



STUDY OF CLINICAL PROFILE AND OUTCOME OF TERM NEWBORNS BORN TO MOTHER WITH PRELABOR RUPTURE OF MEMBRANE IN TERTIARY CARE HOSPITAL, SOLAPUR

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ABSTRACT This study designs about clinical profile and term neonatal outcomes in prelabour rupture of membranes and study the neonatal mortality and morbidity of the term newborns born to PROM mother according to the latency periods from membrane rupture until the time of delivery. We conducted Prospective Observational Study by taking cases of term neonates with mother's history of PROM between 37-40 weeks of gestation with sample size 316. We excluded Iatrogenically induced cases (ARM), Neonates with major congenital anomaly, Antepartum haemorrhage and Multiple pregnancy. Majority pregnant women were between age group 18-26 years (176). Half (158) of the newborns weighted 2.6-3.0kg. 2/3rd patients (62.3%) had duration of PROM between 6-18hrs. Most common complications due to PROM was Jaundice (17.7%) and Sepsis (9.5%). 36.30% of patients with neonatal complications, had duration of >18hrs compared to only 17.65% of patients without neonatal complications which is statistically significant (p value 0.001). 65.22% of patients with neonatal mortality, had duration of PROM >18hrs which is statistically significant (p value 0.001). Most common cause of death was due to sepsis (43%). We conclude that neonates born to mother with history duration of PROM > 18hours will have more morbidity and mortality.

KEYWORDS : Prelabour rupture of membrane (PROM), Meconium aspiration (MAS), Sepsis, Neonatal mortality, Respiratory distress syndrome (RDS).

Introduction

Prelabour rupture of membrane (PROM), PROM refers to the disruption of fetal membranes before the onset of labour resulting in spontaneous leakage of amniotic fluid.¹ It is one of the common problems encountered in day-to-day obstetric practice and subdivided into term, preterm PROM. PROM that occurs after 37 weeks of gestation is defined as term PROM. It occurs in approximately 5-10% of all pregnancies, of which about 80% occurs at term.¹ Risk factors associated with PROM include low socioeconomic status, low body mass index, tobacco use, PROM or preterm labour in previous pregnancy, infections such as urinary tract infection, sexually transmitted diseases, chorioamnionitis, vaginal bleeding at any time in pregnancy, cervical insufficiency, Polyhydramnios, multiple gestations and invasive procedures like amniocentesis.^{1,2} Term prelabour rupture of membrane is managed either by spontaneous onset of labour or immediate induction of labour³. Delaying the labour increases the risk to mother and baby while induction of labour provides its own challenges like failed induction, fetal distress and increased rate of caesarean section.⁴ Increased caesarean section rate is associated with its own complications and wound infections thereby increasing the duration of stay in the hospital and expenditures.⁵ Neonatal complications include early onset neonatal infection, birth asphyxia, hyperbilirubinemia, late onset sepsis, congenital malformations and congenital pneumonia, bronchopulmonary dysplasia. Close monitoring with timely intervention and good neonatal set up can contribute significantly to reduce fetomaternal morbidities and mortalities.⁶ Early identification of risk factors and management of term PROM are highly warranted to avoid maternal and fetal morbidity and mortality. Hence the present study is conducted to analyze the neonatal outcome of Prelabour rupture of membrane in tertiary care teaching hospital.

Objectives

1. To study clinical profile and term neonatal outcomes in premature rupture of membranes.
2. To study term neonatal mortality and morbidity of the newborns born to PROM mother according to the latency periods from membrane rupture until the time of delivery.

Materials and methods:

We conducted a Prospective Observational Study. Study was conducted by taking cases of neonates with mother's history of PROM

between 37-40 weeks of gestation. Detailed history of the patient will be noted. Patient will be investigated thoroughly and evaluation will be done on basis of fetal outcome. Sample size was 316 which includes all the neonates with mother's history of PROM getting admitted in labour room and we Excluded Iatrogenically induced cases (ARM), Neonates with major congenital anomaly, Antepartum haemorrhage and Multiple pregnancy

RESULTS

TABLE 1: AGE DISTRIBUTION OF THE PATIENTS:

Age (Years)	Frequency	Percent
18 to 25 Years	176	55.7
26 to 30 years	118	37.3
≥ 31 Years	22	7.0
Total	316	100.0

In the present study, majority, 176 (55.7%) of the patients were from age group 18 to 25 years followed by 118 (37.3%) from 26 to 30 Years. Mean age of the patients was ± Years ranging from 19 to 32 years.

