

# A Comparative Study of Intracervical Foley's Catheter with Oxytocin and without Oxytocin in Inducing Labour in Women with Unfavourable Cervix for Reducing Induction Delivery Interval

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**Abstract:** Background: Induction of labour implies stimulation of uterine contraction before spontaneous onset of labour with or without ruptured membranes. When the risk of continuation of pregnancy either to the mother or to the fetus is more, induction is indicated. BISHOP's score and fetal maturity is to be assessed prior to induction. If BISHOP's score is <6, it is recommended that a cervical ripening agent be used before labour induction. Intracervical foleys catheter was recommended for induction of labour in women with unfavourable cervix at term while adding oxytocin to foleys catheter preinduction cervical ripening to shorten induction delivery interval, improve induction success and reduced morbidity associated with prolonged labour induction. Aim& Objectives: To estimate whether adding oxytocin to foley's catheter preinduction cervical ripening could improve the efficacy of induction outcome. Methods: It is a prospective randomized controlled study in Pregnant woman with term gestation admitted in the Department of Obstetrics and gynecology, government Rajaji Hospital attached to Madurai Medical College, Madurai for the period of 6 months. The study is conducted on 100 cases. The study subjects will be randomly assigned into 2groups. Group 1-Foley's catheter without oxytocin, Group 2-with oxytocin. Results: In our study, most of the patients were between the age group of 20 to 25years. There is no significant difference between the Obstetric code, gestational age at which they delivered. Mean induction delivery interval in Group 1-25.885, Group 2-23.786. 60% vaginal deliveries in Group 1 & 64% vaginal deliveries in Group 2. Maternal complications (PPH) 5% in group 1 & 2% in Group 2. Conclusion: Induction with foley's catheter with sequential use of oxytocin, when compared to without oxytocin is more effective for labour induction. It was associated with shorter Induction delivery interval, lesser postpartum blood loss and better neonatal outcome.

**Keywords:** Foley induction, oxytocin, induction delivery interval, Bishop's score

## 1. Introduction

To be successful, induction of labour must fulfill three aims. First, it should result in adequate uterine contractions and progressive effacement and dilatation of cervix. Second: Vaginal delivery must be the most probable end result. Third: there should be minimum discomfort and risk to both mother and fetus.

Various As has been known for last 3 decades that achievement of these goals is to a large extent dependent on the condition of cervix at the time of induction. A favourable 'ripe' soft yielding cervix requires less uterine work than an unfavourable 'unripe' hard and rigid one. Response of an unripe cervix to myometrial contractions is poor.<sup>3</sup> methods of ripening of the cervix and induction of labour are being used by obstetricians including intravenous infusion of oxytocin, intravaginal or intracervical administration of prostaglandins (PGE<sub>2</sub> and PGE<sub>1</sub>) and intracervical Foley's catheter insertion, the last one ripens the cervix mechanically and also through the release of prostaglandins.

In induction of labour the reported adverse effects are; increased bleeding, uterine hyperstimulation and rupture and fetal distress. However, little has been said about increased postpartum bleeding.

The best agent and method for induction of labour remains uncertain. There is paucity of data on prospective postpartum blood loss evaluation following labour induction. Thus, this study was undertaken to evaluate and compare postpartum vaginal blood loss and efficacy of combination of Foley's catheter with oxytocin and without oxytocin for labour induction.

Induction of labour has two important components, cervical ripening and stimulation of uterine contractions to achieve dilatation of cervix and delivery of fetus. Purpose of induction is to achieve vaginal delivery and to avoid operative delivery by caesarean section. It is well recognized that the success of induction of labour, which ultimately aims at achieving vaginal delivery depends to a great extent on the favourability of the cervix or its readiness to go into labour. Agents used for cervical ripening may lead in the establishment of contractions to women with an unfavourable cervix.

Labour induction may also be more cost effective and be associated with improved maternal and fetal outcomes compared with expectant management.

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## 2. Materials and Methods

This prospective clinical trial was carried out in the department of obstetrics and gynaecology, Madurai Medical College, for the period of 6 months

The purpose of this study is to compare the efficacy of foley's catheter with oxytocin and without oxytocin for preinduction cervical ripening. The induction delivery interval, maternal and fetal outcomes and need for augmentation of labour in these two groups are to be compared.

## 3. Results

### Induction Delay

Induction delay	FOLY CATHETER	
	Without oxytocin	With oxytocin
12 - 18	8	14
19 - 30	24	29
> 30	18	7
Total	50	50
Mean	25.885	23.786
SD	6.109	6.186
p' value	0.031 significant	

Mean value of induction delivery interval without oxytocin is 25.885 and with oxytocin is 23.786. This difference is statistically significant p value 0.031

### Mode of Delivery

Mode of delivery	FOLY CATHETER	
	Without oxytocin	With oxytocin
LN	27	29
LSCS	14	12
Instrumental	9	9
Total	50	50
p' value	0.893 Not significant	

The mode of delivery for most of the cases both with and without oxytocin is LN. No significant difference between both GROUPS.

