Original Article

Induction of Labour Verses Expected Management for Premature Rupture of Membrane an Experience

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Abstract

Objective: To compare the maternal and perinatal outcome of active management of premature rupture of membrane with the expectant management for 12 hours followed by late induction if needed.

Methodology: This comparative study was conducted at Obs & gynae department of Muhammad Medical College Mirpur Khas, from July 2017 to December 2017. All cases of PROM with 37-41 weeks of gestation, single alive fetus, cephalic presentation and duration of PROM within 8 hours were included. Women were randomized into two groups. Women in active management group were induced with 3 mg prostaglandin E2 vaginal tablet, dinoprostone or oxytocin infusion depending on their Bishop scores. The failure of induction was defined as no appreciable or progressive increase in the cervical dilatation after more than 2 hours in the active phase of labour.

Results: Majority of the women 52.83% were multipara. Booked patients were 66% and un-booked were 34%. Neonatal infection did not differ significantly between the two groups i.e. 4% vs 5.33% (p- >0.05). In expectant management group 55.55% of caesarean sections were performed for meconium staining of liquor, 22.22% for failure of progress in 1st stage of labour and 11.11% for failure of induction. 61.35% of women went into spontaneous labour within 12 hours of expectant management and 29% of patients were induced after 12 hours Active intervention bas to be done in only 9.3% of patients. 06 of these developed suspected or established foetal distress and immediate delivery by caesarean section has to be performed in the face of poor Bishop Score. Two developed clinical signs of amnionitis and were induced immediately and delivered normally. Lesser number of women required augmentation in labour in active management group then in the expectant management group (0.001). Clinical chorioamnionitis ad post-partum fever were statistically insignificant in both management group (p >0.05).

Conclusion: No wide difference was observed between the two groups of management of PROM. Both the methods can be successfully employed for the management of term PROM. The choice of method should depend on the convenience of the obstetrician and will of the patients. Expectant management is more advantageous to Nulliparous women in term of more spontaneous deliveries and lesser operative vaginal deliveries.

Keywords: PROM, Preterm birth, management, outcome

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Introduction

The majority of pregnancies last approximately 40 weeks, however in developed nations, 5%–10% of infants are born before 37 weeks of gestation.[1] Preterm birth is a leading cause of infant mortality in many developed nations, and preterm infants can suffer from a variety of short- and long-term health issues, including breathing difficulties, increases the susceptibility to hazards infections, and developmental

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and learning disabilities.[1] A neonatal condition that isn't comforting, placental abruption, cord prolapse and chorioamnionitis are all signs that it's time to deliver. Nevertheless, the best way to handle women having late PPROM but no evidence of impending birth is still being debated. Either expectant treatment and prompt delivery.[2,3] On other hand expectant treatment is considered the best practices administration.[2,4] Neonates who were born immediately were much more likely to be diagnosed with the respiratory distress syndrome, hospitalized to the neonatal intensive care unit (NICU), and stayed in the hospital for longer. Maternal consequences in the rapid delivery group showed a lower risk of antepartum haemorrhage and chorioamnionitis, but a higher prevalence of caesarean sections (CS).[2,5] PPROM is caused by a combination of factors. It might be linked to a membrane structural defect caused by collagen shortage or malformation, membrane weakness caused by enzymatic degradation in inflammatory or infectious processes, or sac exposure caused by cervical incompetence.[6] Maternal low socioeconomic status, black race, intrauterine infection at a premature stage of pregnancy, vaginal bleeding at the time of delivery, sexually transmitted infectious diseases history, history of the previous premature birth, multiple pregnancy, polyhydramnios, inadequate antenatal care, and maternal smoking habits are just a few of the risk factors linked to PPROM.[6,7] Preterm pre-labour membrane rupture (PPROM) is a significant clinical condition and is a challenge to the gynecologists.[8] It is stated that having to wait for spontaneous labour could result in increased in infectious disease for both the child and mother, whereas inducing labour results in premature births, increased neonatal comorbidities like respiratory distress syndrome (RDS)), and a potential increased number of the instrumental deliveries.[8] Different studies shown different results regarding such management option like in a study observed that in terms of mother and foetal outcome, a comparison between the two patient groups would've been made.[9] In the expecting group, found a statistically negligible increase in labour time and a higher risk of caesarean section. In both groups, maternal consequences were determined to be non-significant. Females who were treated expectantly, on the other hand, experienced higher rate of wound infection, puerperal pyrexia and prolonged hospital stay than those who were treated with the induction approach, while I n terms of perinatal consequences, there was no significant difference statistically.[9] On other hand it was observed that the induction and expectant course of treatment had similar maternal outcome and the expecting group, on the other hand, had a greater rate of neonatal morbidity.[10] Multiple maternal and foetal characteristics influence therapy options.[11] Conservative therapy, together with a rise in gestation preceding childbirth, may improve the odds of a vaginal delivery and it is suggested that more study be done evaluating the treatment of PROM and its occurrence at the three levels of care.[11] After taking above controversies and recommendations this study has been done to compare the maternal and perinatal outcome of active management of premature rupture of membrane with the expectant management for 12 hours followed by late induction if needed.

