Original Research Paper

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FOETO-MATERNAL OUTCOME IN PRETERM PREMATURE RUPTURE OF MEMBRANES

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ABSTRACT Preterm Premature Rupture of Membranes (PPROM) as defined by Gibret and Harmon (2003) [1], as rupture of membrane with release of amniotic fluid at least one hour prior to labor and prior to term, that is after 28 weeks of gestation and before 37 completed weeks of gestation. PPROM occurs in 3% of pregnancies and is responsible for 30-40% of preterm births[2]. Historically the incidence of PPROM as reported by Mercer, in 1992 was 2.7% to 17%, depending on length of latent period used in making diagnosis.
PPROM is an obstetric conundrum with significant maternal morbidity and neonatal morbidity and mortality, a careful consideration of various factors and individualization of cases is necessary for appropriate management

AIM To obtain the incidence of preterm premature rupture of membranes (PPROM) at tertiary teaching hospital, to study risk factors and analyze the trends in maternal and perinatal morbidity - mortality in PPROM.

METHODS This study was a hospital based observational (analytical) cohort study of prospective (longitudinal) type conducted in Department of Obstetrics and Gynecology at a multidisciplinary tertiary and referral hospital in Chhattisgarh over a period of 12 months. 214 cases of preterm births who presented to us with PPROM were studied.

RESULTS Our study conducted in a tertiary centre revealed a prevalence of PPROM to be 5.15%. In our study, 39.24% of preterm deliveries were due to PPROM. In the present study 72.9% of cases were unbooked while only 27.1% of patients were booked. 33.64% of women belonged to lower socioeconomic status, maximum 43.46% of women belonged to lower middle class. In our study, maximum number of women were from age group of 21 to 30 yrs. i.e., 70.56%. Majority of the patients in our study were primigravida (49.53%).

KEYWORDS :

INTRODUCTION

Preterm Premature Rupture of Membranes (PPROM) as defined by Gibret and Harmon (2003) [1], as rupture of membrane with release of amniotic fluid at least one hour prior to labor and prior to term, that is after 28 weeks of gestation and before 37 completed weeks of gestation.

PPROM occurs in 3% of pregnancies and is responsible for 30-40% of preterm births[2]. Historically the incidence of PPROM as reported by Mercer, in 1992 was 2.7% to 17%, depending on length of latent period used in making diagnosis.

Risk factors that may lead to rupture of membranes, as stated by Allens et al.[3], Ekwoee et al.[4], and McGregor and French[5], were weakness in the chorioamnion membranes (localized or generalized), intrauterine infection, lower socio-economic status, sexually transmissible infection, prior term delivery, vaginal bleeding and cigarette smoking during pregnancy.

PPROM has been noted to increase risk of chorioamnionitis, unfavorable cervix, dysfunctional labor, increase in caesarean rates, postpartum hemorrhage and endometritis in mother. In fetus, increased occurrence of hyaline membrane disease, intraventricular hemorrhage, sepsis, cord prolapse, fetal distress and increased fetal wastage is seen. The longer the time interval between rupture of membranes and onset of labor, greater is the risk of ascending infections and chorioamnionitis therefore an important cause of perinatal morbidity and mortality. This risk may assume grave proportions in patient undergoing caesarean section. Thus, earlier the gestational age at the time of PPROM, longer the latency and more the complications.

Although preterm premature rupture of membrane complicates about 2-4% of singleton pregnancies and 7- 20% of twin pregnancies, it is associated with 60% preterm deliveries and 10% of perinatal death.

PPROM is an obstetric conundrum with significant maternal morbidity and neonatal morbidity and mortality, a careful consideration of various factors and individualization of cases is necessary for appropriate management. In planning the management of PPPROM, several issues need to be considered. Prematurity is the principal risk to the fetus while infectious morbidity is the primary maternal risk.

We hereby present study of PPROM at multidisciplinary tertiary and referral hospital in Chhattisgarh, with special focus on maternal and perinatal morbidity - mortality in PPROM.

AIM

To obtain the incidence of preterm premature rupture of membranes (PPROM) at tertiary teaching hospital, to study risk factors and analyze the trends in maternal and perinatal morbidity - mortality in PPROM.

METHODS

This study was a hospital based observational (analytical) cohort study of prospective (longitudinal) type. Study was conducted in Department of Obstetrics and Gynecology at a multidisciplinary tertiary and referral hospital in Chhattisgarh. Over a period of 12 months, 214 cases of preterm births who presented to us with PPROM were included in the study.