### Maternal Complications

Maternal Complications	FOLY CATHETER	
	Without oxytocin	With oxytocin
PPH	5	1
Nil	45	49
Total	50	50
p' value	0.207 Not significant	

Maternal complications high in without oxytocin group but not statistically significant.

## 4. Discussion

Induction of labour is a widely used obstetrical practice for different indications. The success of induction is strictly dependent on the cervical status assessed by Bishop score.

Induction of labour has two important components, cervical

ripening and stimulation of uterine contractions to achieve dilatation of cervix and delivery of fetus. Purpose of induction is to achieve vaginal delivery and to avoid operative delivery by cesarean section and its complications. It is well recognized that the success of induction of labour, which ultimately aims at achieving vaginal delivery depends to a great extent on the favourability of the cervix or its readiness to go into labour. Agents used for cervical ripening may lead in the establishment of contraction to women with an unfavourable cervix.

In Our study, 100 cases with indication for induction of labour were divided equally into two groups of induction by Foley's with oxytocin (50 cases) and foley's catheter without oxytocin.

Out of 50 cases 32% were oligohydramnios, 26%NSP, 20% postdated and 22% GDM cases. Out of which Labour naturalis occurred 27% in oligohydramnios group, 17% in postdated, 15% in NSP, 13% in GDM group. Cesarean section rates 5% in oligohydramnios group, 3% in postdated, 11% in NSP and 9% in GDM patients.

Age, parity, gestational age at delivery, indication for induction, induction delivery interval, birthweight, Neonatal outcome and management of third stage of labour were comparable between the two groups.

The mean age of the participants was  $22.84 \pm 2.78$  years in without oxytocin group and  $23.1 \pm 2.84$  years in with oxytocin Foley's group. Both primi and multi gravida were included in our study, but no statistical significant difference between both groups.

Most participants in both groups were of term gestation, no significant difference between both groups. Mean birthweight of babies delivered in without oxytocin group was  $2.7 \pm 0.4$  kg and in with oxytocin group was  $2.9 \pm 0.32$  kg. In both groups third stage was managed by the standard active management (AMTSL).

In our study, it was found that blood loss was significantly higher in without oxytocin group than after Foley's with oxytocin induction.

In our study, no correlation between postpartum blood loss with initial Bishop scores and with induction delivery interval was found in without oxytocin group. However, there was a mild positive correlation between postpartum blood loss and initial Bishop scores and induction delivery interval in Foley's with oxytocin group.

Excessive blood loss in foley's without oxytocin group could be explained by possibility of obviation of adequate expression of regulatory molecules required for effective control of blood loss after placental delivery. Furthermore, without oxytocin by causing excessive cervical and lower segment collagenolysis<sup>5</sup> can result in excessive fragility of those tissues interfering with retraction needed for arresting blood loss.

Although the pre-induction Bishop score was lesser in Foley's with oxytocin group ( $2.98 \pm 0.47$  vs  $2.8 \pm 0.56$ , the

difference being statistically significant), it was still associated with shorter induction to delivery time as compared to without oxytocin ( $25.8 \pm 6.1$  hours vs  $23.71 \pm 6.12$  hours, statistically insignificant). This could be explained by usage of two agents in former group with Foley's catheter causing local action and successive use of incremental oxytocin to stimulate uterine contractions adequate enough to have a faster delivery as compared to later group.

The most common mode of delivery in majority of cases in both our study groups was vaginal with 54% in without oxytocin group and 58% in Foley's with oxytocin group. Incidence of vaginal deliveries aided with instruments were equal in both groups (18% vs 18%) whereas more cases of failed induction opting for caesarean sections happened in without oxytocin group 28% and 24% in foley's with oxytocin group. The difference between the groups were not statistically significant ( $p = 0.893$ ).

Higher incidence of meconium stained liquor, fetal distress and NICU admissions were seen in without oxytocin group as compared to Foley's with oxytocin in the undertaken study. Regarding maternal complications PPH 5 cases in without oxytocin group comparatively only one case PPH are seen with oxytocin group, but not statistically significant.

## 5. Conclusion

- Induction with Foley's catheter with sequential use of oxytocin, when compared to without oxytocin is more effective for labour induction.
- It was associated with lesser postpartum blood loss, shorter induction- delivery interval, mean induction delivery interval (25.8 hours in foley's without oxytocin v/s 23.7 hours in foley's with oxytocin) and better neonatal outcome.
- A risk to benefit ratio analysis is required before taking up of any case for induction of labour.
- Induction of labour is indicated only in cases where benefits to either mother or her fetus outweigh than continuation of pregnancy.

Both the modes of induction require close observation during course of labour due to documented adverse effects. But in our study no maternal complications were noted. Only PPH seen in 5 cases without oxytocin comparatively higher than with oxytocin group only one case, but not statistically significant.

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