ORIGINAL RESEARCH

Comparision Of In tracervical Foley' S Catheter Versus Vaginal I Sosorbide Mononitrate For Induction Of Labor In Pregnancy With Previous One Caesarean Section

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ABSTRACT

Background: Due to increased risk of uterine rupture with prostaglandins in previous cesarean patients, its use has been discouraged as ripening agent in previous cesarean patients. To compare efficacy ,safety and acceptability of intracervical foley's catheter versus vaginal isosorbide mononitrate for induction of labor in women with previous one LSCS with an unfavourable cervix at term. **Methods:** A prospective clinical trial including 40 term pregnant women who were assigned randomly to receive either intracervical Foley catheter or moistened one tablet of IMN 40 mg vaginally was carried out. Induction to delivery interval and outcomes of labor, adverse effects and acceptability were assessed. **Results:** Four patients in foleys group and 5 patients in IMN group had prior vaginal delivery. Interpregnancy interval was more than 24 months in 75% of patients of both groups. IUFD was commonest indication for induction in both group followed by oligohydamnios. There was a significant improvement in the bishop score after 12 hr in both groups. Shorter induction to delivery interval was noted in the catheter group (22.2±4.99hr) compared to the IMN group (26.1±3.98 hr), with significant number of women delivered within 24hr in catheter group. There was significant number of patients who required oxytocin augmentation after AROM in IMN group (16 , 80%) in comparison to catheter group (10, 50%). Mode of delivery and rate of failed induction were not significantly different between two groups. Major maternal complication were not significantly different between two groups. There was a significant headache in IMN group (5,25%) in comparison to catheter group. There was significant maternal pyrexia in catheter group (6, 30%) when compared to IMN group. The neonatal outcome was not significantly different between two groups. **Conclusion:** Intracervical Foley catheter is effective, safe and acceptable for labor induction in women with previous one lower segment caesarean section at term when compared to vaginal IMN but, with more maternal pyrexia.

Keywords: Foley catheter; Isosorbid mononitrate; Labor induction; Caesarean section

INTRODUCTION

It is well documented that the risks of caesarean section for women increase with increasing numbers of caesarean deliveries. These include potentially life-threatening complications including hemorrhage, surgical complications and placenta accrete.[1,2]

The induction of labor (IOL) is common in the obstetric practice and it is aimed to deliver a healthy baby and to maintain the health of the mother. In the absence of a ripe or a favorable cervix, a successful vaginal birth is less likely. The cervix is considered to be unfavorable if the Bishop's score is less than 6 and if the cervical ripening is indicated prior to the artificial rupture of the membranes (AROM) and the production of oxytocin, to reduce the incidence of a failed induction and a caesarean delivery.[3,4] The purpose of cervical ripening and induction of labor is to achieve vaginal delivery and to avoid repeat cs. With rising caesarean rates in India, repeat caesarean section with corresponding maternal and neonatal morbidity are increasing as well. Fear of complications of induction of labor in pregnancy with previous caesarean leading to increased rates of ERCS. There are limited choices of induction of labor in pregnancy with previous cs. An ideal cervical ripening agent should ripen cervix without

stimulating uterine activity in previous cesarean patients.[5] Intracervical foley's is mechanical method of induction; it has lower risk of uterine tachysystole, fetal distress and it is of low cost. Isosorbide mononitrate is a NO donor it induces COX2 leading to local production of pgs in cervix.

AIM & OBJECTIVES:

To compare efficacy, safety and acceptability of intracervical foley's catheter versus vaginal isosorbide mononitrate for induction of labor in women with previous one LSCS with an unfavourable cervix at term.

MATERIALS AND METHODS

This prospective randomised study was conducted from August 2022 to September 2023 at Nalanda medical college& hospital and it includes 40 pregnant women with previous one LSCS.

Inclusion criteria were singleton pregnancy, cephalic presentation, previous 1 LSCS, period of gestation more than 28 weeks, bishop score less than 6,

Exclusion criteria were interconceptional period <18 months, estimated fetal weight>4kg, PROM, Any other obstetric contraindications of vaginal delivery and IOL, classical cs or any other uterine operations.

Informed written consent taken after explaining all benefits and risk associated with IOL and VBAC.

Patients were randomly divided into 2 groups

Group 1 (foley' s group) – there were 20 pregnant women in whom intracervical foley catheter were inserted, inflated with 30 ml of normal saline and placed on traction. The catheter was either removed at 12 hr or expelled spontaneously.

Group 2(IMN group) – other 20 pregnant women received moistened one tablet of 40mg IMN inserted into posterior fornix of the vagina.

Patients were examined 4-6 hourly after starting the induction to evaluate change in bishop score. Regular monitoring of vitals were done at every 30 min. AROM was performed at cervical dilatation of 3-4 cm. If there is no efficient uterine contraction, oxytocin infusion started at 1mu/min with escalating dose as per need.

