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ORIGINAL RESEARCH ARTICLE

Assessment of fetomaternal outcome following prelabour rupture of membranes in a tertiary care hospital

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ABSTRACT

Background: Preterm Prelabor Rupture of Membranes (PPROM) is one of the common causes of increased perinatal morbidity and mortality. There has been significant advancement in the management of PPROM, leading to an improvement in the maternal-fetal outcome. This has been made possible with use of prophylactic antibiotics and steroids. **Methods:** A single centered prospective observational study was done at Nil Ratan Sircar Medical College and Hospital, Kolkata over a period of one and a half year from March 2020 to August 2021. Template was generated in MS excel sheet and analysis was done on SPSS software. **Results:** All the patients in the study were belonging to the age group of 18-35 years. Majority of the patients (61%) belonged to the age group of 21-30 years. Majority of the patients in the study were primigravidas (54%). Majority of the patients were unbooked cases (54%). In the present study, majority of the patients (89%) belonged to low socioeconomic status. caesarean section rate was 19% in the expectant group and 26% in the induction group. In the present study 8% neonates in expectant group and 7% neonates in the induced group were screened positive for neonatal sepsis. NICU admissions were 9% in expectant group and 16% in induced group, **Conclusions:** A combined effort of obstetrician and neonatologist is necessary. Active management is responsible for shortening the total time between pre labour rupture of

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

membranes and delivery and the total maternal hospital stay without compromising on the maternal or foetal outcome.

Keywords: Preterm premature rupture of membranes, chorioamnionitis, Maternal outcome, neonatal outcome.

INTRODUCTION

The normal development, structural integrity and function of the fetal membranes are essential for the normal progress and outcome of pregnancy. One of the most important functions of the membranes is to remain intact until the onset of labor in order to maintain the protective intrauterine fluid environment. In most pregnancies labor begins at term in the presence of intact fetal membranes.[1,2] Without any intervention their spontaneous rupture usually occurs near the end of the first stage of labor. In 8%-10% of pregnancies they fail to maintain their structural integrity, resulting in pre-labor rupture.[1,3] This can be either at term Pre-labor Rupture of Membranes (PROM) or preterm pre-labor rupture of membranes (PPROM). Both are to some extent separate entities as in the latter "prematurity" become the main issue.[1, 2]

Prelabour rupture of membranes is defined as spontaneous rupture of foetal membranes before the onset of labour or regular uterine contractions. This is often referred to as premature rupture of membranes but the former is more precise. If rupture of membranes occurs at term, between 37 and 41 weeks of gestation, at this time it will be referred as prelabour rupture of membranes.[4]

Spontaneous rupture of membranes is a normal component of labour and delivery[5] but prelabour rupture of membranes is not.

Term PROM occurs in 5-20% of all labours. Indian studiesreported that incidence of PROM is 7%-12% of all labours.[6]

These patients are more prone to cord prolapsed, placental abruption and high risk of chorioamnionitis. The longer the time interval between rupture of membranes and onset of labour, the greater the risk of ascending infection and chorioamnionitis.[7,8] PROM is associated with increased dysfunctional labour, increased caesarean rates, postpartum haemorrhage and endomyometritis in the mother. In the foetus there is increased occurrence of hyaline membrane disease, intraventricular haemorrhage, sepsis, cerebral palsy, foetal distress and mortality.[9,10]

Etiology of prelabour rupture of membranes is multifactorial like enzymes, nutritional, and mechanical Factors, chorioamniotic membrane phospholipid content, and collagen abruption by amniotic cells cytokines induced by foetal signals, bacterial phospholipase and collagenase, all play major and interrelated roles.[11]

Urinary tract or vaginal infection, cervical incompetence, trauma, uterine anomalies, antepartum haemorrhage, polyhydramnios, multiple gestation and coitus in pregnancy, contribute to PROM.[12, 13]

Some studies observed that coitus in the last trimester led to a six-fold increase in PROM.[14] There were no significant differences in Caesarean section rates.

