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ORIGINAL ARTICLE

Perinatal and Maternal Outcomes of Pregnancies with Preterm Premature Rupture of Membranes

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Whats known about this topic?

- *PPROM complicates up to 3% of pregnancies and causes 30-40% of preterm births. Risk factors include prior PPROM, infections, and maternal smoking. Membrane rupture results from mechanical, metabolic, and inflammatory factors. PPROM increases perinatal morbidity and mortality, with risks of cerebral palsy, ROP, and BPD. Management balances neonatal risks and maternal health, with expectant management standard after 24 weeks, but previable PPROM remains controversial.*

Whats new this study add?

- *This study highlights that expectant management is prioritized after 24 weeks in PPROM if not contraindicated. Before 24 weeks, survival is low and neonatal morbidity is high, making management decisions more complex. Parental involvement in decision-making is essential in these cases.*

Abstract

Objective: To evaluate the maternal and perinatal outcomes of pregnancies with preterm premature rupture of membranes (PPROM) and to explore the perinatal and obstetric outcomes according to gestational age at the time of PPROM.

Methods: This retrospective study included 316 singleton pregnancies with PPROM between 16+0 and 36+6 weeks of gestation. Perinatal and maternal outcomes according to gestational age at the time of PPROM are evaluated.

Results: The mean latency duration was 7.5 ± 13.8 days and the incidence of latency ≥15 days was 14.6%. There was a significant negative correlation between the gestational week at diagnosis of PPROM and the duration of the latent period ($r = -0.422$, $P < .001$). Incidences of survival were 6.2%, 80.5%, 91.8%, and 100% in pregnancies with an onset of PPROM at 16+0 to 23+6, 24+0 to 27+6, 28+0 to 32+6, and 33+0 to 36+6 weeks' gestation, respectively. Among the 249 liveborn infants, 4.4%, 3.1% and 1.3% had vision impairment, bronchopulmonary dysplasia, and cerebral palsy respectively at 2 years' corrected age. Incidences of survival without long-term sequelae were 6.2%, 55.6%, 73.8%, and 100% in pregnancies with an onset of PPROM at 16+0 to 23+6, 24+0 to 27+6, 28+0 to 32+6, and 33+0 to 36+6 weeks' gestation, respectively. There was a significant negative correlation between chorioamnionitis and gestational age at diagnosis of PPROM ($r = -0.173$, $P = .002$).

Conclusion: Expectant management if not otherwise contraindicated is the choice of treatment in pregnancies after 24 weeks of gestation, and perinatal survival rates reaching 95% can be achieved with proper management.

Keywords: Maternal morbidity, obstetric outcome, perinatal outcome, preterm premature rupture of membranes

Introduction

Preterm premature rupture of membranes (PPROM) is defined as the spontaneous rupture of membranes before the onset of labor and before 37 weeks of gestation.[1] Preterm premature rupture of membranes complicates up to 3% of pregnancies and is responsible for 30%-40% of preterm births.[2] Prior PPROM, low body mass index, low socioeconomic status, maternal smoking, maternal infections, antenatal bleeding, and invasive procedures are the main risk factors for PPROM.[2,3] Multiple factors contribute to PPROM individually or in combination. Although the rupture of membranes can result from mechanical events, various factors, including mechanical, metabolic, and inflammatory factors, contribute to this process.[4,5] Each factor can trigger membrane rupture individually. Membrane stretching induces collagenase activity and synthesis of proinflammatory cytokines such as Interleukin-8 and Interleukin-1ß.[6] Proinflammatory activity affects the collagen content of membranes by upregulating degradation and diminishing synthesis of collagen.[6] Additionally, programmed cell death and hormone-induced matrix metalloproteinase activation are described as other potential mechanisms.[4,5]

Preterm premature rupture of membranes is associated with high perinatal morbidity and mortality.[2,7,8] It may also cause long-term severe morbidities, such as cerebral palsy, retinopathy of prematurity (ROP), and bronchopulmonary dysplasia (BPD).[9,10] Gestational age at the time of PPROM

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and gestational age at birth are the main contributors to short- and long-term neonatal outcomes.[1,2,4] The time interval from membrane rupture to delivery (latency period) is negatively correlated with gestational age at PPROM and ranges from hours to several weeks.[11] The latency period provides an opportunity to administer risk-reducing interventions such as antenatal corticosteroid and broad-spectrum antimicrobial therapy. The main philosophy in managing PPROM is balancing the adverse neonatal outcomes of preterm delivery and maternal morbidity. Expectant management in the absence of infection, placental abruption, and cord accidents represents the current standard of care in patients with PPROM between 24 and 34 weeks of gestation.[1,2,12] However, management of previable (<24 weeks) PPROM is more challenging and controversial.[1,2]

This study aimed to retrospectively analyze the maternal and perinatal outcomes of pregnancies with PPROM. In this study, patients were grouped according to gestational age at the time of PPROM, and their perinatal and obstetric outcomes were analyzed.