TABLE 2: BIRTH WEIGHT OF THE NEW-BORNS:

Birth Weight	Frequency	Percent
≤ 2 Kg	38	12.3
2.1 to 2.5 kg	79	24.7
2.6 to 3.0 Kg	158	50.0
3.1 to 3.5 kg	29	9.2
3.6 to 4.0 Kg	12	3.8
Total	316	100.0

Half 158 (50%) of the new-borns weighted 2.6 to 3.0 Kg, 78 (24.7%) had birth weight between 2.1 to 2.5 years. 37% neonates were low-birth weight. Mean birth-weight of the patients was ± Kg ranging from 19 to 32 Kg.

TABLE 3: DURATION OF PROM:

Duration	Frequency	Percent
< 6 hours	36	14.5
6 to 18 hours	197	62.3
> 18 hours	83	23.10
Total	316	100.0

Almost 2/3rd (62.3%) patients had duration of PROM between 6 to 18 hours and it was >18hours in 83 (26.3%) patients.

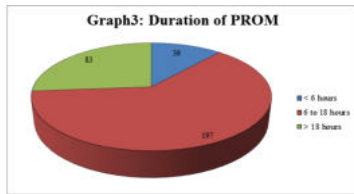


TABLE 4: NEONATAL COMPLICATIONS DUE TO PROM:

Complications	Frequency	Percent
Jaundice	56	17.7
Sepsis	30	9.5
Birth Asphyxia	21	6.6
LBW	18	5.7
MAS	13	4.1
RDS	5	1.6
Congenital Pneumonia	3	0.9
No Complications	170	53.8
Total	316	100.0

In the present study, most common complications due to PROM was Jaundice in (17.7%), Sepsis in 30 (9.5%), Birth Asphyxia in 21 (6.6%) and LBW in 18 (5.7%) patients.

Lesser common complications were MAS, RDS and Congenital Pneumonia in 13 (4.1%), 5 (1.6%) and 3 (0.9%) patients respectively.

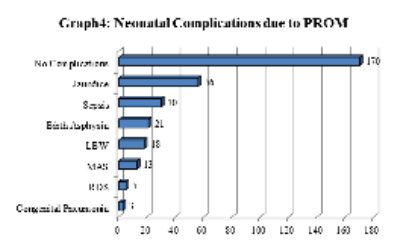


TABLE 5: ASSOCIATION BETWEEN DURATION OF PROM AND NEONATAL COMPLICATION:

Duration of PROM	Neonatal Complication		Total	Chi-Square & P-Value
	Yes	No		
< 6 hours	17 (6.66%)	29 (12.83%)	46 (14.55%)	0.001
6 to 18 hours	40 (44.44%)	150 (69.46%)	197 (62.34%)	
> 18 hours	33 (36.30%)	40 (17.65%)	73 (23.10%)	
Total	90 (100%)	170 (100%)	316 (100%)	

Above table shows that 36.30% of the patients with neonatal complications, had duration of PROM > 18 hours compared to only 17.65% patients without any neonatal complications. Association between higher duration of PROM and neonatal complications was significant (p value 0.001).

TABLE 6: DISTRIBUTION ACCORDING TO OUTCOME

OUTCOME	Frequency		Percent
	DEATH	DISCHARGED	
	23	293	7.27%
		293	92.7%
Total	316		100.0%

TABLE 6: DISTRIBUTION ACCORDING TO CAUSE OF DEATH

Neonatal complications/cause of death	Frequency		Percent
	Sepsis	Birth asphyxia	
	10	6	43.4%
		4	26%
		3	17.3%
		3	13%
Total	23		100.0

Sepsis was most common cause of death.

TABLE 7: ASSOCIATION BETWEEN DURATION OF PROM AND OUTCOME

Duration of prom	Outcome		Total
	Death	Discharge	
<6hours	0(0.0%)	36(12.28%)	36 (11.39%)
6-18 hours	8(34.78%)	189(64.50%)	197(62.34%)
>18 hours	15(65.22%)	68(23.20%)	83(26.26%)
Total	23(100%)	293(100%)	316(100%)

Above table shows that 65.22% of the patients with neonatal mortality, had duration of prom>18hours compared to only 23.20% patients discharged. Association between higher duration of prom and neonatal mortality was significant.(p value- 0.001)

TABLE 8: ASSOCIATION BETWEEN NEONATAL COMPLICATION AND MORTALITY

Neonatal complication	Outcome		Total
	Death	Discharge	
No	0(0.0%)	170(58.02%)	170(53.80%)
Yes	23(100%)	123(41.97)	146(46.20%)
Total	23(100%)	213(100%)	316(100%)

Above table shows that all the neonates who died, had neonatal complications. Association between neonatal complication and neonatal mortality was significant. (.p value- 0.001)