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Subsequent studies also indicated the higher rates of adverse outcome when expectant management at home was compared to in hospital observation.[15]

The present study was aimed at determining the foetal and maternal outcome following prelabour rupture of membranes at term in patients who were in the expectant group (observed for 12 hours without intervention) and patients who were induced within 12 hours of onset of PROM over a period of one and a half year from March 2020 to August 2021 in the Department of obstetrics and Gynecology, Nil Ratan Sircar Medical College and Hospital, Kolkata, West Bengal, India.

METHODS

This study is a single centered prospective observational study of cases of term premature rupture of membranes (PROM) to assess the epidemiological factors and foetomaternal outcome amongst patients in whom labour was induced within 12 hours of rupture of membranes as compared to the patients who were observed for the same. An observational study was conducted at the department of Obstetrics and Gynecology, Nil Ratan Sircar Medical College and Hospital Kolkata, West Bengal, India over a period of one and a half year from March 2020 to August 2021. Pregnant mother presenting to our institution admitted with complain of dribbling >37 weeks of POG were included in study. Patients who were willing to participate in the study were informed about the study and written informed consent was taken. A total of 100 patients in each group that is Group A (expectant group)-patients were observed and Group B (induced group)-labor was induced within 12 hours of PROM were selected for the study.

A detailed history was taken from the patient including age, booking, parity, socioeconomic status, time and onset of leakage of fluid per vaginum, amount of fluid lost, color of fluid any association with uterine contraction or bleeding per vaginum and perception of fetal movements, history of similar leakage in previous pregnancy, detailed obstetric and menstrual history was taken.

Per abdominal examination (done after emptying the bladder and patient lying in supine position with knees flexed) – Uterine height, symphysio-fundal height, fetal lie, presentation and position of fetus, any uterine contractions, uterine tenderness was seen as sign of chorioamnionitis, Fetal heart sounds (FHS) was auscultated and its rate, rhythm were noted. Complete blood count, total count, differential count and other routine blood investigations were sent, C- reactive protein and high vaginal swab was sent of all the patients. Maternal Pulse, Blood pressure (BP), Temperature were checked frequently and attention was paid to signs of chorioamnionitis. Both baby and mother were followed till discharge from hospital.

Study Population

All patients admitted with term premature rupture of membranes (PROM) more than 37 weeks of gestation during the period of study fulfilling the inclusion criteria and willing to participate in the study.

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

Sample Size

Sample size was calculated using proper statistical formula, with

p (incidence of prelabour rupture of membranes)= 10%

q is (100-p)= 90%

Error (l)= 5%

Z□= 1.96.

Inclusion criteria : Term pregnancy >=37 weeks confirmed by LMP or early pregnancy sonography. Admission CTG shows no abnormality, no evidence of fetal distress. Singleton live pregnancy, vertex presentation, no contraindications for vaginal delivery. Prelabour rupture of membranes <12 hours duration at the time of admission. No evidence of sepsis (tachycardia, pyrexia, uterine tenderness). No other risk factor in pregnancy, e.g,- medical complications, malpresentation, abnormal lie, multiple pregnancy and previous caesarean section.

Exclusion criteria: Grand multipara.Previous uterine surgery. Abnormal presentation, estimated foetal weight more than 4 kilograms or suspected CPD by sonographic measurements of foetal head and clinical estimation of pelvic capacities, antepartum haemorrhage during present pregnancy. Multiple pregnancies. Any condition which contraindicates vaginal delivery. Gestational age less than 37 completed weeks. Pregnancy complicated by chorioamnionitis. Women in active labour.

Ethical clearance: The study was conducted after obtaining written approval from the Institutional Ethics Committee. Written informed consent will be taken from every study patient or their logical representative

Statistical Analysis:

Data was analyzed using SPSS 22 for Windows statistical package. Results are expressed in frequencies and their respective percentages. Chi Square and Fisher's exact test was used to test for association among categorical data. We considered alpha=0.05 i.e. a 95% level of confidence for all hypothesis testing.