Methods

The study was designed to include 316 women followed and treated with the diagnosis of PPROM at Obstetrics and Gynecology Department between 2015 and 2022. The data were collected retrospectively from the medical records using the patients' files and the hospital's electronic database. Ethical committee approval was obtained from the İstanbul University Cerrahpaşa Ethical Committee (Approval no: 83045809-604.01.02, Date: November 2, 2022). Informed consent was obtained from all individuals included in this study. Preterm premature rupture of membranes was defined as the spontaneous rupture of membranes before the onset of labor and between 16+0 and 36+6 weeks of gestation. The rupture of fetal membranes was diagnosed by observing clear fluid discharge and/or fluid accumulation within the posterior vaginal cavity during a sterile speculum examination. Nitrazine tests and/or PAMG-1 tests were also performed for confirmation in suspected cases. Multiple pregnancies and fetuses with chromosomal or structural abnormalities were excluded. Gestational age was calculated according to the first day of the last menstrual period and verified by first trimester ultrasound measurement. The study population was divided into 4 groups according to gestational age at the onset of PPROM at 16+0 to 23+6 (group 1, previable PROM), 24+0 to 27+6 (group 2), 28+0 to 32+6 (group 3) and 33+0 to 36+6 (group 4) weeks gestation.

Our institutional PPROM management strategy included hospitalization and a combination of 1 g azithromycin given orally on admission, along with 2 g ampicillin administered intravenously every 6 hours in the first 48 hours. This was followed by 500 mg of amoxicillin orally for another 5 days when emergent delivery was not considered. A single course of betamethasone was given to promote fetal lung maturation between 24 and 34 weeks of gestation to all patients. $MgSO_4$ was administered to patients who delivered between 24 and 32 weeks of gestation for neuroprotection. Tocolytic therapy was not given to any patient. Pregnancies with previable PPROM were counseled about the risks and advantages of expectant management compared with pregnancy termination. Termination of pregnancy (TOP) by labor induction was performed for those who chose termination. Body temperature monitoring, heart rate, and blood pressure were recorded every 4 hours. Every other day, leukocyte counts and C reactive protein (CRP) values were obtained in all cases. The diagnosis of clinical chorioamnionitis was made by maternal temperature above 37.8°C, accompanied by 1 or more of the following criteria: uterine tenderness, purulent or foul-smelling amniotic fluid, maternal tachycardia, fetal tachycardia, and maternal leukocytosis. A non-stress test was performed on patients between 27 and 37 weeks of gestation to evaluate fetal well-being.

Gestational age at birth, mode of delivery (vaginal or C/S), birth weight, presence of intrauterine death, 1 and 5 minutes APGAR scores of the newborn, and pH of the umbilical artery blood sample were collected retrospectively. Maternal complications such as chorioamnionitis, wound infection, placental detachment, and placental rest were also collected. Neonatal morbidity assessments included respiratory distress syndrome (RDS), BPD, intraventricular hemorrhage (IVH), ROP, necrotizing enterocolitis (NEC), and neonatal sepsis. Perinatal outcomes included TOP, fetal death, live birth, neonatal death (death within 28 days), survival at discharge, and survival without long term sequelae at 2 years of corrected age. Severe or moderate neuromotor or sensory disabilities, cerebral palsy, BPD, and vision impairment (blindness or severe impairment) were considered long-term sequelae and were assessed by a telephone questionnaire of the parents and evaluation of medical records.

Statistical Analysis

The Statistical Package for Social Sciences version 20.0 software (IBM Corp.; Armonk, NY, USA) was used for the creation of databases and statistical analysis. Descriptive statistics such as mean, median, and standard deviation were used for continuous variables while ratios and percentages were used for categorical variables. A Student *t*-test and one-way ANOVA were used for the comparison of continuous variables. Comparison of proportions was performed by Chi-square test and Fisher's exact test as appropriate. Correlations were assessed using Pearson's correlation coefficient, considering $P < .05$ as statistically significant.

