



Original Article

Effect of Combined Medical and Surgical Induction of Labour in Term Pregnancy at Rajshahi Medical College Hospital

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Abstract

This prospective clinical study was conducted in the Department of Obstetrics & Gynaecology in Rajshahi Medical College Hospital from January to December 2007. A total sample of about 100 selected primigravid women were divided into two groups. Group-I was given medical induction by misoprostol orally and Group-II by oral misoprostol followed by artificial rupture of membrane (ARM) for induction of labour. This study specifically evaluated the effect of oral misoprostol and the combined medical & surgical method, on unripe cervix of primigravid women with term pregnancies and has shown that combined method can successfully initiate labour and also lower the rate of caesarean section and significantly lowering the induction delivery time.

Keywords: Medical & surgical labour induction

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Introduction

Pregnancy is the maternal condition of having a developing fetus in the body. Induction of labour is an obstetric procedure, which is designed to deliberate termination of pregnancy beyond 28 weeks (period of viability) by any method which aims at initiation of labour and a vaginal delivery.¹ When both the fetal and maternal conditions are satisfactory, pregnancy is allowed to continue and spontaneous labour usually occurs at or near term. The necessity of induction of labour may arise in condition where mother or fetus or both are in danger, if pregnancy is allowed to continue. The choice between caesarian section and induction of labour depends on maternal condition, fetal condition, period of gestation, cervical ripening and dimension of bony pelvis.

The success of induction depends to a large extent on the consistency; compliance and configuration of the uterine cervix.⁵ Approximately in 10% of all pregnancies, woman had an unfavorable cervix and required induced labour.⁹

Induction of labour performed, when the cervix is unripe is associated with higher than normal incidence of failure of an induction, prolong labour, instrumental delivery and caesarian section. The aim is to achieve a vaginal delivery of a neonate intact both physically and mentally by a mother who is left without damage either physical or emotional and avoid unnecessary caesarian section in developing country like Bangladesh, where vaginal delivery is economical compared to caesarian section.

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A variety of clinical practices are used in different centers for management of induction of labour. In 1970 when more reliable methods become available, labour induction rates rose about 50% in specialized center.² In a report published in 1993 by Jarvelin et al shows, induction of labor is an integral part of modern obstetric practice and should be simple, safe, effective and preferably non-invasive.³

In medical induction commonly used drugs are prostaglandin, oxytocin etc. So to induce cervical ripening and labour the use of prostaglandin is justified to foreshorten the normal physiological process using physiological substance in physiological amounts.⁶

Effectiveness of surgical induction (ARM) depends on state of the cervix, station of the presenting part.⁸ The combined medical and surgical methods are commonly used to increase the efficacy of induction by reducing the induction delivery interval.

Materials and Methods

A prospective type of clinical study was conducted in the Department of Obstetrics & Gynaecology in Rajshahi Medical College Hospital, Rajshahi, from January to December 2007. A thorough general, perabdominal, pervaginal examination with special attention to Bishop's scoring was done. Then a cardiotochography was done to further assess the fetal condition & to find out the suitability of cases for induction of labour.

A total sample of about 100 selected primigravid women were divided into two groups. Group-I was given medical induction by misoprostol orally and Group-II by oral misoprostol followed by artificial rupture of membrane (ARM) for induction of labour. In all the 50 patients of Group-I, orally misoprostol was administered 50 µgm every 4 hours. If the labour progress was satisfactory then maximum 4 doses were given.

In Group-II formal assessment of cervix was performed. Then on the decided day of induction, misoprostol was administered 50 µgm orally in every 4 hours to a maximum of 4 doses. Cervical score reassessed after 4 hours. Artificial rupture of

membrane (ARM) was done when the cervix was effaced and dilate ≥ 2 cm and Bishop's score ≥ 6 . In both groups modified Bishop's score was assessed by giving a score of 0-3 points based on position, length, dilatation and consistency of the cervix and station of the fetal head. Fetal heart rate and uterine activities were monitored for half an hour by cardiotochography. General condition of mother, fetal condition, progress of labour was recorded on the partograph.

Results

In this study, maternal age was 18-32 years and mean age was 30 years. The gestational age was 37- 42 weeks and mean age was 40 weeks+ 4 days. Most of the patients were induced due to postdated pregnancy (66%) and 24% were induced due to preeclampsia.

In this study 68 patients with modified Bishops Score 4 to 5, response to trail is 100%, 26 patients with Score 3 to 4, response is 69% and 6 patients with modified Bishops Score ≤ 3 & response to trail is 50%.