Institutional ethics committee approval was taken prior to commencement of the study. An informed consent was taken from the patients after explaining the nature and purpose of the study.

Women with gestational age $\geq$ 28 weeks up to < 37 weeks with singleton pregnancy and definite history of rupture of the membranes with no active uterine contractions and cervical dilatation < 3 cm were included in the study. Detailed history was recorded and obstetric examination, including a single sterile speculum examination of vagina was done. Specific points including risk factors associated with PPROM were noted. The diagnosis of rupture of the membranes was made by maternal history and a sterile speculum examination demonstrating liquor. And confirmed by Nitra zine paper test.

All women with PPROM were investigated for the presence of infection by complete hemogram, urine and high vaginal swab cultures. Antibiotics were started in all the patients along with supportive care and bed rest. Corticosteroids were given to patients with less than 34 weeks period of gestation (12mg betamethasone two doses 24 hours apart). After urine or vaginal swab culture sensitivity report, antibiotics were changed if required. Women with gestational age more than 36 weeks and with other indications like signs overt infection were induced; women from 28 to 35-week period of gestation were allowed to go spontaneously in labor. Tocolysis was not the part of management. Patients were followed up till delivery and all

intrapartum - postpartum events were recorded. Neonatologists were available at the time of delivery. Babies were transferred to the premature baby care unit for neonatal care and early neonatal outcome (i.e., within 7 days of birth) was analyzed and compared with other studies.

Birth cohort was divided into two groups[6]
1. Very preterm group (28 – 32 weeks period of gestation) (n = 34)
2. Moderately preterm (33 – 36 weeks period of gestation) (n = 180)

The mortality and morbidity rate and associated maternal factors between the two groups were compared.

Table No: 1 **Inclusion Criteria**
Women sure of last menstrual period
Women with gestational age ≥ 28 weeks up to < 37 weeks
Definite history of PPROM
No active uterine contractions
Singleton pregnancy
Cervical dilatation < 3 cm
Exclusion Criteria
Women not sure of last menstrual period
Women with gestational age < 28 weeks and > 37 weeks
Conceived in lactational amenorrhea
Congenital fetal anomaly
Ante-partum hemorrhage
Pregnancy induced hypertension
Pre-eclampsia and Eclampsia
Fetal Growth Restriction
Gestational Diabetes Mellitus and other medical illness.

RESULTS

A total of 4153 deliveries were recorded during the study duration of 12 months, of which 545 (13.1%) were preterm deliveries. Based on aforementioned criteria, 214 women presented with preterm prolabor rupture of membranes (PPROM) which translates to 5.15% of all deliveries and 39.24% of the preterm deliveries.

Out of 214 patients studied, majority 93 (43.46%) patients belonged to lower middle class (SES III), the next most common group was from lower socioeconomic class (SES IV and V) with 72 (33.64%) cases (refer table no 2).

Table No: 2.
Distribution of patients according to socio-economic status (Modified Kuppuswamy scale, 2007)

SES	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	0.042
I	2	5.88	13	7.22	15	7.01	
II	2	5.88	32	17.78	34	15.89	
III	11	32.35	82	45.56	93	43.46	
IV	12	35.29	36	20	48	22.43	
V	7	20.59	17	9.44	24	11.21	

The association of PPROM with low socioeconomic status was found to be significant (p value=0.042) in our study. Only 7.01% women belonged to higher socioeconomic class. Rest 15.89% of women belonged to upper middle class.

Analysis of distribution of patients according to age shows that out of 214 cases studied, highest no of cases i.e., 87 (41.59%) belonged to the age group of 21-25 years (refer table no 3).

Table No: 3 Distribution of patients according to Age

Age Group (in years)	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	0.16
≤20	4	11.76	11	6.11	15	7.01	
21-25	13	38.24	76	42.22	87	41.59	
26-30	11	32.35	51	28.33	62	28.97	
31-35	3	8.82	37	20.56	40	18.69	
≥36	3	8.82	5	2.78	8	3.74	
Total	34	100%	180	100%	214	100%	

Table No: 4
Grades of PPROM in association with Obstetric Score

GRAVIDA	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
1	18	52.94	88	48.89	106	49.53	0.05
2	6	17.65	64	35.56	70	32.71	
≥3	10	29.41	28	15.56	38	17.76	
Total	34	100%	180	100%	214	100%	

38.24% of very preterm group and 42.22% of moderately preterm group belonged to age group of 21-25 years. Next common age group was 26 to 30 years (28.97%), thus, a total of 70.56% women came from 21 to 30-year range. The association between maternal age group and PPROM was not found to be significant (p value 0.16).

