Original Article

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Fetomaternal Outcome with Active Versus Expectant Management of Pre Labour Rupture of Membranes at Term; A Randomized Controlled Trial

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ABSTRACT

Objective: To compare fetomaternal outcome with immediate/active versus expectant management in pregnancies complicated with pre labour rupture of membranes at term.

Methodology: A randomized prospective controlled trial conducted in Obstertics & Gynaecology department of Benazir Bhutto Hospital, Rawalpindi from 1st July 2022 till 31st December 2022. All women presenting with PROM at term and fulfilling the inclusion criteria were recruited and randomized equally to Group-A and Group-B for Active versus Expectant management. The latency period for onset of labour, mode of delivery, maternal and fetal complications were compared in two groups.

Results: During study period, 190 women were recruited. The mean maternal age was 26.16 years. Out of total, 45% were primigravidas, 40% multigravidas and 15% were grand multiparas. Mode of delivery was comparable in both groups (p-value >0.05). The latency period was significantly prolonged (>24 hours) in 57.9 % of the patients with expectant management (p-value <0.05). The rate of PPH and chorioamnionitis was higher in expectant group while neonatal complications were comparable in both groups.

Conclusion: The active management of PROM is the preferred management option due to a shorter latency period, lesser maternal complications, without any significant increase in the rate of operative delivery.

Key words: Active management, Expectant management, Latency period, Premature rupture of membranes, PROM.

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Introduction

Pre-labour or Premature rupture of membranes (PROM) is the rupture of amniotic membranes after 28 weeks of gestation but prior to the onset of labor, resulting in leakage of amniotic fluid.[1,2] When this happens before term (37 completed weeks of gestation) it is referred to as "Preterm Pre-labour rupture of membranes (PPROM) while after term it is termed as "Pre-labour rupture of membranes (PROM)".[3]

PROM is a common obstetric complication globally affecting 3-15% of all pregnancies, 30–40% of preterm labor, and 8–10% of term labor.[3-5] The reported incidence for Pakistan is 3.27 %.[6]

PROM is a focus of concern worldwide as it can lead to significant feto-maternal complications, like; placental abruption, premature delivery, chorioamnionitis, neonatal sepsis, neonatal respiratory distress syndrome and even mortality.[7,8] Normally as pregnancy approaches term, various pathophysiological phenomena get activated in preparation for labour; a programmed cell death with activation of certain catabolic enzymes (collagenases, proteases, prostaglandins, etc); Mechanical forces by uterine overdistension, contractions and the fetus itself (engagement of head) cause amniotic membranes to rupture during the process of normal labor.[9]

However, membranes can get spontaneously ruptured even before the onset of labour, mainly due to a genetic

defect in collagen of cervix and membranes leading to weakening and subsequent rupture of membranes.[3]

Extensive research has been done on maternal and fetal risk factors associated with PROM. [10-13] A large meta-analysis (involving 21 studies) associated certain strong risk factors with PROM as; low BMI, Interpregnancy interval <2 years, previous abortion or preterm birth, previous history of PROM, caesarean section (CS), gestational hypertension, Gestational diabetes mellitus, abnormal vaginal discharge, reproductive tract infection, malpresentation and increased abdominal pressure. Whereas association of smoking and a short cervix requires further investigation.[14] A latest study by Benkia concludes the strong association of PROM with; primiparity, history of vaginal discharge and infection.[15]

The diagnosis of PROM requires a detailed history, speculum examination, ultrasound assessment of amniotic fluid, and at times diagnostic tests like; Nitrazin test (vaginal fluid PH examination), Ferning test, and fetal fibronectin tests, because of attendant false negative (10–20%) diagnosis.[9,16]

The management of uncomplicated PROM remains controversial and an issue of debate since 1960's. There are two management options, each having its own pros and cons, leaving the obstetrician with the dilemma of whether; to wait for spontaneous onset of labour (expectant management), thereby limiting the chance of CS at the cost of an increased risk of ascending infections, or ; to limit the risk of feto-maternal infection, and go for immediate delivery (Active management) by a planned CS or induction of labour with attendant increased risk of operative delivery.[17,18]