Results

Clinical characteristics and obstetric outcomes of women with a diagnosis of PPROM are illustrated in Table 1. Among the 316 women with a diagnosis of PPROM, 81 (25.6 %), 36 (11.4%), 61 (19.3%), and 138 (43.7%) had an onset of PPROM at 16+0 to 23+6 (group 1), 24+0 to 27+6 (group 2), 28+0 to 32+6 (group 3) and 33+0 to 36+6 (group 4) weeks' gestation, respectively. Mean maternal age and incidence of nulliparity were 30.8 ± 5.9 and 49.4%, respectively. There was no significant difference between the PPROM groups according to maternal age and nulliparity ($P > .05$). Incidences of PPROM history and first or second trimester bleeding in the current pregnancy were 12.3% and 35.4%, respectively. Incidence of PPROM in a previous pregnancy was significantly higher in group 3 ($P = .001$) and bleeding in the current pregnancy was significantly higher in group 1 ($P = .001$) than the other groups. The mean latency duration was 7.5 ± 13.8 days and the incidence of latency ≥15 days was 14.6%. The mean latency duration (20.4 ± 22.9) and incidence of latency ≥15 days (50.1%) were significantly higher in group 2 than the other groups ($P < .001$). There was a significant negative correlation between the gestational week at diagnosis of PPROM and the duration of the latent period ($r = -0.422$, $P < .001$). Cesarean delivery rate was 57.3%; however, when only the live births were taken into consideration it was 72.9% (181/248), which was not significantly different between the groups ($P > .05$). The mean umbilical artery pH of the live-born babies was 7.28 ± 0.08 and there was no significant difference between the groups ($P > .05$).

Perinatal outcomes of fetuses according to gestational age at diagnosis of PPROM are shown in Table 2. Incidences of TOP, fetal, and neonatal death were 18.9%, 2.3%, and 6.6%, respectively.

Table 1. Clinical Characteristics and Obstetric Outcomes of Women According to Gestational Age at Preterm Premature Rupture of Membranes

	Gestational Age at PPROM (Weeks)				
	Group 1 16+0 to 23+6	**Group 2 24+0 to 27+6**	**Group 3 28+0 to 32+6**	**Group 4 33+0 to 36+6**	**Total**
n, %	81 (25.6)	36 (11.4)	61 (19.3)	138 (43.7)	316 (100)
Maternal age (years)	30.1 ± 5.7	31.5 ± 6.3	31.6 ± 5.7	30.5 ± 6.1	30.8 ± 5.9
Nulliparity	37 (45.7)	16 (44.4)	25 (40.9)	78 (56.5)	156 (49.4)
PPROM in a previous pregnancy	8 (9.8)	2 (5.6)	17 (27.8)	12 (8.7)	39 (12.3)
Bleeding in pregnancy before PPROM	43 (53.1)	13 (36.1)	21 (34.4)	35 (25.4)	112 (35.4)
Gestational age at PPROM (weeks)	19.7 ± 2.2	25.2 ± 1.2	30.4 ± 1.5	34.7 ± 1.1	28.9 ± 6.4
Latency duration (days)	9.9 ± 17.7	20.4 ± 22.9	7.1 ± 8.5	2.9 ± 4.2	7.5 ± 13.8
≤2 days	28 (34.6)	8 (22.2)	20 (32.9)	98 (71.1)	154 (48.7)
3-6 days	23 (28.4)	3 (8.3)	19 (31.1)	26 (18.8)	71 (22.5)
7-14 days	16 (19.8)	7 (19.4)	11 (18)	11 (7.9)	45 (14.2)
≥15 days	14 (17.2)	18 (50.1)	11 (18)	3 (2.2)	46 (14.6)
Gestational age at birth (weeks)	20.8 ± 3.4	28.1 ± 3.6	31.3 ± 1.8	35.1 ± 1.2	29.9 ± 6.3
Birth weight (g)	481 ± 430	1288 ± 720	1724 ± 395	2615 ± 494	1745 ± 1003
Cesarean delivery	11 (13.5)	26 (72.2)	46 (75.4)	100 (72.4)	183 (57.9)
Umbilical artery pH	7.25 ± 0.09	7.31 ± 0.06	7.27 ± 0.09	7.28 ± 0.07	7.28 ± 0.08
5 minute APGAR score <7*	11/14 (78.5)	21/36 (58.3)	14/61 (22.9)	12/138 (8.7)	58/248 (23.4)

Data are expressed as mean ± SD and n, (%) were appropriate.
*n/N live births, %.

