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A hospital based study in women with premature rupture of membranes at term to observe maternal and perinatal outcome

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Abstract

Background: PROM is an obstetric condition which is poorly defined, with an obscure aetiology, difficult to diagnose and is associated with significant maternal and Neonatal morbidity and mortality and management strategies that are often diverse and controversial.

Methodology: The prospective observational study was carried in the Obstetrics and Gynaecology wards of LTMMC & GH, Mumbai from 2017 to June 2018.

Results: Febrile illness was most commonly seen in (i.e.19%), followed by puerperal sepsis 3%. There was no maternal mortality in the study. Total 30 newborn were admitted in NICU for the various morbidities. Birth asphyxia was the commonest cause for perinatal morbidity noticed in 17.0%.

Conclusion: Pregnancies complicated with PROM should have supervised labour preferably in an institution. Management of each case has to be individualised. A combined effort of obstetrician and neonatologist is necessary.

Keywords: PROM-Pre-mature rupture of membrane, maternal and perinatal outcome, morbidity, mortality

Introduction

Premature rupture of membranes at term is defined as rupture of membranes from more than 37 weeks to 40 weeks before onset of labour [1]. PROM is characterized by rupture of membranes before the onset of true labour. This occurs in 5-20% of all labour. Most Indian studies document an incidence of 7 to 12 % for PROM of which 60-70% occurs at term [2].

PROM can cause maternal complications, increased operative procedures and neonatal morbidity and mortality [3]. Unrecognized and inadequately treated conditions can lead to maternal asymptomatic and symptomatic chorioamnionitis [4]. Prom is an obstetric conundrum which is poorly defined, with an obscure aetiology, difficult to diagnose and is associated with significant maternal and Neonatal morbidity and mortality and management strategies that are often diverse and controversial.

There-fore objective of present study was to evaluate the maternal and perinatal outcome in patients presenting with premature rupture of the membranes at term.

Methodology

The prospective observational study was carried in the Obstetrics and Gynaecology wards of LTMMC & GH, Mumbai from 2017 to June 2018. This study was conducted after receiving approval from ethics committee of the Institute. Complete enumeration method was used to select patients and total 100 patients were included who strictly passed the inclusion criteria (Cases admitted with PROM at >37 weeks of gestation, Cervical dilatation of < 3cm, Lack of uterine contraction for at least 1 hour of PROM and Single term pregnancy). The patients who were enrolled in the study were thoroughly informed about study, its aims & objectives and their role in the study. Pre-validated, pre-tested case record form was used to collect information. A case record form contained information regarding socio-demographic profile, diet, anthropometric measurements, and clinical examination including vital measures, brief medical history, and concomitant medications. Participants were thoroughly examined and necessary investigations were carried out and these finding were noted in case record form.

Statistical analysis

These findings were entered in Microsoft Excel 2010. Statistical analysis was carried out with

the help of SPSS (version 20) for Windows package (SPSS Science, Chicago, IL, USA). Mean, Proportion, Standard deviation, Chi square, Fischer exact tests were applied for the association of PROM with the maternal and fetal outcomes.

Results

Most of the patients belonged to the age group 20-24 years' i.e.

64% followed by 17% in 25-29 age groups. So there was total 81% patient patients were 20-29 years of age (Table 1 shows age wise distribution). Amongst the 100 study participants, 72% belonged to low socio economic status and 28% belonged to middle socio economic status group. 63% of the patients were primigravida and 37% were multiparas.

Table 1: Age wise distribution of study participants

Age (years)	Frequency	Percentage
15-19	13	13.0
20-24	64	64.0
25-29	17	17
30-34	5	5
>35	1	1.0

PROM to admission interval was calculated in study participants. 76% study participants were admitted 12 hours before PROM while 24% were admitted to the Centre after 12 hours.

Bishop's Score at the time of Admission was calculated in study participants. 65.1% in primigravida and 40.5% in multigravida were recorded for 3-4 Bishop's Score and contributed maximum for this score (table no. 2).