TABLE 9: ASSOCIATION BETWEEN NICU ADMISSION AND MORTALITY

Nicu admission	Outcome		Total
	Death	Discharge	
No	0(0.0%)	175(82.15%)	175(55.37%)
Yes	23(100%)	118(55.39%)	141(44.62%)
Total	23(100%)	213(100%)	316(100%)

Above table shows that all the neonates who died, had NICU admission. Association between NICU admission and neonatal mortality was significant.(p value- 0.001)

DISCUSSION

PROM is prelabor rupture of membrane leads to decrease in volume of amniotic fluid, leading to adverse fetal outcome. Its being the most common cause in obstetrics and complicates 5-10% term pregnancies. Key factor for determining the fetal/neonatal outcome is the latent period of leaking which refers to interval between the rupture of membranes to onset of labor. We conducted prospective observational study to know the neonatal outcome in PROM mothers

AGE DISTRIBUTION: our study was compared to other studies.

	Majority age group in years	Mean age in years
Our study	18-25(176/316)	19-32
Tigist endale et al., Study	18-35(138/185)	16-41
Shailaja surayapalem et al., Study	20-24(70/200)	18-40
S naveen chandra et al., study	≤20 (84/200)	18-40

BIRTH WEIGHT OF THE NEW-BORNS:

our study was compared to other studies.

	BIRTH WEIGHT (KG)	FREQUENCY	PERCENT
OUR STUDY	2.6 – 3.0	158/316	50
TIGIST ENGALE ET AL.,	>2.5	167/185	90.3
S NAVEEN CHANDRA	>2.5	167/200	83.5
DR.THANGAAN I M ET AL.,	>2.5	168/250	68%

DURATION OF PROM

our study was compared to other studies.

	Duration of PROM IN hours	Frequency	Percent

Our study	6-18	197	62.3
TIGIST ENDALE et al., Study	≥24	98	53.7
Shailaja surayapalem et al., Study	12-24	109	54.5
S naveen chandra et al., study	<12	146	73.0

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NEONATAL COMPLICATIONS DUE TO PROM

In our study, Study shows that Sepsis(30), Birth asphyxia(13) were most common complications. Tigist Endale et al¹., Study shows that Birth asphyxia(14) were most common complications. Shailaja surayapalem et al., study shows that Birth asphyxia(28), Sepsis(8) were most common complications. S Naveen chandra et al., Study shows that Birth asphyxia(31), Sepsis(14) were most common complications.

DISTRIBUTION ACCORDING TO OUTCOME

Rana M¹¹. et al reported that overall perinatal mortality was 9.3% which is comparable to our findings. The cause of death was neonatal sepsis, respiratory distress, and pulmonary hypoplasia. Rajan R¹². et al reported death rate as 5% which is less as compared to our findings. The causes of neonatal mortality in this study were hyaline membrane disease in 56%, sepsis in 31%, birth asphyxia in 6%, intraventricular haemorrhage and kernicterus in 3% respectively

ASSOCIATION BETWEEN PROM AND NEONATAL COMPLICATIONS

In our study shows that 36.30% neonates born to >18hrs duration prom mothers had complications compared to 17.65% had no complications. Tigist Endale et al., shows that 70.7% neonates born >24hrs duration of PROM mothers had unfavourable neonatal outcome compared to 47.9% favourable outcome. Shailaja surayapalem et al., shows that 53.85% neonates born to 12-24hrs duration of PROM mothers had perinatal morbidity

ASSOCIATION BETWEEN PROM AND OUTCOME

In our study shows that 65.22% neonates died born to mothers with >18hrs duration PROM compared to 23.30% neonates were discharged. Tigist Endale et al., shows that 70.7% neonates born >24hrs duration of PROM mothers had unfavourable neonatal outcome compared to 47.9% favourable outcome. F.NILI et al., study shows that 43.6 % neonates died born to mothers with >24hours duration of prom compare to 33.7% neonates who were discharged

SUMMARY

In our study, Majority mothers 55.7% (176/316) age group were between 18-25years. Mean age 19-25years. Half 50% (178) of neonates weight were between 2.6 – 3.0 kgs. Almost 2/3rd (62.3%) mothers had duration of PROM between 6-18hrs. Most common complications was found to be Jaundice (17.7%) and Sepsis 9.5%. Sepsis(43%) was the most common cause of death. More neonatal complications and mortality and NICU admission were observed in neonates born to mother who had prom duratio >18hours

CONCLUSION

We conclude that neonatal complications and mortality were more in neonates born to mother who had duration of PROM >18hours and Jaundice(17.7%) and Sepsis(9.5%) was the most common complications which is statistically significant. Sepsis(43%) was the most common cause of death

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