Methodology

The comparative study was conducted in labour ward (Obstetrics and Gynaecology Department) of Muhammad Medical College Mirpur Khas, during a period of six months from July 2017 to December 2017. All cases of PROM between 37-41 weeks of gestation, single alive fetus, cephalic presentation and duration of PROM within 8 hours were included. Women with previous caesarean section, foetal distress or meconium-stained liquor, presence of active labour, sign of chorioamnionitis at the time of presentation, patients with severe comorbidities and contraindication to conservative management like abruption placentae were excluded. Complete medical history and verbal informed consent was taken. Diagnosis of ruptured membranes was established by history. Uterine tenderness, amount and colour of liquor noted. Foetal heart rate recorded by fetoscope and CTG. After initial evaluation the women were randomized into two equal groups. Women in active management group were induced with the 3 mg prostaglandin E2 vaginal tablet, dinoprostone or oxytocin infusion depending on their Bishop scores. The regular foetal heart sound monitoring was done with the CTG machine and fetoscope. The failure of induction was defined as no appreciable or progressive increase in the cervical dilatation after more than 2 hours in the active phase of labour. Other group was subjected to the expectant management for 12 hours. They were then induced if needed and did not go in to labour after 12 hours. They were retained in the labour room. They were provided

sterile pads and any change in the colour or odour was observed. They were watched for spontaneous onset of labour. When they went into spontaneous labour, it was augmented properly with syntocinon infusion if required. If they did not go into labour during this period, they were induced as above. If any sign of foetal compromise appeared during this period, immediate delivery was planned, as appropriate. The labour was monitored carefully and mode of delivery and its outcome recorded in both groups. Data was collected on a pre-designed proforma by collecting observational facts. All the data entered and analyzed in SPSS version 26.

Results

In this study multipara were 52.83%, 43.39% were primipara and 3.77% were grand multipara. Four women (7.5%) were less than 25 years old, 42 (79.2%) were between 20 to 30 years of age five women (9.4%) were between 31 to 35 years of age and two women (3.8%) were more than 35 years of age. Booked patients were 66% and non-booked were 34%. The frequency of neonatal infection did not differ significantly between the two groups i.e. 4% vs 5.33% (p- 0.75). The indication of caesarean sections also differed between the two groups 57.1% were performed for failure of progress in 1st stage of labour, 28.48% for failure of induction, and 14.2% for foetal distress. In the expectant management group 55.55% of caesarean sections were performed for meconium staining of liquor, 22.22% for failure of progress in 1st stage of labour and 11.11% for failure of induction. 61.35% of women went into spontaneous labour within 12 hours of expectant management and 29% of patients were induced after 12 hours Active intervention bas to be done in only 9.3% of patients. 6 of these developed suspected or established foetal distress and immediate delivery by caesarean section has to be performed in the face of poor Bishop Score. Two developed clinical signs of amnionitis and were induced immediately and delivered normally. Lesser number of women required augmentation in labour in active management group then in the expectant management group (76%) with statistical difference of >0.001. 78% of women in active management group while 77% of women in the expectant management group required single PGE2 vaginal tablet and 20% of women in active management group and 21% of expectant management group required more than one PGE2 vaginal tablet. The percentage of clinical chorioamnionitis was 8% active management group and 12% in expectant management group with statistical difference of p=0.45. The incidence of post-partum fever was similar between the two groups i.e. 2.8% of total. (Table I)

Discussion

Preterm premature rupture of membranes (PPROM) puts the mother at risk for chorioamnionitis, bacteraemia and endometritis as well as putting the new born at risk for preterm birth complications. The treatment of PPROM in women with a gestational age (GA) of less than 34 weeks is sometimes extremely problematic.[12] It is a major contributor to the risk of maternal morbidity and death. This study has been conducted to compare the maternal and perinatal outcome of active management of premature rupture of membrane with the expectant management for 12 hours followed by late induction if needed and in this study most of the women 79.2% were between 20 to 30 years of age, while majority were multiparous 52.83%, followed by 43.39% were primipara and 3.77% were grand multipara. Consistently Suleiman BK et al[11] reported that the women were 36.9 years old on average, with a median parity of 1 (range 1-5) children. The mean gestational age at the onset of PROM was 38.11.9 weeks, with the 35–39-year age group having the highest incidence.[11] On other hand Bangal VB et al[10] demonstrated that the majority of the cases were between the ages of 15-20 years and 21-25 years. The

