International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2020; 4(4): 191-194
Received: 02-05-2020
Accepted: 06-06-2020

Dr. Deepika Jhuriya
Resident Doctor, Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer, Rajasthan, India

Dr. Kanti Yadav
Senior Professor and Unit Head, Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer, Rajasthan, India

Dr. Meenakshi Samariya
Associate Professor, Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer, Rajasthan, India

Dr. Devendra
Assistant Professor, Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer, Rajasthan, India

Corresponding Author:
Dr. Deepika Jhuriya
Resident Doctor, Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer, Rajasthan, India

Comparative study of induction in primigravida with prom and those with intact membrane at term

Dr. Deepika Jhuriya, Dr. Kanti Yadav, Dr. Meenakshi Samariya and Dr. Devendra

DOI: https://doi.org/10.33545/gynae.2020.v4.i4d.641

Abstract
Introduction: Induction of labour is the most common procedures in obstetrics. An elective induction is defined as the direct initiation of labour without a medical or obstetrical reason. Women at term generally present with more favourable cervix. Elective induction at term does not seem to pose an increased risk to the women and to her foetus in carefully selected populations.
Material and Methods: Total 200 primigravida cases were studied, were divided into 2 groups, 100 with prelabour rupture of membranes and 100 with intact membrane. elective induction with dinoprostone gel instillation pervaginally/intracervically was done in both the groups with unfavourable cervix and comparative study was done in terms of - Mode of delivery, Induction delivery interval, Caesarean section rate and failure of induction, Maternal complications and neonatal outcome.
Results: Mean gestational age in group A was 38.37 weeks while in group B was 38.5 weeks. Mean induction delivery interval in group A was 8.61 hours and in group B was 8.71 hours. In group A 52% women had vaginal delivery while 48% women delivered by caesarean section. In group B with intact membranes 72% women delivered by vaginal route while 28% women delivered by LSCS. C-section rate was more in PROM group. Incidence of maternal complications in both the groups differed slightly. In present study APGAR score at 5 min of majority of newborn was more than 8.
Conclusion: In conclusion labour induction for PROM at term in nulliparous women with an unfavourable cervix is associated with longer duration of second stage of labour and a higher risk of caesarean delivery for failure to progress in comparison with intact membrane group.

Keywords: Induction of labour, intact membrane, cervix, Elective induction

1. Introduction
Induction of labour is the most common procedures in obstetrics. An elective induction is defined as the direct initiation of labour without a medical or obstetrical reason. Women at term generally present with more favourable cervix. Elective induction at term does not seem to pose an increased risk to the women and to her foetus in carefully selected populations. This study was undertaken to determine how labour progression of term women presented with intact membrane differed from those who presented with PROM.
PROM: spontaneous rupture of membranes before the onset of labour is called premature/prelabour rupture of the membranes. When it occurs beyond 37th week but before the onset of labour it is called as term PROM and when it occurs before 37 completed weeks, it is called preterm PROM.
Rupture of membranes for >24 hours before delivery is called prolonged rupture of membranes.
Incidence: it occurs in approximately 10% of the all pregnancies and in 70% of the cases it occurs in pregnancies at term.
Analysis by Hannah and co-workers (2000) indicated higher rates of adverse outcomes when expectant management at home was compared with in hospital observation. Mozurkewich and associates (2009) reported lower rates of chorioamnionitis, metritis and neonatal intensive care unit admissions for women with term ruptured membranes whose labours were induced compared with those managed expectantly.

2. Aim and Objectives
The aim of this study is to compare the results of induction of labour in primigravida at term those with PROM and those with intact membranes in terms of:

1. Mode of delivery,
2. Induction delivery interval
3. Caesarean section rate and failure ofinduction,
4. Maternal complications and neonatal outcome.

3. Material and Methods

This prospective study was conducted in the department of obstetrics and gynaecology of JLN medical college & associated groups of hospitals Ajmer. Total 200 primigravida cases (100 who presented with intact membrane and 100 with PROM with unripe cervix) that needed induction of labour and who are willing to participate in this study during period of April 2018 to October 2019 was studied.