Out of 214 patients studied, majority of the patients were primigravida i.e., 106 (49.53%) (refer table no 4). In very preterm group maximum number of patients belonged to gravid 1 i.e., 18 (52.94%) and also in moderately preterm group maximum number of patients belonged to primigravida group i.e., 88 (48.89%). The association between primigravida and PPROM has been found to be significant in our study (p value .05).

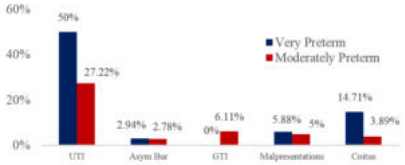
Table No:5 Distribution of risk factors associated with PPROM

Risk factor	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
Lack of antenatal Checkup	30	88.24	126	70	156	72.9	0.028
Low SES	19	55.88	53	29.44	72	33.64	0.0027
Age <20	0	0	2	1.11	2	0.93	0.53
Age >35	3	8.82	5	2.78	8	3.74	0.089
H/o PROM in pp	6	17.65	20	11.11	26	12.15	0.28
H/o abortions in pp	4	11.76	17	9.44	21	9.81	0.67
Cervical incompetence	3	8.82	6	3.33	9	4.21	0.144
H/o vaginal bleeding	2	5.88	7	3.89	9	4.21	0.59

The table no 5 shows various Predisposing (Risk factors) factors identified in the present study. 100 (46.73%) patients did not have essential antenatal check-ups; 72 (33.64%) patients belonged to low socio- economic class (Class IV and V). 10 (4.67%) patients were in the extremes of age. 26 (12.15%) patients had history of PROM in previous births and 21 (9.81%) had history of spontaneous abortions in past pregnancy. 9 (4.21%) patients had history of cervical incompetence and 9 (4.21%) had a history of vaginal bleeding in present pregnancy.

Table No: 6 | Graph No:1 Possible Etiologic Factors associated with PPROM

Etiological factor	Very preterm (28-32 wk)		Moderate preterm (33-36wk)		Total		P value
	N	%	N	%	N	%	
UTI	17	50	49	27.22	66	30.84	0.008
Asym bur	1	2.94	5	2.78	6	2.8	0.96
GTI	nil	0	11	6.11	11	5.14	0.14
Malpresentation	2	5.88	9	5	11	5.14	0.83
Coitus	5	14.71	7	3.89	12	5.61	0.01



Out of 214 PPROM cases, 160 (74.76%) had preterm vaginal delivery, 52 (24.3%) patients were delivered by caesarean section (LSCS) and only 3 (1.4%) patients were delivered by instrumental (outlet forceps) delivery (refer table no 7).

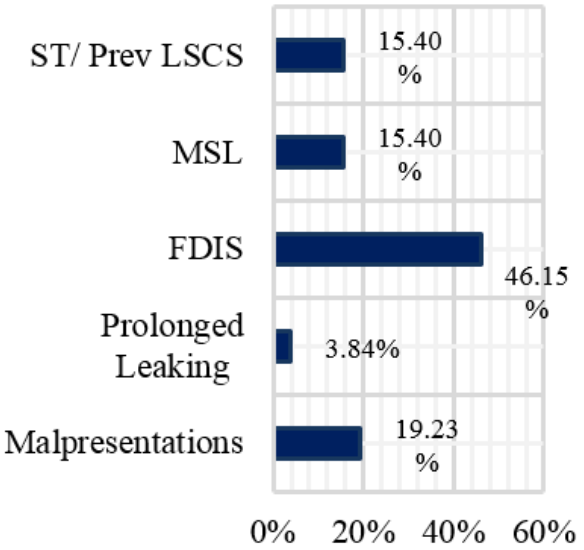
Table No: 7 Distribution of patients according to mode of delivery

MOD	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term(33-36 weeks)				
	N	%	N	%	N	%	
PTVD	25	73.53	135	75	160	74.76	0.41
LSCS	10	29.41	42	23.33	52	24.3	0.45
Instrumental (Outlet Forceps)	1	2.94	2	1.11	3	1.4	0.40

Most common indication of LSCS in patients of PPROM was identified as fetal distress (46.15%). The other indications of LSCS in study group were, malpresentations (19.23%), previous LSCS (15.4%), meconium-stained liquor (15.4%), and prolonged leaking (3.84%) (refer table no 8, graph no 2).