The latest Cochrane systematic review by Middleton et al, concluded that expectant management of PROM is associated with an increased feto-maternal infectious morbidity (chorioamnionitis and/or endometritis combined), though no statistically significant difference in CS rate, serious maternal morbidity/mortality, definite neonatal sepsis, or perinatal mortality.[19] Thereafter immediate delivery following term PROM was recommended and still being practiced widely. Nevertheless, a wait for spontaneous labour with informed consent, if patient and family wish so, was also permitted.[20,21]

National Institute of Healthcare and Excellence (NICE) guidelines, recommend expectant management for initial 24 hours followed by stimulation, if patient does not go into spontaneous labour.[22] The risk of infection is always present, even with intact membranes. Moreover, induction will increase the chance of CS, depriving the women and foetus to have a normal physiological birth with its long-term benefits. Therefore, the recent systematic review declares the management of term PROM as still a controversial issue, recommending further RCT's to compare the outcome of both management options for term PROM.[18]

Besides such controversial management background, the importance of a comparative study in our local settings cannot be undermined, where demographic variables are also much different from the extensively studied Western population only. The common confounding factors affecting the final outcome of either management strategy are; lower socioeconomics; poor hygiene; late reporting to the hospital, leading to a prolonged latency period with no feto-maternal monitoring and management; and limited or non- affordable neonatal care facilities available to general population. In purview of these unavoidable risk factors and conflicting management strategies, we planned this study to suggest whether active or expectant management is better for PROM at term in our local settings.

Methodology

After getting approval from Institutional Ethical Review Committee and Board of Advanced Studies & Research, this prospective randomized control trial was conducted at the Department of Obstetrics & Gynecology, Benazir Bhutto Hospital, Rawalpindi over a span of six months; from 1st July 2022 till 31st December 2022.

All patients with spontaneous PROM after 37 weeks of gestation and single alive fetus in cephalic presentation. Gestational age less than 37 weeks, cases with meconium staining and chorioamnionitis, Previous cesarean sections, Intrauterine deaths, Cephalopelvic disproportion, Multiple gestation, medical co-morbidities (hypertension, diabetes mellitus, cardiac Disease), Bishop score > 6.

All patients with PROM were admitted in labour ward. A detailed history, speculum examination and nitrazine/ fern test if needed were performed to confirm PROM. Baseline investigations done to rule out/correct anemia, while cases already in sepsis were excluded. An obstetric ultrasound and a baseline cardiotocography (CTG) were done and cases with fetal distress were excluded. BISHOP score was assessed. After informed consent patients fulfilling the inclusion criteria were then randomly divided in two groups of 95 each with a

matched parity; Group A (Immediate/Active Management) was stimulated within 24 hours of PROM with vaginal prostaglandin E2 tablet (Dinoprostone) 3 mg. In Group B (Expectant Management): spontaneous onset of labor was awaited for first 24 hours. Those not accomplishing labour within 24 hours, were then stimulated like group A. All participants were closely monitored according to PROM protocol. Pulse, blood pressure, temperature charting and monitoring for abdominal tenderness was done for early diagnosis of infection. Sterile pads were provided to look for the color of liquor. CTG was done 4 hourly to monitor fetal wellbeing. Emergency caesarean delivery was performed only for obstetric indications (chorioamnionitis, cord prolapse, meconium-stained liquor, fetal distress). Mother and the newborn were followed till 7th postnatal day. All data and outcome variables were noted on specially designed individual proformas. Outcome variables compared in both groups were; Mode of delivery; Latency Period (Duration from rupture of membranes till delivery); Maternal, fetal/neonatal complications (Chorioamnionitis, Primary postpartum hemorrhage (PPH), Stillbirth, Apgar Score, neonatal sepsis, NICU admissions, Early neonatal death).