After oral administration of misoprostol it was seen that labour was initiated in all patients. 3 (6%) patients needed 1dose, 20 (40%) patients 2 doses, 25 (50%) patients 3 doses and only 2 (4%) patients needed 4th doses of misoprostol for delivery. Out of 50 cases after Misoprostol application, 34 (68%) delivered vaginally and 16 (32%) needs caesarean section.

The total Induction delivery interval was 7-14 hours. 22 (65%) patients among 34, time interval between induction and delivery is 9 to 12 hours. Average time was 11 hours.

Out of 50 case after combined induction of labour, 43 (86%) delivered vaginally and only 7 (14%) needed caesarean section. Out of 50 case after combined induction, 43(86%) delivered vaginally and only 7 (14%) needed caesarean section.

The total Induction delivery interval was 7-11 hours. 31 (72%) patients among 43, time interval between induction and delivery were 8 to 10 hours. Average time was 9 hours.

The total 23 (23%) patients in 100 cases were needed caesarean section. Among 23, prolonged first stage was in 12 (52%), Foetal distress 8 (35%) and maternal exhaustion & distress (Nausea, Vomiting) was 3 (13%) patients.

Table I: Comparison of labour & perinatal outcomes between two groups:

	Group-I (Medical induction)	Group-II (Combined induction)	P value between two groups
Induction delivery interval (hours)	11 hours	9 hours	p <0.05
Mode of delivery			
◆ Vaginal delivery	34(68%)	43(86%)	p <0.05
◆ Caesarian section	16 (32%)	7(14%)	p <0.05
Perinatal outcomes			
◆ Alive Baby	48(94%)	49(98%)	p >0.05 ns
◆ Neonatal death	1(2%)	1(2%)	p >0.05 ns
◆ Still born	1(2%)	-	p >0.05 ns

In group-I the number of alive baby was 48 (94%), Neonatal death was 1 (2%) due to severe pre-eclampsia and still born was due to intrapartum fetal distress. In group-II the number of alive baby was 49 (98%) and Neonatal death was 1 (2%) due to severe pre eclampsia.

Table II: Comparison of maternal complications between two groups:

Points	Group-I		Group-II	
	n	%	n	%
No complication	40	80%	41	82%
PPH (Mild)	5	10%	5	10%
Hyperstimulation	1	2%	1	2%
Fever, Nausea, Vomiting	4	8%	3	6%

There are no major maternal complications in this study. In Group-I, no complication was in 40 (80%), PPH (Mild) in 5 (10%), hyperstimulation in 1 (2%) and fever, nausea, vomiting was in 4 (8%) patients. In Group-II, no complication was in 41 (82%), PPH (Mild) in 5 (10%), hyperstimulation in 1 (2%) and fever, nausea, vomiting was in 3 (6%) patients. The difference of maternal complication between two groups is not significant. (p > 0.05 not significant)

Discussion

The caesarean section rate was lower in the oral misoprostol induction and it was only 16.7%.¹² Windrim et al (1997) showed that, the mean time to vaginal birth with oral misoprostol was 926 +/- 521 minutes (15-16 hours).¹⁷

Rasheed R et al showed that, the mean induction to delivery interval in oral misoprostol was 20.6

hrs.¹⁸ The mean induction delivery time was 8.7 hours.¹² Amniotomy was associated with a reduction in labour duration of between 60 and 120 minutes.⁹ 93.3% of the patients were in spontaneous labour within 24 hours of the prelabour artificial rupture of membranes followed by oral misoprostol.¹¹

This study shows-In group-I of medical induction, the effect of oral misoprostol, initiation of labour was 100%, but failure rate was 32%. The incidence of normal vaginal delivery was 68%, caesarian section was 32%. The mean value of induction delivery time/interval is 11 hrs (range 7-14 hrs) in misoprostol group.

In group-II, initiation of labour was 100% but failure to vaginal delivery occurred only in 14% of cases. Normal vaginal delivery was 86%, caesarian section was 14%. The interval between induction of labour and time of delivery was also significantly shorter in combination of two methods, in comparison to individual method. Mean induction delivery interval/time shortest and is about 9 hrs (range 7-11 hrs) in combined method.

In this study, there was no absolute failure of induction and labour was initiated in 100% cases. There were no clinically or statistically significant differences between groups in maternal secondary outcome measures (PPH, hyperstimulation, fever, nausea or vomiting) were found. The study shows no significant possibility of uncommon serious adverse effects. There was no difference in frequency of maternal gastrointestinal side effects.

Conclusion

The combined medical & surgical method of induction of labour in primigravid women with term pregnancies can successfully initiates the labour and lowers the rate of caesarean section and significantly lowering the induction delivery time.

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