Table No: 8 | Graph No: 2
Distribution of patients according to cause of performing LSCS in PPROM

Indication of LSCS	N	%
FDIS	24	46.15
Prolonged leaking	2	3.84
ST/prev LSCS	8	15.4
MSL	8	15.4
Malpresentations	10	19.23
Total	52	



104 (48.59%) cases out of 214 cases were induced or augmented, of which maximum number 63 (29.44%) cases delivered within 12 hours (refer table no 9).

Table No: 9 Induction to Delivery Interval (Gestational age in completed weeks)

IDI	Very preterm (28-32 wks)		Moderately pre term (33-36 wks)		Total		P value
	N	%	N	%	N	%	
≤12 Hours	4	11.76	59	32.78	63	29.44	0.01
13-24 Hours	1	2.94	38	21.11	39	18.22	0.01
25-48 Hours	nil	0	2	1.11	2	0.93	0.53
> 48 Hours	nil	0	nil	0	nil	0	-

In very preterm group only 5 (14.7%) cases, induced for due reasons, 4 (11.76%) patients delivered within 12 hours. In moderately preterm group, 99 (55%) cases were induced out of which 59 (32.78%) patients delivered within 12 hours.

Table No. 10 shows the various investigations done in cases of PPROM. Total leucocyte count was been found raised in total 43% of cases (TLC >15800 cut-off value). 55.88% cases from very preterm group had raised TLC, whereas 40.56% of cases from moderately preterm group had raised TLC. Thus, a high significance (p value 0.004) was found associated with raised TLC and incidence of PPROM. Urine culture was found positive in 50% cases of very preterm group and in 27.22% of moderately preterm cases of PPROM (total positive in 30.84% cases). Significant association was derived for urine culture positivity and PPROM cases (p value 0.008). High Vaginal Swab culture was found positive for 24 cases (70.59%) in very preterm group, for moderately preterm group 42.22% i.e., 76 cases were found HVS positive. This association of positive HVS in cases with PPROM was found to be significant (p value 0.002). CRP was found raised than normal value for pregnancy (CRP positive) in 38.24% cases of very preterm group, 16.11% cases of moderately preterm group. Association of PPROM and CRP positivity has been found significant (p value 0.002).

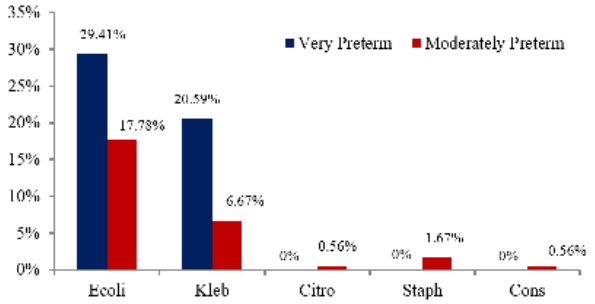
Table No: 10 Analysis of PPROM according to investigations for evidence of infection

Investigations	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
HVS+	24	70.5	76	42.22	100	46.73	0.002
UCS+	17	50	49	27.22	66	30.84	0.008
CRP+	13	38.2	29	16.11	42	19.63	0.002
TLC>12000	34	100	140	77.78	174	81.31	0.002

In the study group the most common organisms grown on high vaginal swab culture was E-Coli i.e., 29 (13.55%) cases (refer table no 11, graph no 3). The second most common organism isolated was Klebsiella in 23 (10.75%) cases. The other organisms isolated were Candida 16(7.48%), Coagulase Negative Staphylococcus aureus 13 (6.07%), Acinetobacter 10 (4.67%), Staphylococcus Aureus 7 (3.27%), Methicillin resistant Staphylococcus aureus 2 (0.9%), Psedomonas 2(0.9%) and Streptococcus 2 (0.9%).