Table 2: Bishop's score of study participants at the time of admission

Bishop's score	Primi		Multi		p value
	Frequency	Percentage	Frequency No	% Percentage	
0-2	6	9.5	0	0	0.004 Significant
3-4	41	65.1	15	40.5	
5-6	16	25.4	22	59.5	
Total	63	100	37	100	

Almost all the patients (i.e. 96 study participants) delivered within 24 hours of the induction (with least duration of delivery interval of 2 hours and highest duration of Delivery interval 28 hours) in the study. Mean duration of induction to delivery interval 12.99 hours. This is found statistically significant ($p < 0.05$). Mean duration PROM to delivery interval was 20.74 hours. This is found statistically significant ($p < 0.05$).

Mode of delivery was noted. 65% of women had normal vaginal delivery and Instrumental delivery was noticed in 5.0%. Rate of caesarean section was 30%.

Maternal morbidity was noted in study participant after delivering fetus (Table no. 3). Febrile illness was most commonly seen in (i.e. 19%), followed by puerperal sepsis 3%. There was no maternal mortality in the study. There were 2% case of chorioamnionitis.

Table 3: Maternal morbidity in study participants

Morbidity	Frequency	Percentage (%)
Febrile Morbidity	19	19
Wound Infection	1	1
LRTI	2	2
UTI	2	2.0
PPH	2	2
MRP	1	1
Puerperal Sepsis	3	3.0
Chorioamnionitis	2	2

In the study, duration of extended hospital stay for the Febrile illness, LRTI, UTI, PPH and MRP was approximately 7 days as compared to Wound infection, Puerperal sepsis and Chorioamnionitis for which it was 14 days.

Total 30 newborn were admitted in NICU for the various morbidities (table no. 4). Birth asphyxia was the commonest cause for perinatal morbidity noticed in 17.0% of cases followed

by Septicemia in 8%. Perinatal mortality rate was 4%. Birth asphyxia was cause in the major cases for perinatal mortality (in 3%).

Table 4: Perinatal morbidity in newborn of study participants

Morbidity	Frequency	Percentage
Birth asphyxia	17	17.0
Septicemia	8	8.0
Convulsions	1	1.0
MAS	2	2
Malformations	1	1.0

Discussion

In present study more than half patients were belonged to 20-24 years age group which nearly equal to a similar study conducted by Piya Ray's [5] at R.G. Kar Medical College, Calcutta i.e. 62%. Also, in present study, more than three fourth patients (i.e. 81%) were belonged to 20-29 years of age group which is slightly high in number than a similar study conducted by Anjana Devi [6] done at J.I.P.M.E.R, Pondicherry (i.e. 76%). In present study nearly two third patients were belonged to lower socioeconomic status which is slightly higher to a similar study conducted by Swati Pandey [7].

A similar study conducted by Swati Pandey [7] in PROM patients where 62% participants were primigravida which almost equal to present study i.e. 63%. In present study, 30% PROM patients underwent caesarean which was similar to a study conducted by Swati Pandey [7] 31% patients were underwent caesarean section. PROM is associated with an increased risk of maternal morbidity. Maternal morbidity increases with increase in duration of PROM. In the present study, maternal morbidity was 32%. In Kodkany [8] study maternal morbidity was seen in 21% of cases.

Febrile illness was most commonly seen in 19% followed by puerperal sepsis 3%. Similar study conducted by Anjana Devi ^[6] and Singhal ^[9], Febrile illness was noted amongst 20% and 17%. Chorioamnionitis is a major problem which can lead to intra-partum and postpartum sepsis and even septicaemia. In present study 2% patients showed Chorioamnionitis which is similar to a study conducted by Kodkany ^[8] (i.e. 5%).

The present study showed perinatal morbidity in 30% and mortality rate 4% which is almost equal to a similar study conducted by Sanyal ^[10].

Conclusion

PROM is an enigmatic condition associated with high risk of maternal morbidity, perinatal morbidity and mortality. It complicates many of the pregnancies. Complications increase with decrease in gestational age and increase in the latent period. Difficulties are found in the diagnosis of PROM. These complications can be reduced. First of all, all pregnant women should be educated to have regular antenatal care visits where advice regarding diet, nutrition and personal hygiene should be given with the help of specially trained and educated experienced staff counselling the patients. There should be at least 4 visits as per the recommendations of WHO and each pregnancy should be registered within 3 months. Early recognition of genital tract infection should be done and treated appropriately. Women should be educated about the possibility of PROM and the need to report at the earliest. Pregnancies complicated with PROM should have supervised labour preferably in an institution. Management of each case has to be individualised. A combined effort of obstetrician and neonatologist is necessary.

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