



COMPARATIVE STUDY OF PRE- INDUCTION CERVICAL RIPENING WITH FOLEY AND DINOPROSTONE.

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ABSTRACT

Background: To compare the efficacy for pre-induction cervical ripening with Foley catheter vs PGE2 in elective induction

Materials and Methods: The study group consisted of 100 antenatal women admitted for safe institutional delivery and who required pre-induction cervical ripening. Labour was induced in 50 women with Foley catheter and remains 50 women with similar inclusion criteria with 0.5gms Dinoprostone gel and efficacy of both method is compared.

Results: The induction to vaginal delivery interval in the Foley group was 9.8hrs and 12.5hrs with the Dinoprostone group. Rate of vaginal deliveries was 78% in Foley group and 64% in Dinoprostone group respectively. Caesarean delivery rate was 22% and 36% in Foley group and Dinoprostone group respectively maternal side effects tachysystole, vomiting, diarrhoea, post partum haemorrhage higher with Dinoprostone groups.

Conclusions: Foley catheter I safer, easier, cheaper, effective method of pre-induction cervical ripening.

KEYWORDS : Bishops Score, Foley group, Dinoprostone group, Induction- delivery interval.

INTRODUCTION

Induction of labour is an Obstetric Procedure, designed to preempt the natural process of labour by initiating its onset artificially, before this occur spontaneously. The aim of successful induction is to achieve vaginal delivery when continuation of pregnancy presence a threat to the life or wellbeing of the mother or her unborn foetus

BISHOP¹ first described the correlation between the presence of favourable cervix and subsequent vaginal delivery. Successful outcome of induction relies on cervical favourability. The need for improving cervical score in women with unfavourable cervix (low bishop score <5) for success of induction of labour and subsequent vaginal delivery. This process has been described as pre-induction cervical ripening. Ripening of cervix takes place during prelabour phase, resulting in increased softening effacement, dispensability and early dilatation.

One of the most common pharmacological methods of cervical ripening is the use of a prostaglandin E₂ gel. Use of Foley catheter for the induction of labour was first described by KRAUSE in 1853² in Embrey & Mollison reported a 94% successful induction rate after using Foley catheter for cervical ripening. The Foley catheter appears to effect the cervical ripening not only through direct mechanical dilatation of cervix but through release of prostaglandins. The release seem to be increased by further separation of amnion from the decidua.³⁻⁶ This led many investigators to in still fluid an in-place Foley catheter provides a possible increase in success of pre-induction cervical ripening.⁷

This study was designed to compare the efficacy and safety of traditional method of cervical ripening with prostaglandin E₂ gel and Foley catheter.

MATERIALS AND METHODS

The present prospective study was conducted in Government Maternity Hospital, Sultan Bazar, Hyderabad, Telangana during January 2016 to December 2016. The study group consisted of 100 antenatal women admitted in the hospital for safe institutional delivery and who required pre-induction cervical ripening. Labour was induced in fifty women with Foley Gather and remaining fifty women with similar inclusion criteria with 0.5gms Dinoprostone gel and thus efficacy of both methods is compared selection criteria.

INCLUSION CRITERIA:

All eligible women who had obstetric indication for labour induction

- (i) Primi gravidae/ multi gravidae
- (ii) Term/ Past EDD/ post term
- (iii) Hypertensive disorders in Pregnancy
- (iv) Singleton pregnancy
- (v) Low bishop Score (<5)
- (vi) Adequate pelvis
- (vii) Intact membranes

EXCLUSION CRITERIA:

- (i) Vaginal infections,
- (ii) Placenta Previa
- (iii) Unexplained vaginal bleeding
- (iv) Non- vertex presentation
- (v) Ruptured membranes
- (vi) Prior caesarean delivery

Fifty women of the admitted group, received Foley catheter size. No.16 with 30ml of normal saline intracervically. Balance fifty women received Dinoprostone gel 0.5mg placed intracervically under all aseptic conditions. The second dose was repeated if there was no change in the bishop score after 6hrs. No more than three doses will be given in Dinoprostone group Foley catheter is retained/ reapplied up to 12hrs and can be repeated of necessary for next 12 hours and not beyond.