Table No: 11 | Graph No: 3 High Vaginal Swab

HVS	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
ACINO	2	5.88	8	4.44	10	4.67	0.72
CAND	2	5.88	14	7.78	16	7.48	0.69
CONS	2	5.88	11	6.11	13	6.07	0.96
E. coli	9	26.47	20	11.11	29	13.55	0.016
KLEB	7	20.59	16	8.89	23	10.75	0.04
MRSA	1	2.94	1	0.56	2	0.93	0.18
STAPH	1	2.94	6	3.33	7	3.27	0.90
Sterile	9	26.47	78	43.33	87	40.65	0.06
PSEUDO	nil	0	2	1.11	2	0.9	0.53
STREP	nil	0	2	1.11	2	0.9	0.53



Distribution of neonates according to Apgar score at 1 min shows, out of 34 live births in very preterm group majority 29 (85.29%) neonates had Apgar between 4-6 at 1 minute (refer table no 12). There were 180 live births in moderately preterm group out of which maximum 119 (66.11%) neonates had Apgar between 4-6 at 1 minute. Very preterm neonates were associated with lower Apgar scores at birth as compared to moderately preterm neonates and the difference between both the groups is statistically significant (p value 0.026)

Table No: 12 Distribution of neonates according to Apgar score at 1 min

APGAR 1 MIN	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
7-10	3	8.82	55	30.56	58	27.1	0.009
4-6	29	85.29	119	66.11	148	69.16	0.026
≤3	2	5.88	6	3.33	8	3.74	0.72
Total	34	100%	180	100%	214	100%	

Of the 34 live births in very preterm group 17(50%) neonates had Apgar between 7 – 10 at 5 minutes (refer table 13). There were 180 live births in moderately preterm group out of which 145 (80.56%) neonates had Apgar between 7 – 10 at 5 minutes. Very preterm neonates were associated with lower Apgar scores at 5 minutes from birth as compared to moderately preterm neonates and the difference between both the groups is statistically significant (p value 0.00014).

Table No: 13 Distribution of neonates according to Apgar score at 5 min

APGAR 5 MIN	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
7-10	17	50	145	80.56	162	75.7	0.00014
4-6	16	47.06	30	16.67	46	21.5	0.0000
≤3	1	2.94	5	2.78	6	2.8	0.96
Total	34	100%	180	100%	214	100%	

Out of 207 live births, 189 (88.32%) neonates were appropriate for gestational age, 22 (10.28%) were small for gestational age and 3 (1.4%) were large for gestational age (refer table no 14).

Table No: 14 Association of Birth weight (according to growth chart) with PPROM

GRO	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
AGA	33	97.06	156	86.67	189	88.32	0.08
LGA	0	0	3	1.67	3	1.4	0.45
SGA	1	2.94	21	11.67	22	10.28	0.12

Of 214 preterm neonates, 208 (97.19%) were live births and 6 (2.80%) were still births. In very preterm group total numbers of neonates were 34 (15.88%) and in moderately preterm group total numbers of neonates were 180 (84.11%). The number of still births was more in moderately preterm group i.e., 6 (3.33%) as compared to 1 (2.94%) in very preterm group. The number of early neonatal deaths i.e., death occurring within first 7 days of birth were 17(7.94%) in moderately preterm group and 10 (29.41%) in very preterm group. 162 (90%) neonates were discharged alive and healthy in moderately preterm group while 23 (67.65%) neonates from very preterm group were discharged alive and healthy. 4 (1.87%) neonates left against medical advice (refer table 15).

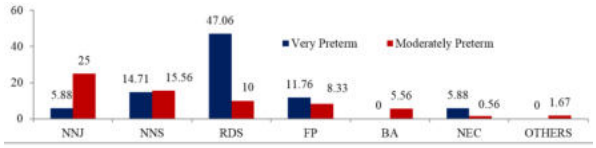
Table No: 15 Perinatal outcome associated with PPROM

Perinatal Outcome	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 wks)		Moderately pre term (33-36 wks)				
	N	%	N	%	N	%	
ANH	23	67.65	162	90	185	86.45	0.0004
ENND	10	29.41	7	3.89	17	7.94	0.0000
SB	1	2.94	5	2.78	6	2.8	0.96
LAMA	0	0	6	3.33	6	2.8	0.28

Among the 208 live born neonates, the most common cause of neonatal morbidity was neonatal jaundice i.e., 47 (21.96%) neonates (refer table no: 16 | graph no. 4). The second most common cause of neonatal morbidity was respiratory distress syndrome i.e., 34 (15.89%). 33 (15.42%) neonates had neonatal septicemia. RDS was the most common and significant morbidity associated with very preterm neonates (p value 0.000 HS).