RESULTS

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. Two-sample t-tests for a difference in mean involved independent samples or unpaired samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. A chi-squared test ($\chi 2$ test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

exact test, as appropriate. Once a *t* value is determined, a *p*-value can be found using a table of values from Student's t-distribution. If the calculated *p*-value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis is rejected in favour of the alternative hypothesis. p-value ≤ 0.05 was considered for statistically significant.

Table 1: Distribution between two groups of study population among age in years, parity, antenatal status and Socioeconomic Status

Age in years	**Expectant**	**Induced within 12 hrs**	**Total**
≤20	28	32	60
21-25	48	48	96
26-30	14	12	26
31-35	10	8	18
Total	**100**	**100**	**200**
OBS Code			
Multigravidas	52	40	92
Primigravidas	48	60	108
Total	**100**	**100**	**200**
Booked/ Unbooked			
Booked	44	48	92
Unbooked	56	52	108
Total	**100**	**100**	**200**
Socio Economic Status			
Low	88	90	178
Middle	12	10	22
Total	**100**	**100**	**200**

Table 1 shows that in Expectant Group, 28 (28.0%) patients were ≤20 years old, 48 (48.0%) patients were 21-25 years old, 14 (14.0%) patient were 26-30 years old and 10 (10.0%) patients were 31-35 years old. In Induced within 12 hrs Group, 32 (32.0%) patients were ≤20 years old, 48 (48.0%) patients were 21-25 years old, 12 (12.0%) patient were 26-30 years old and 8 (8.0%) patients were 31-35 years old. Association of Age in Years with Group was not statistically significant (p=0.8866). In expectant group, 52 (52.0%) patients were multigravidas, and 48 (48.0%) patients were primigravidas. In induced within12 hrs group,40 (40.0%) patients were

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

multigravidas and 60 (60.0%) patients were primigravidas. Association of parity within the two Groups was not statistically significant (p=0.0886). In the expectant group, 44 (44.0%) patients were booked cases and 56 (56.0%) patients were unbooked cases. In induced within 12 hrs Group,48 (48.0%) patients were booked cases and 52 (52.0%) patients were unbooked cases. Association of antenatal cases within the two groups was not statistically significant (p=0.5703). In the expectant Group, 88 (88.0%) patients belonged to low socioeconomic class and 12 (12.0%) patients belonged to middle socioeconomic class. In Induced within 12 hrs Group, 90 (90.0%) patients belonged to Low socioeconomic class and 10 (10.0%) patients belonged to middle socioeconomic class. Association of socioeconomic status within the two groups was not statistically significant (p=0.6512).

Table 2: Distribution between two groups of study population among Latency Period, Mode of Delivery and Indication for LUCS

Latency Period	**Expectant**	**Induced within 12 hrs**	**Total**
> 20 hours	32	5	37
14-20 hours	49	46	95
8-14 hours	19	49	68
Total	**100**	**100**	**200**
Mode of Delivery			
Instrumental	3	4	7
LUCS	19	26	45
Normal Delivery	78	70	148
Total	**100**	**100**	**200**
Indication for LUCS			
Fetal Distress	7	12	19
Induction Failure	6	9	15
NPOL	6	5	11
Total	19	26	45

Table 2 shows the PROM to delivery interval in the two groups. In the expectant group, 32 (32.0%) patients were > 20 hours Latency Period,49 (49.0%) patients were 14-20 hours Latency Period and 19 (19.0%) patients were 8-14 hours Latency Period. In the induced within 12 hrs Group, 5 (5.0%) patients were > 20 hours Latency Period,46 (46.0%) patients were 14-20 hours Latency Period and 49 (49.0%) patients were 8-14 hours Latency Period. Association of Latency Period within the two Groups was statistically significant (p<0.0001).

In the expectant Group, 3 (3.0%) patients had instrumental delivery, 19 (19.0%) patients had LUCS and 78 (78.0%) patients had normal Delivery. In the induced within 12 hrs Group, 4

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

(4.0%) patients had instrumental delivery,26 (26.0%) patients had LUCS and 70 (70.0%) patients had normal delivery. Association of mode of delivery within the two groups was not statistically significant (p=0.4351).