The data entered and analyzed by SPSS version 21. Descriptive stats were applied for quantitative variables (age, gestational age, parity). Frequencies and percentages were calculated for qualitative outcomes (mode of delivery, latency period, primary postpartum hemorrhage, chorioamnionitis, NICU admission, early neonatal sepsis, stillbirth). Comparison of maternal and fetal outcome variables was done using Chi square test. p value was calculated to measure the statistically significant differences at $p < 0.05$.

Results

During study period, total 190 patients were recruited and randomized in two groups A and B for immediate and expectant management respectively. Mean maternal age (years) in Group A versus Group-B was 26.04 (SD 3.79) and 26.62 (SD 4.42), while mean gestational age (weeks) was 37.38 (SD 0.68) and 37.12 (SD 0.39), respectively. Average BISHOP score was 3.3 ± 1.4.

Each group had equal number of matched parity i.e., 42 (44.2%) primigravida, 38 multigravida (40.0%) and grand multi para 15 (15.8%) in each group.

The mean time of stimulation in Group A was 6 ± 0.82 hours. In Group B (expectant management), 40 (42.1%) women went into spontaneous labour within 24 hours, while in remaining 55 (57.9%) cases, labour was stimulated after 24 hours with Tablet Prostaglandin E2.

Out of 190 patients, 27 (14.2%) had latency period of < 12 hours; while majority (45.8%) of women had latency period of more than 24 hours. In Group A, 63 (66%) were delivered within 24 hours compared with 40 (42%) in expectant group. (Table I) Upon applying the chi-square

Table I: Comparison of Outcome Variables between Two Groups.

Outcome Variables		Group-A (Immediate Management)	Group-B (Expectant Management)	Total	P Value
LATENCY PERIOD					
< 12 Hours		15 (15.8%)	12 (12.6%)	27 (14.2%)	0.003
12-24 Hours		48 (50.5%)	28 (29.5%)	76 (40.0%)	
>24 Hours		32 (33.7%)	55 (57.9%)	87 (45.8%)	
MODE OF DELIVERY					
SVD		71 (74.7%)	71 (74.7%)	142 (74.7%)	0.459
Instrumental Delivery		04 (4.2%)	08 (8.4%)	12 (6.3%)	
Caesarean Delivery		20 (21.0%)	16 (16.8%)	36 (18.9%)	
MATERNAL COMPLICATIONS					
Post-partum Haemorrhage	Yes	12 (12.6%)	28 (29.5%)	40 (21.1%)	0.004
	No	83 (87.4%)	67 (70.5%)	150 (78.9%)	
Chorio-amnionitis	Yes	2 (2.1%)	12 (12.6%)	14 (7.4%)	0.005
	No	93 (97.9%)	83 (87.4%)	176 (92.6%)	
PERINATAL OUTCOMES					
APGAR Score (01 min)	< 7	6 (6.3%)	8 (8.4%)	14 (7.4%)	0.579
	> 7	89 (93.7%)	87 (91.6%)	176 (92.6%)	
APGAR Score (10 min)	< 7	0 (0.0%)	0 (0.0%)	0 (0.0%)	0.579
	>7	95 (100.0%)	95 (100.0%)	190 (100%)	
Neonatal Sepsis & NICU Admission	Yes	17 (17.9%)	21 (22.1%)	38 (20.0%)	0.468
	No	78 (82.1%)	74 (77.9%)	152 (80.0%)	
Still Births		0 (0.0%)	0 (0.0%)	0 (0.0%)	--

test, the difference in latency period between two groups was statistically significant (p-value 0.003).

The SVD was accomplished in 142 (74.8%) cases, while instrumental vaginal deliveries and caesarean deliveries were 12 (6.3%) and 36 (18.9%) respectively, Table I. No significant difference was noted for mode of delivery in two groups.

Maternal outcomes revealed two main complications; primary PPH and chorioamnioitis (Table I). Both complications were more in expectant management group with a statistically significant difference of p-value 0.004 and p-value 0.005, respectively.

Neonatal outcomes analyzed were; Apgar Score (1st min, 10 min), early onset neonatal sepsis (Need to use antibiotics within 1st 7 days of birth), NICU admissions and stillbirth. All babies in two groups had a good APGAR score (>7), with no statistically significant difference (Table.1). Similarly, all other perinatal outcomes were also statistically insignificant (Table I).