A random selection of cases was done irrespective of their age after satisfied inclusion and exclusion criteria. Inclusion criteria: Primigravida, Term pregnancy, Singleton pregnancy, Cephalic presentation, Reactive NST, In PROM cases, liquor clear, Bishop's score<6. Exclusion criteria: Major degree of cephalopelvic disproportion, Multiple pregnancies, Previous caesarean section or major uterine surgery eg. Myomectomy, tumor resection, Malpresentation Patient having sensitivity to PGs.

- A detailed history of all the patients was taken regarding name, age, residential area, C/O, O/H, Menstrual history, personal history, family history.
- Thereafter general physical examination, systemic examination was done to rule out any medical problem.
- Par abdominal examination was done to note the presentation, engagement, FHS localization and uterine contractions.
- Per speculum examination was done to confirm leaking P/V
- Per vaginal examination was performed to assess the physical characteristics of the cervix by Bishop's scoring system, and to exclude occult cord prolapse in patients at term with PROM. I have used this system in my study as it is simple and numerical method, which makes comparison easy and reliable.
- Counselling of women and her relative about indication of induction, methods used for induction, benefits and risks of induction was done with informed consent.
- Method of induction used here was dinoprostone gel instillation p/v or intracervical.

The patients were reassessed 6 hours after the initial insertion of PGE2.

4. Results

Table 1: Characteristics PROM with intact membrane

Characteristics	PROM (n=100)	with intact membrane (n=100)	P Value
Age	25.12 ± 3.42	24.03 ± 3.53	0.22
G. Age	38.37 ± 0.86	38.5 ± 0.90	0.3
cervical dilatation (in cm)	2.04 ± 0.72	1.84 ± 0.42	0.23
cervical length (cm)	3.46 ± 0.50	3.36 ± 0.48	0.15
Bishop score	4.64 ± 0.48	4.68 ± 0.46	0.55
Induction Delivery Interval (hours)	8.61 ± 3.04	8.71 ± 3.33	0.85
Foetal weight	2.98 ± 0.29	2.92 ± 0.28	0.12

Table 2: Characteristics groups PROM

Characteristics		Groups				P value
		PROM		with intact membrane		
		N	%	N	%	
Induction Delivery Interval (hours)	<5	12	12	16	16	0.65
	5-10	56	56	56	56	
	>10	32	32	28	28	
Mode of delivery	LSCS	48	48	28	28	0.001 (S)
	Vaginal	52	52	72	72	
Indication for LSCS	Vaginal	52	52	72	72	0.001 (S)
	NPOL	20	20	12	12	
	Fetal distress	28	28	16	16	
Maternal Complication	No complication	59	59	69	69	0.58
	Shivering	10	10	11	11	
	tachysystole	5	5	4	4	
	Foetal bradycardia	4	4	3	3	
	Temp	10	10	2	2	
	Vomiting	10	10	11	11	
	PPH	2	2	0	0	
APGAR score at 1 min	<7/10	20	20	5	5	0.001 (S)
	>7/10	80	80	95	95	
APGAR score at 5 min	7/10	8	8	4	4	0.48
	8/10	64	64	68	68	
	9/10	28	28	28	28	
foetal weight	2-3 (kg)	72	72	72	72	--
	3-4 (kg)	28	28	28	28	

5. Discussion

This study was restricted only to the patients who were admitted to labour room and casualty in the department of the obstetrics and gynaecology, Rajkiya Mahila Chikitsalya, J.L.N. medical college Ajmer who fulfilled the previously mentioned inclusion criteria for the present study. The study is compared with other

authors who have done the same procedure as case control study.

In the present study 200 patients who were admitted to labour rooms were selected who fulfilled inclusion and exclusion criteria. Out of them 100 belonged to group A primigravida patients at term with PROM and 100 cases were primigravida patients at term with intact membranes, (both with unripe cervix) and comparative study was done after elective induction of labour. Patients with a bishop score of ≤6, underwent cervical ripening with prostaglandins under the coverage of antibiotics.

Results of the study are discussed under following headings:

5.1 Mode of delivery

In present study of 200 cases, in group A 100 cases of PROM were induced. 52% patients had vaginal delivery and 48% patients had caesarean delivery.

In group B 100 patients with intact membrane were induced, among them 72% patients had normal vaginal delivery and 28% patients had caesarean delivery.

The results of our study clearly indicate that labour induction for PROM at term in nulliparous women with an unfavourable cervix is associated with longer duration of the second stage and a higher risk of caesarean delivery for failure to progress and foetal distress than with intact membranes.