In the expectant Group, 7 (7.0%) patients had fetal distress,6 (6.0%) patients had Induction Failure and 6 (6.0%) patients had NPOL as an Indication for LUCS. In Induced within 12 hrs Group, 12 (12.0%) patients had Fetal Distress,9 (9.0%) patients had Induction Failure and 5 (5.0%) patients had NPOL as an Indication for LUCS. Association of Indication for LUCS with Group was not statistically significant (p=0.6248).

Table 3: Distribution between two groups of study population among Neonatal Sepsis, NICU Admission and Neonatal Outcome

Neonatal Sepsis	**Expectant**	**Induced within 12 hrs**	**Total**
No	92	93	185
Yes	8	7	15
Total	**100**	**100**	**200**
NICU Admission			
No	91	84	175
Yes	9	16	25
Total	**100**	**100**	**200**
Neonatal Outcome			
Birth Asphyxia	9	11	20
HB	3	4	7
Healthy Baby	85	80	165
Meconium	3	5	8
Total	**100**	**100**	**200**

Table 3 shows the distribution of neonatal sepsis in the two groups in the expectant group, only8 (8.0%) neonates developed sepsis. In induced within 12 hrs group, 7 (7.0%) neonates developed sepsis. Association of neonatal sepsis within the two groups was not statistically significant (p=0.7883).

In the expectant group, 9 (9.0%) neonates had NICU Admission. In Induced within 12 hrs Group, 16 (16.0%) patients had NICU Admission. Association of NICU Admission with Group was not statistically significant (p=0.1344).

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

In the expectant group, 9 (9.0%) neonates had birth asphyxia, 3 (3.0%) patients had hyperbilirubinaemia, 85 (85.0%) neonates were Healthy and 3 (3.0%) patient had meconium stained liquor in neonatal outcome. In the induced within 12 hrs group, 11 (11.0%) neonates had birth asphyxia,4 (4.0%) patients had hyperbilirubinaemia, 80 (80.0%) neonates were healthy and 5 (5.0%) patient had meconium stained liqour in neonatal outcome. Association of Neonatal Outcome with Group was not statistically significant (p=0.8026).

Table 4: Distribution between two groups of study population among APGAR score at 1 min, Apgar at 5 min gr, Maternal Pyrexia and Maternal Wound Infection

Apgar at 1 min gr	**Expectant**	**Induced within 12 hrs**	**Total**
<7	24	29	53
≥7	76	71	147
Total	**100**	**100**	**200**
Apgar at 5 min gr			
<7	1	2	3
≥7	99	98	197
Total	**100**	**100**	**200**
Maternal Pyrexia			
No	90	94	184
Yes	10	6	16
Total	**100**	**100**	**200**
Maternal Wound Infection			
No	96	98	194
Yes	4	2	6
Total	**100**	**100**	**200**

Table 4 shows that in the expectant group, 24 (24.0%) neonates had a<7 Apgar score at 1 min and 76 (76.0%) neonates had>7 Apgar score at 1 min. In the induced within 12 hrs group, 29 (29.0%) neonates had a <7 Apgar score at 1 min and 71 (71.0%) neonates had a >7 Apgar at 1 min. Association of Apgar at 1 min within the two groups was not statistically significant (p=0.4230).

In the expectant Group, 1 (1.0%) neonates had<7 Apgar score at 5 min and 99 (99.0%) neonates had >7 Apgar at 5 min. In the induced within12 hrs Group, 2 (2.0%) neonates had<7 Apgar at 5 min and 98 (98.0%) neonates had>7 Apgar at 5 min. Association of Apgar score at 5 mins within the two groups was not statistically significant (p=0.5607).

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

In the expectant Group, 10 (10.0%) patients developed maternal pyrexia. In Induced within 12 hrs Group, 6 (6.0%) patients had maternal pyrexia. Association of maternal pyrexia within the two groups was not statistically significant (p=0.2971).

