Immediate Induction of Labour Versus Expectant Management (Waiting for 24 Hours Before Induction) Forprelabour Rupture of Membranes at Term

Muna Kasim Mahmood[1], Batool Abdzaid Alsultany[2]

[1]Assistant Professor in Obstetrics and Gynecology Karbala University College of Medicine,
[2]F.I.B.O.G. Senior Obstetrics and Gynecology in Karbala Maternity Teaching Hospital

Abstract

Background: Prelabour rupture of membrane occur when membrane ruptured without contractions in term pregnancy.

Objectives: To assess the effects of expectant management versus induction of labour in term prelabour rupture of membranes on maternal and fetal wellbeing.

Method: This study is carried out in kerbala maternity hospital from October 2018 till December 2019. (139) patients with rupture of membrane at term in latent phase of first stage of labor. These patient were divided into 2 groups; first group (62 pregnant) which was expectant management for 24 hours and a second group (77 pregnant) which was managed by active induction of labour by using either oxytocin infusion or prostaglandienes depending on Bi-Shop score of the cervix.

Results: 139 pregnant 50 (35.97%) primigravida and 89(64.03%) had at least one previous vaginal delivery. Term with membrane rupture and no uterine contractions. 77(55.4%) start active management of labor with either prostaglandins or oxytocin depending on Bi-shop score of the cervix and 66 (44.6%) start conservative management. Caesarean section was carried out in 24 (17.3%) of the female mostly due to fetal distress and arrest of cervical dilatation. Vaginal delivery occur in 115 (82.7%) . The active management group (19.48%)delivered by caesarean section and (80.52%)delivered vaginally. While the group that managed conservatively (14.52%) delivered by caesarean section and (85.48%) delivered vaginally and the P- value between both groups are not significant (0.593).Regarding the duration of labour we found that expectant management had a mean duration of labour of about 8 hours which is shorter than the mean duration of labour of active management which is 10 hour, but the P-value is statistically not significant (0.440). There are no maternal complications in the two groups of pregnant female, but there is one intrapartum fetal death with active management plane but the difference was statistically not significant. (P-value 0.811).

Conclusion: Conservative or active management of labour are effective as a treatment for term prelabour rupture of membrane, but active management of labour need close monitoring and associate with more complications.

Keyword: *Prelabour rupture of membrane, expectant management of labour, active management of labour.*

Introduction

Prelabour rupture of membrane occurs in about 10% of all pregnancies, 80% of them occur in term pregnancies.(1) Rupture of membrane occur due to many causes such as over distended uterus (polyhydramnio, twin pregnancy or uterine fibroid), congenital uterine anomaly or cervical incompetence, inflammatory process due to cervicitis or amnionitis or due to smoking and nutritional deficiencies.(2) Complications of prelabour rupture of membrane include cord prolapsed, cord compression, placental abruption, maternal and neonatal infection and increase incidence of caesarean

section and operative vaginal delivery[2]. Pregnant women with term pregnancy and rupture of membrane without contractions had 2 main management options; conservative management in which we can wait for 24 -48 hr with the hope of starting spontaneous contractions and labor (mimic the spontaneous labor) which may cause chorioamnionitis, prolonged labor and active management in which we can initiate the contractions by using prostaglandins or oxytocin infusion to shorten the duration of labor and lower incidence of infection but increase the incidence of fetal distress and caesarean section. [3][4]Prostaglandin E1 analogue (Misoprostol) can be used for induction of labour as an oral tablet, sublingual, vaginal or rectal which can cause uterine contractions and cervical ripening and is a drug of choice for induction of labour because it is cheap, easily to be administer and no need special temperature for it is use.[5][6][7] The recommended dose of oral misoprostol for induction of labour between 50-100 microgram can be repeated every 4 hours.[8]

Materials and Method

139 pregnant female included in the study, who are attained Karbala maternity hospital from October 2018 till December 2019. All these women are in latent phase of first stage of labour (cervical dilatation ≤ 4 cm).Inclusion criteria; Single cephalic presented fetus, Term (37- 41 weeks) gestation and had spontaneous rupture of membrane without abdominal pain. Exclusion criteria; Previous caesarean section, Fetal macrosomia, Preterm pregnancy, Twin pregnancy, Signs and symptoms of chorioamnionitis, Signs and symptoms of fetal distress(decrease movement, abnormal Doppler, meconium stained liqur), Maternal medical disease (hypertension, diabetes.), Malpresented fetus, Women in active labour and any contra indications for induction of labour such as placenta praevia. History taken from these female and general abdominal examination(presentation, contraction, fetal heart rate). Pelvic examination confirmation of rupture of membrane and assessment of cervical dilatation was done. After that these female divided into 2 groups. First group was conservative management (for 24 to 48 hours) and the second group were actively management (induction of labor by prostaglandins or oxytocin depending on Bishop score of the cervix). Women are followed during the whole period of their hospital stay(duration of hospital stay, mode of delivery, route of delivery, maternal and neonatal complications), both groups receive prophylactic antibiotics (oral amoxicillin). Caesarean section was indicated for fetal distress, arrest of cervical dilatation or descend of fetus. After delivery neonates were monitored for early signs of infection or neonatal care unite admission and the females were monitored for any signs of endometritis or bleeding that necessitate blood transfusion.