PROM and foetal macrosomia are independent risk factor of caesarean delivery for failure to progress, after controlling for known foetal and maternal factors. Similar results have been documented in population based studies in the setting of failure to progress in labour [1, 2].

5.2 Induction delivery interval: In group A of 100 cases, 12% patients delivered within 5 hours after induction of labour, 56% patients delivered within 5 to 10 hours of induction, 32% patients took ≥10 hours to deliver.

In group B of 100 cases with intact membrane, 16% patients delivered within 5 hours of induction, 56% patients delivered within 5 to 10 hours, 28% patients delivered in ≥10 hours of induction.

Mean induction delivery interval in group A was 8.61 hours while in group B was 8.71 hours.

Mean induction delivery interval was same in both the groups.

Mean duration of second stage, but not the mean duration of active phase, is significantly prolonged in women with PROM at term than those with intact membranes when labour is induced. This is in keeping with the observation of Feinstein *et al.* who demonstrated that PROM at term was an independent risk factor for arrest of descent in the second stage of labour [2]. The mechanism responsible for the higher risk of protraction or arrest during the second stage of labour in women with PROM at term is unknown, but may result from hypocontractility of the myometrium and increased friction between vaginal mucosa and foetal head caused by inflammatory process.

The following evidences support this speculation. First, more than a third of patients with PROM at term have positive amniotic fluid cultures and are at increased risk for chorioamnionitis [3]. Moreover, this risk increases with increasing number of digital vaginal examinations [4]. Second, the patients with intra-amniotic infection have an increased incidence of abnormal labour compared with uninfected patients [5, 6]. Third, bacterial isolates reduced or abolished spontaneous motility of human myometrial strips *in vitro* [7]. Fourth, an acute inflammation of the mucosa and cutaneous tissues, characterized by oedema, or swelling, may amplify vaginal-constrictor response by increasing mucosal and submucosal thickness and altering mechanical properties of vaginal wall compartment, and create an additional inward force because of surface tension [8]. Although the length of second stage was longer in women who had PROM at term, it still was within a normal range for nulliparous women.

5.3 Caesarean section rate: Caesarean section rate in group A with PROM cases was 48%, 20 cases of LSCS were done for non progression of labour, 26 cases of LSCS were done for foetal distress. Caesarean section rate in group B with intact membrane cases was 28%. 12 cases of LSCS were done for non progression of labour, 16 cases of LSCS were done for foetal distress.

Thus c-section rate was higher in group A of PROM cases. Finding that PROM at term is an independent risk factor for caesarean delivery for failure to progress after adjustment in multivariate analysis is in agreement with the results of Ben-Haroush *et al*. and Sheiner *et al*. [1, 9] In contrast, our finding that labour induction for PROM at term is associated with a higher risk of caesarean delivery for failure to progress in comparison with that of intact membranes differs from that of Ben Haroush *et al*. who reported no additional risk. Two possible explanations for this apparent discrepancy can be invoked. First, only nulliparous women in whom the cervix was unfavourable were included in this study because parity and cervical status at the time of admission were known to provide significant independent prediction of all caesarean sections and caesarean sections for failure to progress in women undergoing induction of labor [10, 11]. On the contrary, in the study of Ben-Haroush *et al*. the prevalence of nulliparous women was significantly higher in PROM group than that in elective induction group (58% [128/220] in PROM group and 45% [52/115] in elective induction group, $P< 0.05$) and the difference in the prevalence of an unfavourable cervix between these two groups was not clearly described. In our study prophylactic antibiotic was given. In the study of Ben-Haroush *et al*. prophylactic intravenous ampicillin was routinely given to all women with PROM after 18– 24 h of observation. It seems that prophylactic antibiotics used in PROM may cure cases of early intraamniotic infection and prevent clinical chorioamnionitis [12, 13]. Intraamniotic infection has been shown to be a significant risk factor for poor progress in labor [5, 6].

5.4 Maternal complications: In this present study in group A of PROM 10% cases reported shivering, 5% were with tachysystole, 4% cases developed foetal bradycardia. In group B with intact membrane also reported 11 cases with shivering, 4% with tachysystole, 3% with foetal bradycardia.10% of cases in group A with PROM had fever while in group B with intact membrane only 2% cases had fever. 2% of cases in group A developed PPH while in group B non of the cases developed PPH. There was no case of rupture uterus and maternal mortality in our study.

