(0%)

Showing success rate according to Bishop's Score

Bishop's Score	0-3		4-5	
	No. of cases	Success	No. of cases	Success
PGE ₁ (Misoprostol)	6 (17.14%)	4 (66.66%)	29 (82.86%)	27 (93.10%)
PGE ₂ (Dinoprostone)	6 (13.33%)	3 (50%)	39 (86.67%)	35 (89.74%)
Oxytocin	2 (10%)	0 (0%)	18 (90%)	16 (88.88%)
Total cases	14 (14%)	7 (50%)	86 (86%)	78 (90.69%)



Conclusion

All the three agents are quite effective for induction of labor, but success rate in terms of vaginal delivery was more in PGE1 than PGE2 & oxytocin. The induction delivery interval is shorter in PGE1 than PGE2 & oxytocin. Cost of PGE1 is least in comparison to PGE2 & oxytocin. In developing country like us PGE1 (misoprostol) is a better choice than PGE2 and oxytocin as regards induction of labor is concerned in low bishops score group.