Latency period, the most important effect modifier was analyzed in relation to all outcome variables too among both groups (Table II). The significant differences seen were; frequency of PPH (p-value 0.016), chorioamnionitis (p-value 0.031) and early onset neonatal sepsis with subsequent NICU admission (p value 0.005) more in women having a latency period of more than 24 hours; All other outcome variables in relation to latency period showed no significant difference.

Discussion

Spontaneous rupture of amniotic membranes is a normal physiological event during the natural process of labour and delivery but almost in 10% cases, it happens before labour.[18] Prolonged PROM can lead to significant maternal and perinatal morbidity, thereby needing a definitive management plan. However, management of PROM at term is still controversial, as active management while reducing the risk of feto-maternal sepsis, may lead to an increase in CS rate because of uterine hyperstimulation and fetal distress.[23] The objective of our study was to analyze whether immediate induction of labour to expedite the delivery in term PROM is better than to wait for spontaneous onset of labour.

The basic demographic profile (maternal age, gestational age, parity, socioeconomic status) were matched in both groups and the only parameter affecting the final outcome

Table II: Stratification of Outcome Variables in Relation to Latency Period.

Latency Period	Outcome Variable		Group-A (Immediate Management)	Group-B (Expectant Management)	Total	P Value
< 12 hours	*Post-partum Haemorrhage*	Yes	0 (0.0%)	3 (25.0%)	3 (11.1%)	0.255
		No	15 (100.0%)	9 (75.0%)	24 (88.9%)	
12-24 hours		Yes	3 (6.3%)	4 (14.3%)	7(9.2%)	0.575
		No	45 (93.8%)	24 (85.7%)	69 (90.8%)	
>24 hours		Yes	9(28.1%)	21(38.2%)	30 (34.5%)	0.016
		No	23 (71.9%)	34 (61.8%)	57 (65.5%)	
< 12 hours	*Chorioamnionitis*	Yes	0 (0.0%)	1(8.3%)	1(3.7%)	0.314
		No	15 (100.0%)	11 (91.7%)	26 (96.3%)	
12-24 hours		Yes	2(4.2%)	2 (7.1%)	4 (5.3%)	0.681
		No	46 (95.8%)	26 (92.9%)	72 (94.7%)	
>24 hours		Yes	0 (0.0%)	9 (16.4%)	9 (10.3%)	0.031
		No	32 (100.0%)	46 (83.6%)	78 (89.7%)	
< 12 hours	*APGAR Score (01min)*	<7	1(6.7%)	1(8.3%)	2 (7.4%)	0.869
		>7	14 (93.3%)	11 (91.7%)	25 (92.6%)	
12-24 hours		<7	3 (6.3%)	1(3.6%)	4 (5.3%)	0.614
		>7	45 (93.8%)	27 (96.4%)	72 (94.7%)	
>24 hours		<7	2 (6.3%)	6 (10.9%)	8 (9.2%)	0.468
		>7	30 (93.8%)	49 (89.1%)	79 (90.8%)	
< 12 hours	*APGAR Score (10 min)*	>7	15(100.0%)	12(100.0%)	27(100.0%)	--
12-24 hours		>7	48(100.0%)	28(100.0%)	76(100.0%)	--
>24 hours		>7	32 (100.0%)	55 (100.0%)	87(100.0%)	--
< 12 hours	*Early Onset Neonatal Sepsis & NICU Admission*	Yes	1(6.7%)	0 (0.0%)	1(3.7%)	0.362
		No	14(93.3%)	12 (100.0%)	26 (96.3%)	
12-24 hours		Yes	14 (29.2%)	3(10.7%)	17 (22.4%)	0.063
		No	34 (70.8%)	25 (89.3%)	59 (77.6%)	
>24 hours		Yes	2 (6.3%)	18 (32.7%)	20 (23.0%)	0.005
		No	30 (93.8%)	37 (67.3%)	67 (77.0%)	

was a different management plan offered to each group.