Foley catheter is inserted under all aseptic conditions and bulb inflated with 30 ml normal saline. The catheter drawn inside of thigh and taped in place to produce a small degree of traction. If no extrusion of Foley is noted, after 6hrs pelvic examination is done to know its position and cervical score. In all Foley should not be retained for > 24hrs.

After Foley bulb insertion patients were monitored for sighs of labour, maternal rituals, foetal heart rate and progress of labour. In case of admitting of Dinoprostone drug, titrated oxytocin was started in absence of uterine contractions after 6hrs of last dose.

The data collected included - indications for induction, gestational age, modified Bishop Score at the time of induction, induction - delivery interval, mode of delivery, APGAR score of new born, maternal and neonatal complications.

RESULTS

The various indications for induction were term with PIH, post EDD, Post term, Post EDD formed the largest group for induction in both groups. In both the groups the Bishop score was 2 with 48% and 50% in Foley and Dinoprostone respectively.

TABLE 1: Modified Bishops score after induction at or > 6hrs Bishop Score.

Method	Parity	1 to 3		4 to 6		7 to 10	
		No. of cases	Percent age	No. of cases	Percent age	No. of cases	Percent age
Foley	Primi	2	4%	29	58%	10	20%
	Multi	1	2%	4	8%	2	4%
Dinoprostone	Primi	11	22%	35	70%	2	4%
	Multi	2	4%	-	-	-	-

The above table indicates Bishops score >6 hrs was 5.4 and 4.7 in Foley and Dinoprostone group respectively.

TABLE 2. Induction delivery interval.

Method	Parity	IDI hrs	Term	Post EDD	Post term	hours	Mean hrs
Foley	Primi	< 6hrs	-	-	-	-	-
		6 -12 hrs	3	17			
		12 -18hrs	5	18	1	11.5	
	Multi	18 - 24hrs	-	-	-	-	-
		< 6hrs	2	-	-	-	9.82hrs
		6 -12 hrs	4	-	-	8.14	
Dinoprostone	Primi	12 -18hrs	-	-	-		
		18 - 24hrs	-	-	-		
		< 6hrs	1	1	0	-	-
		6 -12 hrs	4	7	1	14.5	
		12 -18hrs	3	23	2		
		18 - 24hrs	2	5	1		12.5hrs
	Multi	< 6hrs	-	-	-	-	-
		6 -12 hrs	1	-	-	-	-
		12 -18hrs	1	-	-	10.5	-
		18 - 24hrs	-	-	-	-	-

In Dinoprostone group majority of Primigravidae delivered within 12 to 18 hrs, in multigravidae equally in 6-12 hrs and 12-18 hrs In Foley group majority of Primigravidae delivered within 12-18hrs. In multigravidae majority is between 6 to 12 hrs indicating more effective in multis.

This mean induction - delivery interval in Dinoprostone group among primi is 14.5hrs and in multi is 10.5 hrs giving a total mean of 12 hrs. The mean induction delivery interval in Foley group among primi was 11.5 hrs and multi is 8.14 hrs giving a total mean of 9.82hrs. With Foley there was a lesser induction - delivery interval (Table 2). In this study caesarean section rate was 22% and in Dinoprostone it was 36% (Table 3).

TABLE 3: Mode of Delivery.

Mode of Delivery	Foley		Dinoprostone	
	No. of cases	Percentage	No. of cases	Percentage
Vaginal delivery	30	60%	27	54%
Vaginal Instrumental delivery	9	17%	5	10%
Caesarean Delivery	11	22%	18	36%
Total	50		50	

TABLE 4: Failed induction.

