INDUCTION OF LABOR IN POST DATED PREGNANCY WITH INTRA-CERVICAL FOLEY CATHETER IN ANTENATAL WARD OF B. P. KOIRALA INSTITUTE OF HEALTH SCIENCES DHARAN, NEPAL

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ABSTRACT

Introduction

Induction of labor is one of the commonest obstetric procedures done these days with the aim of normal vaginal delivery. Among the different methods, transcervical Foley catheter is one of them used with great success and less complications.

Objective

This study assesses the effect of intra-cervical Foley catheter in induction of labor in post dated pregnancy.

Methodology

This was a descriptive observational study**.** Patients admitted in antenatal ward of BP Koirala Institute of Health Sciences (BPKIHS) with period of gestation (POG) ≥ 41 weeks without any complications were taken. Patients were induced either with Foley catheter or directly with misoprostol. Patients induced with Foley catheter were included in the study. Sixteen French Gauge Foley catheter was inserted intracervically and bulb was inflated with 40-60 ml of distilled water and observed for 24 hours. If patient didn't go into labor after 24 hours with or without Foley expulsion, patient was reassessed and prostaglandin was used for further induction. Structured Pro forma was used for data collection and collected data was analyzed using SPSS software 11.5.

Results

During the study period 353 patients were induced with intracervical Foley catheter. Among them 97(27.48%) went to labor and 256 (72.52**%)** needed further prostaglandin. Among 97 patients who went to labor 80 had normal vaginal delivery, 16 underwent cesarean section and one patient had vacuum assisted vaginal delivery. There were nine patients who had delivered baby with meconium stained liquor. Four patients had postpartum hemorrhage and two patients had ntrapartum fever. None of the patients had hyper stimulation syndrome but one patient had still birth.

Conclusion

Intracervical Foley catheter is one of the options to induce the patient in postdatism for priming the cervix to increase the rate of normal vaginal delivery with less complications.

KEYWORDS

Hyper stimulation syndrome, induction, postdatism

INTRODUCTION

Induction of labor is the procedure done with mechanical or pharmaceutical agents with the aim of normal vaginal delivery. It is undertaken when benefits of delivery outweigh the risk of continuing pregnancy.Induction of labor when cervix is unripe is associated with maternal complications and high rates of induction failure, leading to Cesarean delivery.[1-4]

There are different indications for induction of labor. Postdatism is one of the commonest causes. Usually patients are admitted at 41 weeks period of gestation for induction of labor if there are no other risk factors. It may vary in different centers and countries. In our institute we admit the otherwise uncomplicated patients at 41 weeks period of gestation.

There are numerous techniques to ripen the unfavorable cervix and induction of labor.[5-7] It has been established that cervical ripening with extra amniotic catheter balloon possess advantage of simplicity, low cost, reversibility, lack of systemic side effects and efficiency similar or better than other methods.[8-10] Foleys catheter causes change in cervical dilatation through both direct mechanical dilatation and stretch induced release of endogenous prostaglandins.

Cochrane meta analysis also found that use of Foleys catheter for cervical ripening has better safety profile than prostaglandins with less tachysystole and fetal heart rate changes.[11] Although there has been concern about increased risk of infection associated with use of Foley catheter; this has not been demonstrated in randomized controlled trials.[12-15] Study in intra-cervical Foley catheter as inducing agent is lacking in Nepal. This study was designed to know the effect of Foley catheter for induction in postdated patients.

METHODOLOGY

This study was conducted in antenatal ward of BP Koirala Institute of Health Sciences (BPKIHS). It was a descriptive study. Ethical approval was taken from institutional review committee of BPKIHS before starting the study. Duration of the study was about six months. Women with period of gestation (POG) ≥ 41 weeks without exclusion criteria were recruited. All the patients with POG ≥ 41 weeks in BPKIHS were induced either with intracervical Foley or with vaginal misoprostol. This study included patients who were induced with intracervical Foley only. Exclusion criteria included those patients with hypertension, diabetes mellitus, leaking per vaginum, oligohydraminos and previous uterine surgeries. The participants were given written information about the study and for those who agreed to participate informed consent was obtained prior to inclusion into the study.

Bishop Score was assessed by resident doctor. If score < 6. Foleys catheter 16 FG was inserted intracervically with aseptic precautions and balloon inflated with 40-60 ml of distilled water. External end of catheter was fixed on thigh without traction. If Foley can't be inserted, the patient was excluded from the study. Foley catheter was removed after 24 hours if not expelled itself. If it expelled out it was not reinserted and observed for 24 hrs from Foley insertion. It was removed if woman requested to and not removed even if there was rupture of membranes. If patient went into labor she was shifted to labor room and managed accordingly. If patient had no labor after 24 hours, she was reassessed and misoprostol was inserted per vaginum. She was followed up until delivery if she went into labor. Maternal and fetal outcomes were noted.