The latency period (per our operational definition; PROM to delivery interval) is usually expected to affect the feto-maternal outcome in a direct manner. Longer the interval, more feto-maternal complications are anticipated. In our study active management (group A) significantly shortened the latency period (p=0.003) compared with expectant management (group-B). In group A, majority of cases (66.3%) were delivered within a latency period of ≤ 24 hours compared to group-B (42%). This is quite comparable to a local study where 64.6% of women in active management group compared with 36.9% in expectant management group were delivered within 24 hours (p=0.001).[23] Consistently significant results were reported in another local study (Active: 13.49 hours vs. Expectant: 16.27 hours, p= 0.002).[24]

Contrarily, a study done in Napal have shared comparable outcomes between two groups in terms of PROM to delivery interval, CS rate, maternal and neonatal morbidity. The average PROM to delivery interval was 15.6 hours in group A, Vs. 16.8 hours in group B (p> 0.05).[25] Similar outcome is reported by another recent study, where PROM to delivery interval within 24 hours (44% in active group vs. 63% in expectant group], mode of delivery and complications were comparable. Although active management significantly shortened the induction to delivery interval (P=0.020).[9] Interestingly, a local study by Sheeraz et al. demonstrated no significant difference in mode of delivery and any of the feto-maternal outcome between two groups (P>0.05), with the conclusion that both management strategies can be employed for the term PROM.[26]

Multiple studies in literature have reported though a shorter PROM-delivery interval with active management but no statistically significant difference regarding CS rate, maternal and neonatal morbidity with either management.[9,23-27]

When mode of delivery was analyzed in our study, there was a slightly higher rate of caesarean delivery (Group A -21% vs. Group B-16.8%) but was statistically insignificant (p=0.459). Likewise, several other studies have shown that active management did not lead to significant rise in caesarean delivery; (30% vs. 21%. P>0.05);[9] (35.4% vs. 63.1%, p=0.001);[23] (23.1% vs. 36.9%, p=0.014);[24] (20.5% vs. 28.2%, p >0.05).[25]

Maternal outcomes revealed two main complications in our study; primary PPH and chorioamnionitis. Both complications were more in our expectant management group with a statistically significant difference of p=0.004 and p=0.005, respectively. This result is much comparable to Ashraf et al's findings of Chorioamnionitis in 4.6% in induced Group and 21.5% in expectant management group (P=0.004), [23] and in an Indian study maternal infective morbidity was also significantly more in the expectant management group (p=0.001).[27] However, no significant difference was reported in several other studies.[9,24,26]

All recent studies have shown no statistically significant difference in perinatal outcome in both groups in terms of rate of infection and NICU admission.[9,23-27] Upon analyzing neonatal outcome; APGAR score in both groups was quite good (>7) at 1minute (93%) and 10 minute (100%), with no statistically significant difference (p=0.579) much comparable to Malla's study (1minute (91%) and 5 minute (94%).[25] The NICU admission of the babies from group A vs group B was 17.9% vs. 22.1% with an insignificant p value (0.468). This finding is consistent with the findings of two other local trials by Zia et al. (13.8% vs. 23.1%. p=0.175) [24] and Sheeraz et al.; (23.3% vs. 36.7%. p >0.05).[26] The studies from Nepal and India also showed statistically insignificant differences in the neonatal outcomes (p=0.04). The number of NICU admissions in both studies was low and identical in both groups (5%- p>0.05).[25,27]

Neonatal mortality associated with PROM ranges from 2–4% to 7–20% in singleton and twin pregnancies, respectively.[28] There was no neonatal mortality in index study, consistent with results of other studies.[9,25,27]

The latency period, most important effect modifier was also analyzed in relation to all outcome variables among both groups (Table II). The significant differences were seen in; frequency of PPH (p-value 0.016), chorioamnionitis (p-value 0.031) and early onset neonatal sepsis with subsequent NICU admission (p value 0.005) more in women having a latency period of more than 24 hours; All other outcome variables in relation to latency period showed insignificant difference. These results are consistent with a Nigerian study.[9]