Results

139 pregnant female were included in this study. 50 female (35.97%) were primigravida and 89(64.03%) had at least one previous vaginal delivery. They were term pregnancy between 37 weeks to 41 weeks (mean 39.37).Duration of membrane rupture prior to admission was between one to 24 hours prior to admission with average about 4.67 hours. All female was in latent phase with cervical dilatation of (1–4) centimeter with average 3 centimeter. 77 of these female (55.4%) start active management of labor with either prostaglandins or oxytocin depending on Bi-shop score of the cervix and 66 female (44.6%) start conservative management. Rupture of membrane to delivery time was calculated between 1 to 48 hours with mean of 9.34 hours. Caesarean section was carried out in 24 (17.3%) of the female mostly due to fetal distress and arrest of cervical dilatation. Vaginal delivery occur in 115 (82.7%) . No maternal complications were occur in both groups, But there is one intrapartum fetal death in the active management group. Mean hospital stay was about 12.19 hours (2-52 hours) as shown in table (1).

Table (1): Characteristics of female in the study

Parity	**Primigravida 50**	**35.97%**
	Previous delivery 89	**64.03%**
Weeks of gestation	(37-41)	Mean 39.37
Duration of membrane rupture (hr.)		Mean 4.67
Dilatation of the cervix (cm)	(1-4)	Mean 3
Management plane	Active 77	55.4%
	Expectant 62	44.6%

Parity	**Primigravida 50**	**35.97%**
	Previous delivery 89	**64.03%**
Delivery interval from rupture of membrane (hr.)	(1-48)	Mean 9.34
Mode of delivery	Caesarean section 24	17.3 %
	Vaginal delivery 115	82.7 %
Maternal morbidity	-	-
Neonatal morbidity	One intrapartum fetal death	0.72 %
Hospital stay in hr.	(2-52)	Mean 12.19

Table (2): The relationship between management plane and the mode of delivery

Mode of delivery	Management		Total
	Active	Expectant	
Caesarean section	15	9	24
Vaginal delivery	62	53	115
	77	62	139

Table (2) showed that of the total 139 cases, 77 female had active management (15 female delivered by caesarean section and 62 delivered by vaginal delivery) and the second group 62 female had expectant management (9 of them delivered by emergency caesarean section and 53 delivered vaginally).

Table (3): The relation between percentage of cases delivered vaginally and caesarean section between the groups of patients and their statistical significant

Management	Mode of delivery		P-value
	Caesarean section	Vaginal delivery	
Active	19.48%	80.52%	
Expectant	14.52%	85.48%	
			0.593*

*Byperson chi-square

Table (4): Relationship between mean duration of labour and management plane of labour

Management plane	Mean duration of labour	P-value
Active	10 hr	
Expectant	8 hr	0.440

Table (3) showed that 19.48% of female with active management delivered by caesarean section compared to 14.52% of patients with expectant management that need immediate caesarean section. 80.52% of pregnant female delivered vaginally with active management compared to 85.48% of pregnant female with expectant management, but the P-value was 0.593 which is statistically not significant.

Table (4) showed the relationship between mean duration of labour and management plane of labour, which showed that expectant management had a mean duration of labour of about 8 hours which is shorter than the mean duration of labour of active management which is 10 hour, but the P-value is statistically not significant (0.440).