RESULTS

The maternal characteristics such as age, parity, POG, number of VD, interpregnancy interval were comparable in both groups. Majority of patients belonged to 24-29 yr of age. Majority are primiparas 80% and 75% in foleys and IMN groups respectively. Maximum number of patients was between 38 and 40 weeks. 4 patients in foleys group and 5 patients in IMN group had prior vaginal delivery. Interpregnancy interval was more than 24 months in 75% of patients of both groups.

Table 1: Indications of induction

Indications	Foleys group(%)	IMN group(%)	P value
IUFD	9(45%)	9(45%)	1
Oligohydra amnios	6 (30%)	5 (25%)	0.72
postdated	3 (15%)	4 (20%)	0.68
Pre eclampsia	2 (10%)	1 (5%)	0.55
GDM	1 (5%)	2 (10%)	0.55

Table 2: Outcomes of induction and labor dynamics

	Foleys group	IMN group	P value
Initial bishop score	3.90± 0.84	4.0±0.72	>0.05
Bishop score after 12 hr	5.95±0.87 P<0.001	6.00±0.7 P<0.001	>0.05
Augmentation			
AROM	10	4	
AROM and oxytocin	10	16	<0.05
Induction to delivery time	22.2±4.99	26.1±3.98	>0.05
Delivery within 24hr	16	9	
Failed induction	4	4	>0.05
Mode of delivery			
Spontaneous VD	10	9	
Operative VD	6	7	
Caesarean section	4	4	>0.05

Table 3: Maternal adverse effect

	Foley group(%)	IMN Group(%)	P value
Scar dehiscence	1 (5%)	1 (5%)	1.00
Meconium stained liquor	2 (10%)	3 (15%)	0.63
Abnormal FHR	1 (5%)	1 (5%)	1.00
PPH	3 (15%)	4 (20%)	0.68

Headache	0 (0%)	5 (25%)	0.01
Palpitation	0 (0%)	2 (!0%)	0.15
Nausea & vomiting	2 (10%)	3 (15%)	0.63
Puerperal pyrexia	6 (30%)	1 (5%)	0.03
Neonatal admission to NICU	2 (10%)	2 (10%)	1.00

IUFD was commonest indication for induction in both group followed by oligohydamnios.

There was a significant improvement in the bishop score after 12 hr in both groups. Shorter induction to delivery interval was noted in the catheter group (22.2±4.99hr) compared to the IMN group (26.1±3.98 hr), with significant number of women delivered within 24hr in catheter group. There was significant number of patients who required oxytocin augmentation after AROM in IMN group (16 , 80%) in comparison to catheter group (10, 50%). Mode of delivery and rate of failed induction were not significantly different between two groups. Major maternal complication were not significantly different between two groups. There was a significant headache in IMN group (5,25%) in comparison to catheter group. There was significant maternal pyrexia in catheter group (6, 30%) when compared to IMN group. The neonatal outcome was not significantly different between two groups.

DISCUSSION

IOL is one of the commonest obstetric interventions, occurring in approximately 25% of term pregnancies in developed countries. For women with an unfavorable cervix requiring IOL, cervical preparation is usually recommended by either prostaglandins or mechanical methods.

The use of intracervical Foley catheter reduces the risk of uterine hypertonicity and rupture in women with previous one caesarean section as the intracervical placement of the Foley catheter induces the cervical ripening without inducing any uterine contractions.[5-7]

Also, NO donors as IMN inhibit uterine contractions, and promote uterine blood flow. Thus, both methods appear to be ideal cervical ripening agents in women with previous one caesarean section.[6,7]

With the rising trend of repeat cesarean section, " Individualisation of case" is very necessary for pregnancy with previous cs.

In this study both the use of intracervical foley catheter and vaginal IMN tablets achieved cervical ripening, significant improvement of bishop score and successful vaginal delivery. VBAC with IOL was successful in 80% of patients. Shorter induction to delivery time was in foleys group.

IOL with foleys is associated with significant cases of puerperal pyrexia due to prolonged placement of catheter about 12 hr. which is managed with proper antibiotics.

Vaginal IMN use leads to significant increase in headache which is relieved with analgesics.

Cochrane review of mechanical method of IOL suggests that mechanical method have equivalent clinical effectiveness to prostaglandins with no difference in cs rates.[6]

Eddama et al[7] study showed that treatment with IMN helps in ripening of cervix as compared to placebo.

Dalui et al[8] reported mean time for spontaneous expulsion of foleys was 7.98 hr.

Ravasia et al[9] and Bujold et al[10] reported incidence of scar rupture of 0.8% and 1.6% respectively with foleys in previous section.

CONCLUSION

Previously given Cragin's dictum "once a cesarean, always a cesarean" is nowadays changed to "once a cesarean , always a hospital delivery".

This study concluded that intracervical foleys catheter is effective, safe and acceptable method for labor induction in women with previous one LSCS at term when compared to vaginal isosorbide mononitrate but with more maternal pyrexia.

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