The maternal outcomes were the mode of delivery, induction to delivery interval and complications like maternal infection and postpartum hemorrhage. Neonatal outcomes include meconiun stained liquor, Apgar score at five minutes and still birth. When there was more than one indication for caesarean section, the primary indication was categorized. For intrapartum infection any two of the following should be present; maternal fever (≥38 °C) during labor, fetal tachycardia (≥160 bpm), uterine tenderness, purulent amniotic fluid or vaginal discharge and total white cell count > 20,000/mm.[3] Antibiotics were prescribed for them.

The data were entered in MS excel and analyzed using SPSS version 11.5. Categorical variables were described using frequency distribution and percentages. Continuous variables were expressed by means and standard deviations.

RESULTS

Baseline characteristics of the patients are shown in table 1. The patients in the age group 20-29 were 76% and 10.4% were teen pregnancy. Four patients were underweight where as 57(16.1%) were overweight. Majority of the patient was nullipara (63.5%). Among them, 319 (90.3%) were induced at 41-42 weeks POG where as 34 (9.7%) were induced at or after 42 weeks. The mean age of the patient was 24 years.

Table 1: Baseline characteristics of the patients (n= 353)

Characterstics		Frequency	Percentage
Age: (in years)	<20	37	10.4
	20-29	268	76
	30-39	47	13.3
	≥40	01	0.3
BMI: kg/m²	<18.49	14	04
	18.5-24.9	281	79.6
	25-29.9	57	16.1
	≥30	01	0.3
Parity:	Nullipara	224	63.5
	Primipara	108	30.6
	Multipara	21	5.9
POG: 40+6/7-41+6/7 weeks		319	90.3
≥ 42 weeks		34	9.7

Table 2: Maternal outcome of Foley induction (n= 353)

Outcome	Frequency	Percentage
Normal vaginal delivery	80	22.6
Lower segment cesarean section	16	4.5
Vacuum assisted vaginal delivery	1	0.28
Failed Foley induction	256	72.5

Table 3: Indications for cesarean delivery (n=97)

Indication	Frequency	Percentage
Failure to progress in 1st stage of labor	09	15.7
Failure to progress in 2nd stage of labor	0	0
Non reassuring Non stress test	4	7
Meconium stained liquor	3	3

DISCUSSION

Induction of labor is one of the commonest procedures done in obstetrics. Many researches were done regarding the methods and medication for induction. Each method has its own risks and benefits. In Nepal conventionally most of the hospitals are practicing induction at 41 weeks of gestation for women with otherwise uncomplicated pregnancies. They are using either mechanical methods like Foley catheter or the prostaglandins. In this study we recruited 353 patients who have reached at least 41 weeks period of gestation.

This study shows the series of labor induction in postdated pregnancy with Foley catheter only and shows the efficacy in term of patients going to labor in 27.5% with normal vaginal delivery rate of 22.6% and induction to delivery interval of about 19.6 hours. Finding of this study in induction to delivery interval was in consistent with other studies.[16] Different studies have shown different success rate of Foley induction. Study done by Policiano C et al.[17] showed that success of vaginal delivery was about 71%. Most of the studies have higher success rate than our study. It may be due to sequential use of misoprostol after failed Foley. In that study, 53.2% needed misoprostol after failed Foley where as in our study 72.5% needed misoprostol. Various studies showed that induction with combination method of Foley with either oxytocin or prostaglandin had higher success rate of vaginal delivery than Foley alone.[14-16]

Our study had infection rate of about 2% which is similar to other studies.[17,18] Controversy exists about the infectious risk of Foley catheter urging new investigation.[19] A recent systematic review had suggested that Foley catheter is not associated with an increased risk of infectious morbidity.[20]

Meta analysis done by Ten eikelder Ml et al.[21] on induction of labor using Foley or misoprostol showed very few hyperstimulation syndrome and less cesarean deliveries for non reassuring NST in the Foley group which is comparable to our study.

Induction is one of the common procedures and failed induction is one of the commonest causes of cesarean section. The strength of this study is that our study took place at one institution that limits practice variation and more easily ensures compliance with the labor protocol and patients are chosen as postdates with no other complications making them more homogenous so outcome is not affected.

CONCLUSION

Women with postdatism can be induced with intra-cervical Foley catheter with few complications of both mother and fetus.

RECOMMENDATIONS

Foley catheter can be a safe alternative which is easy, cheap and with minimal risk for induction of labor. So it can be practiced in all the institute of Nepal. Future study should focus on validating in different population and not only in postdatism and should be large enough to evaluate maternal and neonatal outcomes. Future investigation about mechanical methods for induction should also focus on the possibility of outpatient priming of cervix with these methods.

LIMITATION OF THE STUDY

This is a descriptive study showing the effect of Foley catheter in postdated pregnancy. It doesn't include other indications for induction. So it couldn't be generalized to all the patients. Also this study doesn't involve all variety of patients that needs induction and involve only postdated patients.