Table (5) shows the relationship between maternalactive (-), expectant (-), P-value () and fetal complicationsactive (1 dead baby (0.7%), expectant (-), P-value (0.811) . There are no maternal complications in the two groups of pregnant female, but there is one intrapartum fetal death with active management plane but the difference was statistically not significant. (P-value 0.811)

Discussion; Management options for prelabour rupture of membrane at term are either conservative or active induction of labour. Induction of labour is the most option applied nowadays because of maternal preference this modality of management[9], but induction of labour need close monitoring of uterine contractions and fetal heart rate as it may cause hypertonus uterine contractions, fetal distress, fetal death and rupture uterus. Most female with prelabour rupture of membrane can delivered spontaneously if managed conservatively 24-48 hr in 75-80% of these female[10]. In our study we found that both planes of management (expectant or active by induction of labour) had no statistically significance difference regarding maternal, fetal complications, mode of delivery and duration of labour in contrast to study done by Jagrati Kiran in 2015 who found that active management of labour is superior to expectant management regarding maternal and neonatal mordibities and mortalities[11] while similar to the result

of study done by A. Shetty in 2002[16] and Shafqat Fatimain 2015 who also found no statistical significant between the two modalities of management[12]. There is a study done by Shah Krupa in 2012 who found that the period between rupture of membrane to the delivery was significantly lower in active management unlike our result we found that there is no statistically significant between the two groups[13]. In our study there was no statistically significant in the incidence of caesarean section in both groups (P-value 0.593) in contrast to study done by da Grace Krupa in 2005 which found higher incidence of caesarean section in conservative management group[14]. In a study done by Mansi in 2017 found higher incidence of fever and wound infection in women treated conservatively (P-value 0.006 for maternal fever and 0.003 for wound infection)which was statistically significant while in our study maternal and fetal complications between the two groups was not significant.[15]

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq.

Conflict of Interest: The authors declare that they have no conflict of interest.

Funding: Self-funding

References

1. Alexander JM, Cox SM. Clinical course of premature rupture of the membranes. Semin Perinatol 1996;20:369–74.
2. Hacker F, Neville MD, George EM, Joseph C, and Gampone MP: Essential of Obstetetrics and Gynecology, pre mature rupture of membranes, 4th Edition, 2004; pp: 167-168
3. Hannah ME, Ohlsson A, Farine D, et al. Induction of labor compared with expectant management for prelabor rupture of the membranes at term. N Engl J Med 1996;16:1005–10.
4. Shetty A, Stewart K, Stewart G, Rice P, Danielian P, Templeton A. Active management of term prelabour rupture of membranes with oral misoprostol. BJOG 2002;109:1354–8.
5. Goldberg AB, Greenberg MB, Darney PD. Misoprostol and pregnancy. N Engl J Med 2001; 344:38–47.
6. Hofmeyr GJ, Alfirevic Z, Matonhodze B, et al. Titrated oral misoprostol solution for induction of labour: a multi-centre, randomised trial. BJOG 2001;108:952–9.
7. Mbele AM, Makin JD, Pattinson RC. Can the outcome of induction of labour with oral misoprostol be predicted?SAfr Med J 2007;97:289–92.
8. Alfirevic Z. Oral misoprostol for induction of labour (Cochrane review). In: The Cochrane Library, Issue 4. Oxford: Update Software, 2002.
9. Goffinet F, Humbert R, Clerson P, et al. National survey on the use of induced labor by obstetricians. Study Group on Induced Labor. J Gynecol Obstet Biol Reprod (Paris) 1999;28:319–29. [In French]
10. Kamal M. Zahran, Ahmed Y. Shahin, Mohamad S. et al. Sublingual versus vaginal misoprostol for induction of labor at term: A randomized prospective placebo-controlled study. Journal of Obstetrics and Gynaecology Research 2009;35:1054–1060.
11. Jagrati Kiran, Jyoti Tiwari, Vrunda Joshi. Study of Incidence of Sepsis with Maternal and Foetal Outcomes in Premature Rupture of Membrane at Term. Journal of medical sciences and clinical research. 2015;3:6065-6072.
12. Shafqat Fatima, Sarwat Rizvi, Ghazala Saeed et al. Expectant Vs Active management of prelabour rupture of membrane at term. PJMHS 2015;9:1353-1357.
13. Shah Krupa, Doshi Haresh. Premature rupture of membrane at term: early induction versus expectant management. The Journal of obstetrics and Gynecology of India 2012;62(2):172-175.
14. da Gracakrupa F, Cecatti JG, de Castro Surita FG et al. Misoprostol versus expectant management in premature rupture of membranes at term. BJOG. 2005;112:1284–90.
15. Mansi Shringiriwar, Purnima Bhandari, Alka Patankar. A comparative study of fetomaternal outcomes in prelabor rupture of membrane at term. International journal of scientific study.2017;5:57-62
16. A. Shetty*, K. Stewart, G. Stewart, et al. Active management of term prelabourrupture of membranes with oral misoprostol. BJOG: an International Journal of Obstetrics and Gynaecology December 2002, Vol. 109, pp. 1354–1358