Indication	Foley	Dinoprostone
Fetal distron	5	7
(a) Meconium stained hgour	5	6
(b) Bradycardie due to hyperstimulation	0	1
Failure to progren	6	11
(a) Secondary arrest of dilatation		

The rate of failed induction was 36% in Dinoprostone and 22% in Foley group (Table 4). There was 10% incidence of side effects in the Dinoprostone group and 2% incidence of side effects in the Foley group (Table 5).

TABLE 5: Effects of mother.

Complication	Foley	Dinoprostone
Tachysystole	0	0
Hyperstimulation	0	1
Fever	0	1
Vomiting	1	0
Diarrhoea	-	2
Postpartum haemorrhage	-	1
Total	1 = 2%	5 = 10%

DISCUSSION

In the present study 100 patients were studied with indications for induction of labour. There patients had poor Bishop Score. Pre-induction ripening was done in 100 patients of whom 50 patients

received Foley induction extra - amniotically with bulb inflated with 30ml of Normal saline, and remaining 50 patients received Intracervical Dinoprostone gel 0.5mg.

1. Vaginal deliveries.

In the present study, the rate of vaginal deliveries was 64% in Dinoprostone group of 78% in Foley group the rate of vaginal delivery in the Foley group is consistent with the studies of sciscione AC, M C Colloughs (1999) which was 73% The vaginal delivery rate in Dinoprostone group in present study is consistent with the studies of St. Onge R.D.

2. Bishops Score at >6hrs.

In the present study it was shown that mean modified bishop score after > 6hrs was more in Foley group as compared to Dinoprostone group. The mean Bishop score in the Foley group was 5.4 & in Dinoprostone group was 4.7, which is consistent with Sciscione AC, MC Collough who Observed mean Bishop score after >6 hrs was 6.5 & 5.1 in Foley and Dinoprostone group respectively.

3. Induction to vaginal delivery interval.

In the present study it was seen. That induction delivery was shown in the Foley group compared to Dinoprostone group - 9.8 hrs and 12.5 hrs respectively which is statistically significant. Present study showed that Foley catheter has induction delivery less than Dinoprostone and consistent with the Ezimokbhai & Nwabineli (1980) studies (9.2 & 10.6 hrs with Foley and Dinoprostone).

4. Failed Induction.

Caesarean delivery rate in my study was 22% and 36% in Foley group & Dinoprostone group respectively. Present study caesarean section rate in consistent with St. Onge & Connors study (17%) in Foley group and Dinoprostone group with Ezimokhai & Nwabineli (42%).

5. Maternal Side effects.

The maternal side effects were tachysystole vomiting, diarrhoea, post pasture haemorrhage. Cases of uterine hyper stimulation and foetal bradycardia have been reported following use of prostaglandins and strict foetal heart rate monitoring is required as compared to Foley catheter where no vigilant monitoring is required.

In present study no such complications noted in the Foley group but in Dinoprostone group 2% was observed. In the Foley group present showed 2% of vomiting. There were no infections. Foley has been used to ripe cervix prior to surgical induction of labour. The mani argument against its use was a risk of infection. Studies showed no risk of infection.9 In Dinoprostone group – other complications were 2% fever, 4% diarrhoea and one case of atonic PPH which responded to medical management.

CONCLUSION

Foley catheter is safe and effective method of cervical ripening before induction of labour as Dinoprostone, and much more cost – effective compared to Dinoprostone. Foley catheter needs no specific storage requirement as compared to Dinoprostone which needs refrigeration at 6-80C. Foley catheter is shown to decrease the induction delivery interval when compared to Dinoprostone. It can be used in women with co-morbidity like asthma, previous uses also, where Dinoprostone is contra indicated. Foley catheter is more effective in multigravida as compared to Primi gravida. Foley catheter is not complicated by foetal heart rate pattern as compared to Dinoprostone. So strict monitoring is not required in pre-induction period incidence of infection is less with Foley method. So the result of this study suggests that Foley catheter I safer, easier, cheaper, effective method of pre-induction cervical ripening.

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