Table I: Descriptive statistics of the study variables (n=75)

Variables		Active management	Expectant management	Statistical significance
Mode of delivery	Caesarean delivery	3(7.7%)	3(8.1%)	NS*
	Operative vaginal delivery	3(7.7%)	2(5.4%)	NS*
	Spontaneous vertex delivery	33(84.6%)	32(86.5%)	NS*
Indication of caesarean Delivery	Failure to progress in 1st stage of labour	4(55.5%)	3(33.3%)	NS*
	Failure of induction	2(22.2%)	1(11.1%)	
	Fetal distress	1(11.1%)	5(55.5%)	
Chorioamnionitis		3(8.1%)	11.0%	0.45
Post-partum fever		(2.8%)	(2.8%)	
Neonatal infection		3(8.1%)	12.0%	0.75

mean gestational age for both groups (Induction and Expectant) group were 38.56 weeks and 38.52 weeks respectively, while inconsistently they found the bulk of the patients in their study 73% were primiparous.[10] In this study most of the women 66% were booked and non-booked were 34%. Although inconsistently Padmaja J et al[13] reported that the number of booked cases was 26.7%, while the number of un-booked cases was 73.3% percent. In the study of Mohokar SA et al[14] also reported that the booked patients comprised 16% of the total, while un-booked patients were 84%. Due to a lack of prenatal care in un-booked patients, recurrent risk factors such as PPROM, premature birth, and induced abortions, as well as their treatment, are not identified.[14] In this study the frequency of neonatal infection did not differ significantly between the two groups i.e. 4% vs 5.33% (p- 0.75). On other hand Bembalgi S et al[9] reported that the women who were treated expectantly, on the other hand, experienced higher puerperal pyrexia, wound infection, and hospitalisation than women who were treated with the induction approach, while consistently they reported that in terms of perinatal complications, there was statistically insignificant difference. PROM treatment calls for an early pregnancy termination, which has been linked to a higher risk of serious maternal and foetal illnesses.[16] Some, on the other hand, encourage conservative care in patients who do not have labour or show indications of infection in order to achieve a desirable gestational age.[16,17] In this study the indication of caesarean sections also differed between the two groups 57.1% were performed for failure of progress in 1st stage of labour, 28.48% for failure of induction, and 14.2% for foetal distress. In the expectant management group 55.55% of caesarean sections were performed for meconium staining of liquor, 22.22% for failure of progress in 1st stage of labour and 11.11% for failure of induction, 61.35% of women went into spontaneous labour within 12 hours of expectant management and 29% of patients were induced after 12 hours Active intervention bas to be done in only 9.3% of patients, 6 of these developed suspected or established foetal distress and immediate delivery by caesarean section has to be performed in the face of poor Bishop Score. Two developed clinical signs of amnionitis and were induced immediately and delivered normally. Lesser number of women required augmentation in labour in active management group then in the expectant management group (76%) with statistical difference of >0.001. 78% of women in active management group while 77% of women in the expectant management group required single PGE2 vaginal tablet and 20% of women in active management group and 21% of expectant management group required more than one PGE2 vaginal tablet. Furthermore, in this study the percentage of clinical chorioamnionitis was 8% active management group and 12% in expectant management group with statistical difference. Similarly, Bangal VB et al[10] reported that the maternal morbidities (chorioamnionitis, sepsis, puerperal pyrexia) were 14 percent in the induction group, while 18 percent in the expectant group. Bond et al conducted a systemic review that found that while the frequency of chorioamnionitis rose while waiting for delivery, the risk of newborn sepsis did not.[18] While inconsistently Kartikeswar GAP et al[12] reported that there were no significant differences found in incidence of maternal chorioamnionitis according to active management and expectant management groups. However, therapeutic options are influenced by a variety of maternal and foetal factors.[11] Conservative therapy, together with a rise in gestational age before childbirth, may improve the odds of a vaginal delivery.[11] There were several limitations of the current study and it is suggested that more study be done on a larger scale comparing the treatment of PROM and its occurrence at the three levels of care.

Conclusion

No wide difference was observed between the two groups of management of PROM. So, both the methods can be successfully employed for the management of term PROM. The choice of method should depend on the convenience of the obstetrician and will of the patients. It is also shown that expectant management is more advantageous to Nulliparous women in term of more spontaneous deliveries and lesser operative vaginal deliveries. However, expectant management required somewhat more monitoring and patience and practice of no digital examination of the cervix has to be employed at the start of management to reduce the maternal and neonatal infectious morbidity.