A recent local study has recommended immediate induction of labour for PROM at term. However, an expectant management can be offered for a limited period of time, as nearly 80% of women establish spontaneous labour within 12 hours, and 95% within 24 hours, making a 12-24-hours period of expectant management reasonable, provided no feto-maternal concern arises.[24]

Conclusion

Due to a shorter PROM – delivery interval (latency period) and less maternal complications, this study concludes that active management of PROM at term is preferable as compared to expectant management. Over all, to date available extensive literature suggests that active management of term PROM does lead to a shortened PROM-delivery interval but is associated with usually insignificant difference for the majority of other feto-maternal outcomes. Therefore, there is still a continued need of global as well as national RCT's in major tertiary care centers to establish a set protocol for term PROM at local population level.

References

1. Zakirah SC, Eyanoer PC, Azali CN, Wiweko B. Premature rupture of membrane outcome determinants in reproductive age women. J Matern Child Health. 2020;5(4):576-586. https://doi.org/10.26911/thejmch.2020.05.04.04
2. Ghafoor S. Current and emerging strategies for prediction and diagnosis of prelabour rupture of the membranes: a narrative review. Malays J Med Sci. 2021;28(3):5-17. https://doi.org/10.21315/mjms2021.28.3.2
3. Siegler Y, Weiner Z, Solt I. Prelabor rupture of membranes: ACOG practice bulletin, number 217. Obstet Gynecol. 2020;136:1061. https://doi.org/10.1097/AOG.0000000000004142
4. Zhuang L, Li ZK, Zhu YF, Ju R, Hua SD, Yu CZ, et al. The correlation between prelabour rupture of the membranes and neonatal infectious diseases, and the evaluation of guideline implementation in China: a multi-centre prospective cohort study. Lancet Reg Health West Pac. 2020;3:100029. https://doi.org/10.1016/j.lanwpc.2020.100029
5. Byonanuwe S, Nzabandora E, Nyongozi B, Pius T, Ayebare DS, Atuheire C, et al. Predictors of premature rupture of membranes among pregnant women in rural Uganda: a cross-sectional study at a tertiary teaching hospital. Int J Reprod Med. 2020;2020:1862786. https://doi.org/10.1155/2020/1862786
6. Sultana S, Ishtiaq S, Malik U, Akhai AZ, Nadeem K. Maternal and perinatal outcome in preterm prelabor rupture of membranes. Pak J Surg. 2019;35(1):73-77.
7. Garg A, Jaiswal A. Evaluation and management of premature rupture of membranes: a review article. Cureus. 2023;15:e36615. https://doi.org/10.7759/cureus.36615
8. Pergialiotis V, Bellos I, Fanaki M, et al. The impact of residual oligohydramnios following preterm premature rupture of membranes on adverse pregnancy outcomes: a meta-analysis. Am J Obstet Gynecol. 2020;222:628-630.
9. Awkadigwe FI, Ezugwu FO, Eleje GU, Nweze SO, Odugu BU, Dinwoke VO, et al. Active versus expectant management for premature rupture of membranes at term: a randomized controlled study. J Int Med Res. 2023;51(8):3000605231195451. https://doi.org/10.1177/03000605231195451
10. Woyessa T, Fulea L, Edossa A. Premature rupture of the membrane and its associated factors among pregnant women admitted to public hospitals in Nekemte town, Western Ethiopia. Int Res J Obstet Gynecol. 2020;3:27.
11. Tiruye G, Shiferaw K, Tura AK, Debella A, Musa A. Prevalence of premature rupture of membrane and its associated factors among pregnant women in Ethiopia: a systematic review and meta-analysis. SAGE Open Med. 2021;9:20503121211053912. https://doi.org/10.1177/20503121211053912