Of the 81 pregnancies with previable PROM, 60 women (74.1%) decided on pregnancy termination. Twenty-one women decided on conservative treatment, of whom 7 fetuses had antenatal death during follow-up and 14 had live births. Of the 14 liveborn babies, 9 died in the neonatal period and 5 survived. Thus, the baby take-home rate for the whole group and liveborn pregnancies was 6.2%

Table 2. Perinatal Outcomes of Fetuses According to Gestational Age at Diagnosis of Preterm Premature Rupture of Membranes

	Gestational Age at PPROM (Weeks)				
	Group 1 16+0 to 23+6	**Group 2 24+0 to 27+6**	**Group 3 28+0 to 32+6**	**Group 4 33+0 to 36+6**	**Total**
n	81	36	61	138	316
Termination	60 (74.1)	–	–	–	60 (18.9)
Fetal death	7 (8.6)	–	–	–	7 (2.3)
Live birth	14 (17.3)	36 (100)	61 (100)	138 (100)	249 (78.8)
Neonatal death	9 (11.1)	7 (19.5)	5 (8.2)	–	21 (6.6)
Survival	5 (6.2)	29 (80.5)	56 (91.8)	138 (100)	228 (72.2)

Data are expressed n (%).

(5/81) and 35.7% (5/14), respectively, in previable PROM. We had no TOP and fetal death in pregnancies with gestational age at diagnosis of PPROM ≥24 weeks gestation. Survival rates for groups 2, 3, and 4 were 80.5%, 91.8%, and 100%, respectively.

Outcomes of liveborn infants according to gestational age at diagnosis of PPROM are demonstrated in Table 3. Incidences of sepsis, pneumonia, PDA, RDS, ROP, IVH, and NEC were 15.7%, 5.6%, 5.6%, 5.6%, 5.2%, 5.2%, and 0.8%, respectively. The incidences of neonatal morbidity were 64.3%, 75%, 62.3%, and 25.4% in group 1, group 2, group 3, and group 4, respectively. The incidence of neonatal morbidity was significantly lower in group 4 than in the other groups ($P > .001$). The incidences of survival at discharge for liveborn pregnancies were 35.7%, 80.6%, 91.8%, and 100% in group 1, group 2, group 3, and group 4, respectively. Among the 249 liveborn infants, 10 (4.4%), 7 (3.1%), and 3 (1.3%) had vision impairment, BPD, and cerebral palsy, respectively, at 2 years corrected age. The incidences of survival without long term sequelae were 6.2%, 55.6%, 73.8%, and 100% in group 1, group 2, group 3, and group 4, respectively.

There was no maternal mortality in our study group. Maternal morbidities experienced in each group are presented in Table 4. Incidences of chorioamnionitis, endometritis, wound infection, and curettage due to placental retention were 5.4%, 0.6%, 0.6%, and 19.3%, respectively. The incidence of placental retention curettage was significantly higher in group 1 than in the other groups ($P < .001$). The incidence of chorioamnionitis was significantly lower in group 4 than in the other groups ($P = .018$). There

Table 3. Outcomes of Liveborn Infants According to Gestational Age at Diagnosis of Preterm Premature Rupture of Membranes

	Gestational Age at PPROM (Weeks)				
	Group 1 16+0 to 23+6	**Group 2 24+0 to 27+6**	**Group 3 28+0 to 32+6**	**Group 4 33+0 to 36+6**	**Total**
Liveborns	14	36	61	138	249
Morbidity	9 (64.3)	27 (75)	3.8 (62.3)	35 (25.4)	109 (43.8)
Sepsis	3 (21.4)	12 (33.3)	14 (22.9)	10 (7.2)	39 (15.7)
Pneumonia	–	–	7 (11.4)	7 (5.1)	14 (5.6)
PDA	–	–	3 (4.9)	11 (7.9)	14 (5.6)
RDS	1 (7.1)	7 (19.4)	2 (3.3)	4 (2.8)	14 (5.6)
ROP	–	3 (8.3)	10 (16.4)	–	13 (5.2)
IVH	4 (28.5)	5 (13.9)	2 (3.3)	2 (1.4)	13 (5.2)
NEC	1 (7.1)	–	–	1 (0.7)	2 (0.8)
Survival at discharge	5 (35.7)	29 (80.6)	56 (91.8)	138 (100)	228 (91.6)
Long term sequela					
Vision impairment	–	2 (6.9)	8 (14.3)	–	10 (4.4)
BPD	–	5 (17.2)	2 (3.6)	–	7 (3.1)
Cerebral palsy	–	2 (6.9)	1 (1.8)	–	3 (1.3)
Survival without long term sequela					
Whole group	5/81 (6.2)	20/36 (55.6)	45/61 (73.8)	138/138 (100)	208/316 (65.8)
Liveborns	5/14 (35.7)	20/36 (55.6)	45/61 (73.8)	138/138 (100)	208/249 (83.5)
Alive at discharge	5/5 (100)	20/29 (68.9)	45/56 (80.4)	138/138 (100)	208/228 (91.2)