References

1. Agarwal A, Pandey S, Maheshwari U, Singh MP, Srivastava J, Bose S. Prevalence of asymptomatic bacteriuria and antimicrobial resistance profile among pregnant females in a Tertiary Care Hospital. Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine. 2021 Jul;46(3):469.

2. Edae M, Teklemariam Z, Weldegebreal F, Abate D. Asymptomatic bacteriuria among pregnant women attending antenatal care at Hiwot Fana specialized university hospital, Harar, eastern Ethiopia: magnitude, associated factors, and antimicrobial susceptibility pattern. IJM 2020 Jul 20;2020.
3. Lee AC, Mullany LC, Koffi AK, Rafiqullah I, Khanam R, Folger LV,. Urinary tract infections in pregnancy in a rural population of Bangladesh: population-based prevalence, risk factors, etiology, and antibiotic resistance. BMC Pregnancy and Childbirth. 2020 Dec;20(1):1-1.
4. Elzayat MA, Barnett-Vanes A, Dabour MF, Cheng F. Prevalence of undiagnosed asymptomatic bacteriuria and associated risk factors during pregnancy: a cross-sectional study at two tertiary centres in Cairo, Egypt. BMJ open. 2017 Mar 1;7(3):e013198.
5. Wingert A, Pillay J, Sebastianski M, Gates M, Featherstone R, Shave K. Asymptomatic bacteriuria in pregnancy: systematic reviews of screening and treatment effectiveness and patient preferences. BMJ open. 2019 Mar 1;9(3):e021347.
6. Schnarr J, Smaill F. Asymptomatic bacteriuria and symptomatic urinary tract infections in pregnancy. European journal of clinical investigation. 2008 Oct;38:50-7.
7. Jain V, Das V, Agarwal A, Pandey A. Asymptomatic bacteriuria & obstetric outcome following treatment in early versus late pregnancy in north Indian women. IJMS. 2013 Apr;137(4):753.
8. Ghafari M, Baigi V, Cheraghi Z, Doosti-Irani A. The prevalence of asymptomatic bacteriuria in Iranian pregnant women: a systematic review and meta-analysis. PloS one. 2016 Jun 23;11(6):e0158031.
9. Sujatha R, Nawani M. Prevalence of asymptomatic bacteriuria and its antibacterial susceptibility pattern among pregnant women attending the antenatal clinic at Kanpur, India. Journal of clinical and diagnostic research: JCDR. 2014 Apr;8(4):DC01.
10. Kamel HA, Hegab MH, Al-Sehrawey AA, Hassan HM. Prevalence of asymptomatic bacteriuria in patients with preterm labor. EJHM 2018 Oct 1;73(9):7444-7.
11. Fong SY, Tung CW, Yu YN, Leung HH, Cheung JH. The prevalence of asymptomatic bacteriuria in pregnant Hong Kong women. Hong Kong J Gynaecol Obstet Midwifery. 2013;13(1).
12. Oladeinde BH, Omoregie R, Oladeinde OB. Asymptomatic urinary tract infection among pregnant women receiving ante-natal care in a traditional birth home in Benin City, Nigeria. Ethiopian journal of health sciences. 2015 Feb 10;25(1):3-8.
13. Abbas N, Javaid R, Gul S. Prevalence of Asymptomatic Bacteriuria in Pregnancy. JIMDC. 2017; 6(2):162-165
14. Farazi A, Jabbariasl M. Asymptomatic bacteriuria in pregnancy in the central region of Iran: Frequency, risk factors, and causative organisms. Clinical Epidemiology and Global Health. 2019 Sep 1;7(3):309-12.
15. Radha S, Nambisan B, Prabhakaran NK, Jamal S. Prevalence and outcome of a symptomatic bacteriuria in early pregnancy. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017 Jan 1;6(1):223-8.
16. Izuchukwu KE, Oranu EO, Bassey G, Orazulike NC. Maternofetal outcome of asymptomatic bacteriuria among pregnant women in a Nigerian Teaching Hospital. Pan African Medical Journal. 2017 Aug 8;27(1).
17. Okpere EE. Other medical disorders in pregnancy. In: Okpere EE, editor. *Clinical Obstetrics, Revised edition.* Benin City: UNIBEN Press; 2003. pp. 131–13.
18. Tchente Nguefack C, Okalla Ebongue C, Nouwe Chokotheu C, Ebong Ewougo C, Nana Njamen T, Mboudou E. Clinical presentation, risk factors and pathogens involved in bacteriuria of pregnant women attending antenatal clinic of 3 hospitals in a developing country: a cross sectional analytic study. BMC Pregnancy and Childbirth. 2019 Dec;19(1):1-6.