Table No: 16 | Graph No. 4 Relationship of cause of neonatal morbidity with gestational age in cases of PPROM

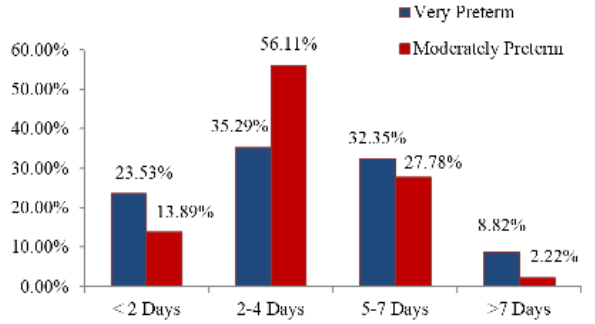
Neonatal Morbidity	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
NNJ	2	5.88	45	25	47	21.96	0.013
NNS	5	14.71	28	15.56	33	15.42	0.89
RDS	16	47.06	18	10	34	15.89	0.0000
FP	4	11.76	15	8.33	19	8.88	0.52
BA	0	0	10	5.56	10	4.67	0.16
NEC	2	5.88	1	0.56	3	1.4	0.015
OTHERS	0	0	3	1.67	3	1.4	0.45



Out of 208 live born neonates, majority - 113 (52.8%) had a NNICU stay of 2-4 days (refer table no: 17 | graph no. 5). The second common duration of stay was 5-7 days i.e., 61(28.5%). Only 7 (3.27%) neonates required more than 7 days of NNICU facility.

Table No: 17 | Graph No. 5 Distribution of neonates according to number of days of stay in neonatal intensive care unit

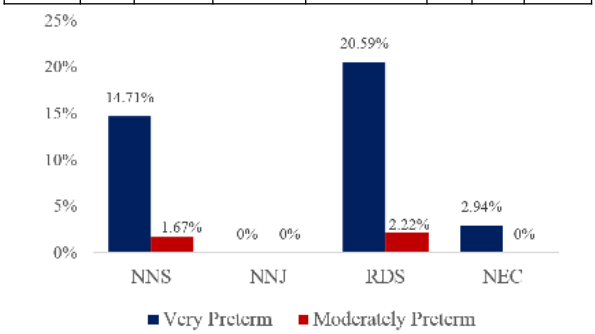
NICU Stay	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
<2 Days	8	23.53	25*	13.89	33	15.42	0.15
2-4 Days	12	35.29	101	56.11	113	52.8	0.025
5-7 Days	11	32.35	50	27.78	61	28.5	0.58
> 7 Days	3	8.82	4	2.22	7	3.27	0.047



The most common cause of early neonatal mortality noted was respiratory distress syndrome (4.67%) (refer table no: 18 | graph no. 6). Incidence of RDS was 20.59% in very pre term group that reduced to 2.22% in moderately pre term group. The second most common cause of mortality was noted as neonatal septicemia - 14.71% in very preterm neonates, while the incidence reduced to only 1.67% in moderately pre term group. NEC caused mortality in only one case from very preterm group.

Table No: 18 | Graph No. 6 Relationship of cause of early neonatal mortality with gestational age associated with PPROM

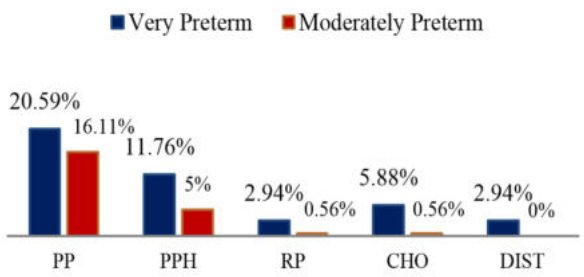
EARLY NND	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term (33-36 weeks)				
	N	%	N	%	N	%	
NNS	5	14.71	3	1.67	8	3.74	0.002
NNJ	0	0	0	0	0	0	
RDS	7	20.59	4	2.22	11	5.14	0.0001
NEC	1	2.94	0	0	1	0.47	0.02



Increased maternal morbidity was observed when the duration of PPROM exceeded 12 hours (refer table no: 19 | graph no. 7). Only 4.21% (9) cases with morbidity were found in less than 12 hours of PPROM. 6 cases, i.e., 2.8% (3 each in very preterm and moderately preterm group) had PPROM of more than 48 hours.