Data are expressed n (%)
BPD, bronchopulmonary dysplasia; IVH, intraventricular hemorrhage; NEC, necrotizing enterocolitis; PDA, patent ductus arteriosus; RDS, respiratory distress syndrome; ROP, retinopathy of prematurity.

was a significant negative correlation between chorioamnionitis and gestational age at diagnosis of PPROM ($r = -0.173$, $P = .002$). There was no significant correlation between latent period and chorioamnionitis ($r = -0.067$, $P = .235$).

Table 4. Maternal Morbidities According to Gestational Age at Diagnosis of Preterm Premature Rupture of Membranes

	Gestational Age at PPROM (Weeks)				
	Group 1 16+0 to 23+6	**Group 2 24+0 to 27+6**	**Group 3 28+0 to 32+6**	**Group 4 33+0 to 36+6**	**Total**
n	81	36	61	138	316
Chorioamnionitis	9 (11.1)	3 (8.3)	3 (4.9)	2 (1.4)	17 (5.4)
Endometritis	–	–	–	2 (1.4)	2 (0.6)
Wound infection	–	1 (2.7)	–	1 (0.7)	2 (0.6)
Retention curettage	54 (66.7)	2 (5.5)	2 (3.3)	3 (2.1)	61 (19.3)

Data are expressed n (%).

Discussion

The mean age of women and the rate of nulliparity in our study population are similar to those reported in the literature.[13,14] First trimester antepartum vaginal bleeding and a history of PPROM are risk factors for PPROM.[12,15] In agreement with previous studies, we have also observed higher incidences of antenatal bleeding and PPROM history. Considering the time of occurrence of PPROM, incidences of bleeding in the current pregnancy and history of PPROM were significantly higher in women with a diagnosis of PPROM at 16+0 to 23+6 and 28+0 to 32+6 weeks, respectively. We may assume that first trimester vaginal bleeding is mostly correlated with previable, whereas history of PPROM is mostly correlated with late second trimester PPROM. The cesarean delivery rate of live births was 72.9% in our study population, which is higher than previous studies.[13,16] This may be related to the high cesarean delivery rate in our country.

The major risks to the fetus after PPROM are those related to immaturity.[3] In the absence of chorioamnionitis, fetal distress, or placental abruption, especially after 24 weeks, prolongation of pregnancy has been the main goal of conservative management of PPROM.[2,3] The empirical use of broad-spectrum antibiotics after PPROM has been associated with a significantly increased latency period.[17] All patients with conservative management in our cohort received broad-spectrum prophylactic antibiotics. The

mean latency duration and the incidence of latency ≥15 days were in accordance with previous studies.[4,13,18] The mean latency duration (20.4 ± 22.9) and incidence of latency ≥15 days (50.1%) were significantly higher in pregnancies with a diagnosis of PPROM at 24+0 to 27+6 weeks in our study. This finding is also similar to previous studies.[13,18] In this period, neonatal mortality and morbidity significantly decrease with advanced gestational age, and fetuses will mostly benefit from the prolongation of pregnancy.[12] Duration of the latent period negatively correlated with the gestational week at diagnosis of PPROM in our study, which is also in accordance with other studies.[11,12,18]

Survival rates according to gestational age at diagnosis of PPROM in our study population are similar to those in previously reported series.[16,19,20] Gestational age at the time of PPROM and gestational age at birth are the main contributors to survival in PPROM.[1,2,4] Survival rates were 6.2% and 100% for those pregnancies with a diagnosis of PPROM at <24 weeks and ≥33 weeks of gestation respectively in our study. In the DOMINOS study performed in France, survival rates were 70.1%, 95.1%, and 100% for PPROM diagnosed at 24-27, 28-32, and ≥33 weeks respectively.[16] Yan et al[19] reported survival rates of 87% and 99% for PPROM diagnosed at 28-31 and 32-33 weeks, respectively. In another study by Goya et al[20], survival rates of 78%, 97.5%, and 100% for PPROM diagnosed at 24-27, 28-31, and ≥32 weeks, respectively, were determined.