12. Yu X. Analysis on risk factors and pregnancy outcome of term premature rupture of membranes. Matern Child Health Care China. 2021;36:1243-1245.
13. Liu J, Zhao M, Liang H, et al. Risk factors associated with preterm premature rupture of membranes: a meta-analysis. Chin Prev Med. 2022;23:44-50.
14. Lin D, Hu B, Xiu Y, et al. Risk factors for premature rupture of membranes in pregnant women: a systematic review and meta-analysis. BMJ Open. 2024;14:e077727. https://doi.org/10.1136/bmjopen-2023-077727
15. Benkia S, Bettamer N, Fadel AA, Haleis ER, Abubakr TA. Risk factors of premature rupture of the membranes: case control study. Asian Res J Gynaecol Obst. 2024;7(1):94-105.. https://doi.org/10.9734/arjgo/2024/v7i1214
16. Olarinoye AO, Olaomo NO, Adesina KT, et al. Comparative diagnosis of premature rupture of membrane by nitrazine test, urea, and creatinine estimation. Int J Health Sci (Qassim). 2021;15:16-22.
17. Delorme P, Lorthe E, Sibiude J, Kayem G. Preterm and term prelabour rupture of membranes: a review of timing and methods of labour induction. Best Pract Res Clin Obstet Gynaecol. 2021;77:27-41. https://doi.org/10.1016/j.bpobgyn.2021.08.009
18. Ramirez-Montesinos L, Downe S, Ramsden A. Systematic review on the management of term prelabour rupture of membranes. BMC Pregnancy Childbirth. 2023;23:650. doi:10.1186/s12884-023-05878-x. https://doi.org/10.1186/s12884-023-05878-x
19. Middleton P, Shepherd E, Flenady V, McBain RD, Crowther CA. Planned early birth versus expectant management (waiting) for prelabour rupture of membranes at term (37 weeks or more). Cochrane Database Syst Rev. 2017;1(1):CD005302. https://doi.org/10.1002/14651858.CD005302.pub3
20. Committee on Practice Bulletins-Obstetrics. ACOG practice bulletin No. 188: prelabor rupture of membranes. Obstet Gynecol. 2018;131:e1-e14. https://doi.org/10.1097/AOG.0000000000002663
21. ACOG Committee Opinion No. 831. Obstet Gynecol. 2021;138(1):e35. https://doi.org/10.1097/AOG.0000000000004447
22. National Institute for Health and Care Excellence (NICE). Prelabour rupture of membranes at term/Intrapartum care. NICE guideline [NG235]. Published September 29, 2023. Available from: https://www.nice.org.uk/guidance/ng235
23. Ashraf S, Sultana H, Qadir SY, Khalid M. Maternal outcomes of expectant management in comparison with induction of labour within twenty four hours of premature rupture of membranes (PROM). Prof Med J. 2020;27(8):1565-1569. https://doi.org/10.29309/TPMJ/2020.27.08.4182
24. Zia MS, Shaheen M, Haneef S, Nasir GM. Comparison of active and expectant management for fetomaternal outcome among women presenting with premature rupture of membrane at term. J Soc Obstet Gynaecol Pak. 2022;12(2):125-129.
25. Malla RV, Khadka S, Thapa S, Bidari S, Acharya I, Neupane B, et al. Maternal and fetal outcomes in active versus expectant management of prelabor rupture of membrane. Nepal J Obstet Gynaecol.2021;16(2):46-52. https://doi.org/10.3126/njog.v16i2.42100

26. Sheeraz S, Memon FP, Zaheen Z. Planned early birth versus expectant management for prelabour rupture of membranes at term. Ann Pak Inst Med Sci. 2020;16(3):148-152.
27. Berma A, Ray A, Bhattacharya NN, Basu K, Kumar B, Sarkar SK. Expectant versus active management in term prelabor rupture of membranes (PROM): a prospective study in a tertiary care hospital. New Indian J OBGYN. 2019;6(1):36-41. https://doi.org/10.21276/obgyn.2019.6.1.9
28. Telayneh AT, Ketema DB, Mengist B, Yismaw L, Bazezew Y, Birhanu MY, et al. Pre-labor rupture of membranes and associated factors among pregnant women admitted to the maternity ward, Northwest Ethiopia. PLOS Glob Public Health. 2023;3(3):e0001702. . https://doi.org/10.1371/journal.pgph.0001702