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CONFLICT OF INTEREST

There is no conflict of interest

REFERENCES

1. Embrey MP, Mollison BG. The unfavourable cervix and induction of labor using a cervical balloon. J Obstet Gynaecol. 1967; 74: 44. PMID: 6018096.
2. Arulkumaran S, Gibb DMF, Lun KC. The effect of parity on uterine activity in labor. Br J Obstet Gynaecol.1984; 91: 843-9. PMID: 6477844.
3. Booth JH and Kurdizak VP. Elective induction of labor: a randomised controlled study. Can Med Assoc J. 1970; 103–245. PMID: 5433906.
4. Macdonald D. Surgical induction of labor. Am J Obstet Gynecol.1970; 107: 908. PMID: 5429019.
5. Trofatter KF. Cervical ripening. Clin Obstet Gynecol. 1992; 35(2): 476–485. PMID: 1521377.

6. O'Brien WF. Cervical ripening and labor induction: Progress and challenges. Clin Obstet Gynecol. 1995; 38: 221. PMID: 7554589.
7. Better Outcomes Registry & Network (BORN) Ontario. Perinatal Health Report. 2009–2010.
8. Delee JB. Preparatory obstetric operations: The Principle and Practice of Obstetrics. Fifth Edition. Philadelphia: WB Saunders, 1992, 966.
9. Ezimokhai M, Nwabineli JN. The use of Foley catheter in ripening the unfavourable cervix before induction of labor. Br J Obstet Gynaecol. 1980; 87: 281. PMID: 7426497.
10. Thomas IL, Chenoweth JN, Tronc GN. Preparation for induction of the unfavourable cervix with Foley catheter compared with vaginal prostaglandin. Aust NZ J Obstet Gynaecol. 1986; 26: 30. PMID:3524549.
11. Jozwiak M, Bloemenkamp KWM, Kelly AJ. Mechanical methods for induction of labor. Cochrane Database, Syst Rev. 2012; 3: CD 003. DOI:10.1002/14651858.CD001233.
12. Heinemann J, Gillen G, Sanchez-Ramos L . Do mechanical methods of cervical ripening increase infectious morbidity? A systematic review. Am J Obstet Gynecol. 2008; 199 (2):177–88. DOI:10.1016/j.ajog.2008.05.005.
13. Jozwiak M, Oude Rengerink K, Benthem M. Foley catheter versus vaginal prostaglandin E2 gel for induction of labour at term (PROBAAT trial): an open-label, randomised controlled trial. Lancet. 2011; 378: 2095–103. DOI:10.1016/S0140-6736(11)61484-0.
14. Pennell CE, Henderson JJ and O'Neill MJ. Induction of labour in nulliparous women with an unfavourable cervix: a randomised controlled trial comparing double and single balloon catheters and PGE2 gel. BJOG. 2009; 116: 1443–52. DOI:10.1111/j.1471-0528.2009.02279.
15. Prager M, Eneroth-Grimfors E, Edlund M. A randomised controlled trial of intravaginal dinoprostone, intravaginal misoprostol and transcervical balloon catheter for labour induction. BJOG. 2008; 115 (11):1443–50. DOI:10.1111/j.1471-0528.2008.01843.
16. Levine D, Katheryne L, Elovitz A, Parry S, Sammel D and Sindhu K. Mechanical and Pharmacologic Methods of Labor Induction: A Randomized Controlled trial. Obstet Gynecol. 2016; 128(6): 1357–1364. PMID:27824758.
17. Policiano C , Mariana P , Martins D , Nuno C. Foley catheter for cervix priming. Acta Med Port 2017;30 (4):281-284. DOI: 10. 20344 /amp.8003 .
18. Heidi Kruit, Oskari Heikinheimo, Veli-Matti Ulander of Foley catheter induction among nulliparous women: a retrospective study. BMC Pregnancy Childbirth.2015; 15: 276. DOI: 10.1186/s12884-015-0715-9.
19. Jonsson M, Hellgren C, Wiberg-Itzel E, Akerud H. Assessment of pain in women randomly allocated to speculum or digital insertion of the Foley catheter for induction of labor. Acta Obstet Gynecol Scand. 2011; 90: 997-1004. DOI:10.1111/j.1600-0412.2011. 01197.
20. McMaster K, Sanchez-Ramos L, Kaunitz AM. Evaluation of a transcervical Foley catheter as a source of infection: a systematic review and meta-analysis. Obstet Gynecol. 2015; 126: 539-51. PMID: 26244535.
21. Ten Eikelder ML, Mast K, vander Velden A, Bloemenkamp KW, Mol BW. Induction of Labor Using a Foley Catheter or Misoprostol: A Systematic Review and Meta-analysis. Obstet Gynecol Surv. 2016; 71(10): 620-630. PMID: 27770132.