Previable PROM affects 3-4 in 1000 pregnancies and is associated with high perinatal mortality and morbidity and maternal morbidity.[7,12] Management options for women with pregnancies complicated by previable PROM are either TOP or expectant management with the goal of achieving fetal viability.[12] Parents should be involved in the decision after sharing the realistic perinatal outcomes with them. Termination of pregnancy and survival in live-born pregnancies were 74% and 35.7%, respectively, in our previable PROM pregnancies. Different termination rates, between 12% and 81%, and survival rates of live-born pregnancies within a range of 39% and 79% have been reported in previable PROM pregnancies by other studies.[21-24] The neonatal morbidity rate of live-born babies was 64.3% in our previable PROM pregnancies, where rates between 12.5% and 85.7% have been reported by previous series.[25] All 5 neonates (delivered between 25 and 32 gestational weeks) who survived at discharge lived without sequelae after 2 years of delivery in our previable PROM group. In the EPIPAGE-2 study conducted in France, the survival rate without sequelae after 2 years from delivery was 92.8% in previable PROM pregnancies.[7]

Neonatal morbidity rates were 75%, 62.3%, and 25.4% in pregnancies with an onset of PPROM at 24-27, 28-32, and 33-36 weeks gestation, respectively, in the present study. Goya et al[20] observed neonatal morbidity in 53% of neonates born from pregnancies complicated with PPROM at 24-28 weeks of gestation. The neonatal morbidity rate of 54% was reported in pregnancies presented with PPROM between 28 and 34 weeks, by Melamed et al.[11] Incidences of survival without long-term sequela were 55.6% and 73.8% in pregnancies with an onset of PPROM at 24-27 and 28-32 weeks gestation, respectively, in the present study. Survival without long-term sequelae rates reported after 2 years of follow-up in pregnancies with PPROM diagnosed at 24-27 and 28-32 weeks gestation were 46.7% and 80.4% respectively by Goya et al.[20]

Fetal inflammatory response syndrome (FIRS) describes the inflammatory activation in the immune system of fetuses.[26] Elevated levels of interleukin-1, interleukin-6, and TNF-alpha in cord blood plasma, as well as funisitis and chorionic vasculitis as pathological findings, are evidence of FIRS.[26] Neonatal morbidity, such as neonatal sepsis, IVH, and periventricular leukomalacia, is closely related to the existence of FIRS.[26] The neutrophil-to-lymphocyte ratio and systemic immune-inflammation index in maternal blood samples may be useful for predicting composite neonatal outcomes.[27,28]

Concerning maternal complications, postpartum endometritis and wound infection rates were under 1% in our study, which is in accordance with previous studies.[14,16,22] Incidences of chorioamnionitis were 11.1%, 8.3%, 4.9%, and 1.4% in pregnancies with an onset of PPROM at 16-23, 23-27, 28-32, and ≥33 weeks gestation, respectively, in the present study. Yan et al[19] reported chorioamnionitis rates of 8.6%, 2%, and 1% for pregnancies with PPROM diagnosed at 24-27, 28- 31 and 32-34 weeks respectively. We have observed inversely correlated chorioamnionitis rates with gestational age at diagnosis of PPROM and no significant correlation between latent period and chorioamnionitis rates. Several previous studies have also demonstrated higher incidences of chorioamnionitis with earlier gestational age at diagnosis of PPROM but not with the duration of the latent period.[19,29]

In conclusion, pregnancies with PPROM are associated with high perinatal morbidity and mortality. Management of pregnancies with previable PROM is challenging, and parents should be involved in decision-making. Expectant management if not otherwise contraindicated is the choice of treatment in pregnancies after 24 weeks of gestation.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of İstanbul University-Cerrahpaşa University (Approval no: E-83045809-604.01.01-526498, Date: November 2, 2022).

Informed Consent: Written informed consent was obtained from participants who participated in this study.

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