Table No: 19 | Graph No. 7 Maternal morbidity associated with PPROM

Maternal Morbidity	Gestational age (in completed weeks)				Total		P value
	Very preterm (28-32 weeks)		Moderately pre term(33-36 weeks)				
	N	%	N	%	N	%	
PP	7	20.59	29	16.11	36	16.82	0.52
PPH	4	11.76	9	5	13	6.07	0.13
RP	1	2.94	1	0.56	2	0.93	0.18
CHO	2	5.88	1	0.56	3	1.4	0.01
DIST	1	2.94	0	0	1	0.47	0.02



The most common cause of maternal mortality associated with PPROM was noted to be puerperal pyrexia in 36 (16.82%) cases. Second most common cause was noted to be post-partum hemorrhage in 13 (6.07%) cases. Retained placenta was found in 2 (0.93%) cases. Chorioamnionitis occurred in 3 (1.4%) cases.

DISCUSSION

Our study conducted in a tertiary centre revealed a prevalence of PPROM to be 5.15%, which is comparable to the prevalence rate of the studies conducted by Swathi Pandey[7] (7.7%) and Anjana Devi[8] (5%), but the study by Kamala Jayaram [9] showed a prevalence of 3.8%, which is low compared to our study.

In our study, 39.24% of preterm deliveries were due to PPROM, which is comparable to findings from Lee et al [10] i.e., 32-40%. Moutquin (2003) [11], Preterm premature rupture of membranes, usually followed by preterm delivery, accounts for another 25% of all preterm births range 7.1%–51.2%.

In the present study 72.9% of cases were unbooked while only 27.1% of patients were booked. Since this study is conducted at a referral hospital thus, more of unbooked patients in emergency hours were admitted through casualty. Lakshmi N et al (2007) [12], in her study found 70% of patients as unbooked whereas study by Anjana Devi (1996)[13] showed unbooked cases as 52%.

33.64% of women belonged to lower socioeconomic status, maximum 43.46% of women belonged to lower middle class. In a study by Swathi Pandey (2000)[7] states that 61% belonged to lower socioeconomic status and 39% to middle socioeconomic status. Defects in the amniotic membranes associated with factors like malnutrition, anaemia, over exertion, stress, high parity, poor hygiene and recurrent genitourinary infection.

In our study, maximum number of women were from age group of 21 to 30 yrs. i.e., 70.56%. The study conducted by Anjana Devi (1996) [13]also found the majority of cases (76.9%) in the age group of 20-29 years. Majority of the patients in our study were primigravida (49.53%). Our study is comparable to study by Shehla Noor et al [14] in which risk of PPROM was highest among patients giving birth to their first child i.e., 42.2%. 75.5% of women were primigravida in study by Pandey Deeksha et al[15], while in the study by S Akter et al [16] 62% of cases were multigravida. os. Naeye & Peters have described multiparity as a risk factor for PPROM due to long standing infection, previous trauma to cervix and patulous os [17]. In a study by Swathi Pandey [7] multipara 48% and nullipara 52% was seen. In the present study 62.62% cases were found to be nullipara females.

CONCLUSION

"The cause is hidden. The effect is visible to all" - Ovid

The above saying goes true for PPROM, in which though the exact etiology still remains obscure, problems encountered are numerous and vast.

Accurate diagnosis and careful consideration of various factors with individualization of cases is necessary for appropriate management in a case of PPROM. In management, decision whether to continue or to terminate the pregnancy is very crucial and depends on many factors. The clinician should decide after thorough evaluation of risks and benefits of both these options.

A large-scale study can help to correlate the risk factors and suggest measures to improve perinatal outcome.

RECOMMENDATION

Essential and easily accessible antenatal care to all pregnant women and screening of all high-risk cases.

Upgrading of NNICU ventilator facilities at all tertiary care centres so as to improve outcome even in case of preterm birth.

Provision of health education to all pregnant women regardless of their risk status to increase the likelihood of optimal reproductive outcome by means of regular antenatal education programmes.

Routine pelvic examination in last trimester during antenatal visits should be avoided. Avoidance of coital activity in last trimester as far as possible and if at all use of barrier method should be encouraged.

Patient should be screened for asymptomatic bacteriuria at 12-16 weeks during antenatal visit. Urine culture sensitivity examination appears to be better option as compared to urine routine microscopy.

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