Neonatal outcomes in an expectantly managed prospective cohort of late preterm prelabor rupture of membranes

Martina **Benuzzi** [1,*], Anna Luna **Tramontano** [1], Daniela **Menichini** [2], Michela **Semprini** [1], Nunzia **Del Villano** [1], Isotta **Zinani** [3], Alberto **Berardi** [3], Fabio **Rigoli** [4], Paola **Costa** [4], Sara **Consonni** [4], Mariarosaria **Di Tommaso** [5], Greta **Orlandi** [5], Noemi **Strambi** [5], Fabio **Facchinetti** [1], Anna **Locatelli** [4], Giuseppe **Chiossi** [1], Francesca **Monari** [1]

[1] Obstetrics and Gynecology Unit, Mother-Infant and Adult Department of Medical and Surgical Sciences, University of Modena and Reggio Emilia, Modena, Italy.

[2] Department of Biomedical, Metabolic and Neural Sciences, International Doctorate School in Clinical and Experimental Medicine, Obstetrics and Gynecology Unit, Mother-Infant Department, Policlinic Hospital, University of Modena and Reggio Emilia, Modena, Italy.

[3] Neonatology Unit, Mother-Infant and Adult Department of Medical and Surgical Sciences, University of Modena and Reggio Emilia, Modena, Italy.

[4] Obstetrics and Gynecology Unit, University of Milano-Bicocca, MBBM Foundation, Carate Hospital, Desio Hospital, Monza, Italy.

[5] Department of Health Science, University of Florence, Maternal Infant Department, Careggi University Hospital, Florence, Italy

DOI: 10.36129/jog.2022.S35

Objective. The aim was to assess the effects of expectant management in women with preterm prelabour rupture of membranes between 34 and 36+6 weeks (LpPROM) in terms of neonatal outcomes (NO). The secondary scope was to assess the risk of neonatal sepsis.

Materials and Methods. This is a multicentric, prospective cohort study that includes singleton infants born to mothers with LpPROM, managed using the same protocol, between January 2021 to August 2022.

The primary NO was a composite of neonatal death, non-invasive or invasive respiratory support, hypoglycaemia, new-born sepsis, confirmed seizures, stroke, intraventricular haemorrhage, basal nuclei anomalies, cardiopulmonary resuscitation, umbilical-cord-blood arterial pH < 7.0 or BE < -12.5, and prolonged hospitalization (5 days). Univariate analysis described the differences according to GA at delivery. Multivariate logistic regression was used to investigate the effects of GA at PROM, and PROM to delivery interval on the NO.

Results. 106/170 (62.4%) women with LpPROM did not deliver within 24 hours (expectant management). The median latency duration was 1 day, except for 36-37 weeks (3 days), having no effect on neonatal morbidity. Prevalence of neonatal sepsis was low 2/170 (1.2%) and did not differ between gestational weeks (**Table 1**). Multivariate analysis also showed, for a weekly increase in gestational age, a reduction of 57% on adverse NO, by adjusting for the newborn weight, PROM to delivery interval and corticosteroid (p = 0.004).

Conclusions. Expectant management of LpPROM should be encouraged because each passing week, significantly reduces the risk of adverse NO; moreover, the risk of neonatal sepsis does not increase in different gestational periods.

Table 1.

	34 w (N=14)	35 w (N=31)	36 w (N=114)	37 w (N=9)	P value
Delivery outcomes					
Indication to delivery					0.41
Spontaneous labor	10 (71.4)	18 (58.0)	65 (59.6)	2 (22.2)	
pPROM (no suspected triple I)	3 (25.0)	9 (29.0)	39 (34.2)	6 (66.7)	
Indicated	1 (8.3)	5 (16.0)	10 (8.7)	1 (11.1)	
Labor					0.01
No labor	**4 (28.6)**	**5 (16.1)**	**26 (22.8)**	**0**	
Spontaneous	**8 (57.1)**	**20 (64.5)**	**60 (52.6)**	**2 (22.2)**	
Induced	**2 (14.3)**	**6 (19.3)**	**28 (24.6)**	**7 (77.8)**	
Mode of Delivery					**0.05**
Spontaneous vaginal	10 (71.4)	21 (67.7)	81 (71.0)	6 (66.7)	
Operative vaginal	**0**	**2 (6.4)**	**7 (6.4)**	**3 (33.3)**	
Cesarean Section	**4 (28.6)**	**8 (25.8)**	**26 (22.8)**	**0**	
pPROM to delivery interval (days)	**1 (0-1)**	**1 (0-1)**	**1 (0-2)**	**3 (2 – 3)**	**0.000**
Maternal hyperpyrexia in labor (≥38°C)	0	0	3 (2.6)	0	0.69
Antibiotic treatment	14 (100.0)	30 (96.7)	110 (96.5)	**6 (66.7)**	**0.001**
Antenatal corticosteroids					**0.01**
No administration	**12 (85.7)**	**27 (87.1)**	**105 (94.6)**	**9 (100.0)**	
Before 34 weeks	**0**	**4 (12.9)**	**4 (3.6)**	**0**	
After 34 weeks	**2 (14.3)**	**0**	**2 (1.8)**	**0**	
Tocolysis	**1 (7.1)**	0	0	0	**0.01**
Neonatal outcomes					
Birthweight (g)	**2228.8 ± 345.6**	**2605.4 ± 311.2**	**2710.4 ± 327.7**	**2871.1 ± 316.5**	**0.000**
Apgar score ≤ 7 at 5'	**2 (14.3)**	**0**	**1 (0.8)**	**0**	**0.003**
Arterial pH ≤ 7.1	0	0	3 (2.7)	0	0.71
Respiratory support	**2 (14.3)**	**1 (3.2)**	**0**	**0**	**0.000**
Neonatal sepsis	1 (7.1)	1 (3.2)	0	0	0.08
Adverse neonatal outcome*	**8 (61.5)**	**11 (36.7)**	**22 (20.4)**	**1 (12.5)**	**0.000**