5.5 Comparison of Neonatal outcome: In the present study APGAR score at 1 min shows: In group A with PROM 20% babies had APGAR score≤7/10, 80% babies had APGAR score≥7/10 at 1 min.

In group B with intact membrane cases only 5% babies had APGAR score≤7/10, and 95% babies had APGAR score≥7/10 at 1 min.

P value (0.001) is significant which shows babies delivered in group A with PROM had low APGAR score at 1 min than group B with intact membrane. APGAR score at 5 min was same in

both the groups. 94% babies had APGAR score≥8/10 at 5 min. There was no neonatal death in present study.

6. Conclusions

Comparative study of induction of labour in primigravida at term gestation those with PROM cases and those with intact membranes with unripe cervix. This is safe and efficacious method at full term gestation in order to prevent the complications of post term pregnancy. Chances of vaginal birth was more in intact membrane group than PROM group. Caesarean section rate was more in PROM group than in intact membrane group and in majority of cases indication for LSCS was non progression of labour. Mean induction delivery interval was same in both the groups with long second stage in PROM group. Those with PROM cases have more chances of PPH and clinical chorioamnionitis. Overall neonatal outcome was same in both the groups. In conclusion, labour induction for PROM at term in nulliparous women with an unfavourable cervix is associated with longer duration of second stage of labour and a higher risk of caesarean delivery for failure to progress in comparison with intact membrane group.

7. References

1. Sheiner E, Levy A, Feinstein U, Hallak M, Mazor M. Risk factors and outcome of failure to progress during the first stage of labor: A population-based study. Acta Obstet Gynecol Scand. 2002; 81:222–226.
2. Feinstein U, Sheiner E, Levy A, Hallak M, Mazor M. Risk factors for arrest of descent during the second stage of labor. Int J Gynaecol Obstet. 2002; 77:7–14.
3. Romero R, Mazor M, Morrotti R *et al*. Infection and labor. VII. Microbial invasion of the amniotic cavity in spontaneous rupture of membranes at term. Am J Obstet Gynecol. 1992; 166:129–133.
4. Seaward PG, Hannah ME, Myhr TL *et al*. International multicenter term PROM study: Evaluation of predictors of neonatal infection in infants born to patients with premature rupture of membranes at term. Premature rupture of the membranes. Am J Obstet Gynecol1. 998; 179:635–639.
5. Friedman EA. Obstetric infection in labor. In: Charles D, Findland M (eds). Obstetric and Perinatal Infection. Philadelphia: Lea & febiger, 1973; 501–516.
6. Duff P, Sanders R, Gibbs RS. The course of labor in term patients with chorioamnionitis. Am J Obstet Gynecol. 1983; 147:391–395.
7. Leek BF, McDonald D, Vaughan J. The spontaneous motility of human myometrial strips *in vitro* and its modification by some bacterial extracts. J Physiol. 1982; 324:42–43.
8. Yager D, Kamm RD, Drazen JM. Airway wall liquid. Sources and role as an amplifier of bronchoconstriction. Chest. 1995; 107:105S–110S.
9. Ben-Haroush A, Yogev Y, Glickman H, Bar J, Kaplan B, Hod M. Mode of delivery in pregnancies with premature rupture of membranes at or before term following induction of labor with vaginal prostaglandin E2. Am J Perinatol. 2004; 21:263–268.
10. Rane SM, Guirgis RR, Higgins B, Nicolaides KH. Pre-induction sonographic measurement of cervical length in prolonged pregnancy: The effect of parity in the prediction of the need for Cesarean section. Ultrasound Obstet Gynecol. 2003; 22:45–48.
11. Xenakis EM, Piper JM, Conway DL, Langer O. Induction of labor in the nineties: Conquering the unfavorable cervix. Obstet Gynecol. 1997; 90:235–239.
12. Morales WJ, Angel JL, O'Brien WF, Knuppel RA. Use of ampicillin and corticosteroids in premature rupture of membranes: A randomized study. Obstet Gynecol. 1989; 73:721-726.
13. Newton ER. Chorioamnionitis and intraamniotic infection. Clin Obstet Gynecol. 1993; 36:795–808.