In the expectant Group, 4 (4.0%) patients had wound infection. In the induced within 12 hrs Group, 2 (2.0%) patients had wound infection. Association of maternal wound Infection within the two groups was not statistically significant (p=0.4070).

Table 5: Distribution between two groups of study population among CRP, Cervical Swab Culture and Antibiotic Received

CRP	**Expectant**	**Induced within 12 hrs**	**Total**
+ve	42	44	86
-ve	58	56	114
Total	**100**	**100**	**200**
Cervical Swab Culture			
G	35	30	65
NG	65	70	135
Total	**100**	**100**	**200**
Antibiotic Received			
Yes	100	100	200
Total	**100**	**100**	**200**

Table 5 shows in the expectant group, 42 (42.0%) patients had positive CRP and 58 (58.0%) patients had negative CRP. In the induced within 12 hrs Group, 44 (44.0%) patients had positive CRP and 56 (56.0%) patients had negative CRP. Association of CRP within the two groups was not statistically significant (p=0.7751).

In the expectant group, 35 (35.0%) of the patients showed growth in the cervical swab and 65 (65.0%) patients showed no growth. In the induced within 12 hrs Group, 30 (30.0%) patients had no growth in the cervical swab and 70 (70.0%) patients showed growth in the cervical swab. Association of cervical swab culture within the two groups was not statistically significant.

In the induced within 12 hrs Group, all patients [100 (100.0%)] received antibiotics.

Table 6: Distribution of mean Birth Weight (in Kg) and mean hospital stay in the two groups

		Number	**Mean**	**SD**	**Minimum**	**Maximum**	**Median**	**p-value**
Birth Weight (in Kg)	Expectant	100	2.7450	.3540	2.0000	3.4000	2.7000	0.2569
	Induced within 12 hrs	100	2.8030	.3672	2.0000	3.4000	2.9000	

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

Hospital Stay	Expectant	100	7.5300	2.7541	1.0000	19.0000	7.0000	<0.0001
	Induced within 12 hrs	100	5.8200	2.6719	1.0000	20.0000	5.5000	

Table 6 shows in the induced within 12 hrs Group, the mean birth weight (in Kg) (mean± s.d.) of the neonates was 2.8030± .3672. Distribution of mean birth weight (in Kg) within the two groups was not statistically significant (p=0.2569).

In the expectant group, the mean hospital stay (mean± s.d.) of the patients was 7.5300± 2.7541.

In the induced within 12 hrs group, the mean hospital stay (mean± s.d.) of patients was 5.8200± 2.6719. Distribution of mean hospital stay within the two groups was statistically significant (p<0.0001).

DISCUSSION

28 patients in group E and 32 in group I were between 18-20 years, 48 in group E and 48 in group I were between 21-25 years, 14 in group E and 12 in group I were between 26-30 years and 10 patients in group E and 8 patients in group I were between 31-35 years of age. In the present study, the mean age of patients in both the groups i.e. actively managed was 22.9 years and in expectantly managed group was 23.8 years which was comparable to Janhavi Mukharya et al[16] where the mean age of patients in both the groups i.e. actively manage was 23.88±2.94 years and in expectantly managed group was 24.06±3.83years. In the study done by Krupa G et al[17] where mean age in actively managed group was 23.6±6.1 years and in expectantly managed group was 23.7±6.2 years.

In the present study, in expectantly managed group 54% patients were primigravidas and 52% were multigravidas and in actively managed group 60% were primigravidas and 40% patients were multigravidas. In study done by Janhavi M et al[16], in actively managed group 70% (70 out of 100) were primigravidas and 30 patients were multigravidas and in expectantly managed group 61% (61 out of 100) patients were primigravidas and 39% (39 out of 100) were multigravidas.

In the present study, 48% of actively managed group patients were booked and 52% were unbooked whereas in expectantly managed group 26% were booked and 74% of the patients were unbooked. Similarly, in the study done by Janhavi M et al[16], 80% of the patients in the actively managed group were booked and 20 % were unbooked whereas in the expectantly managed group, 82% patients were booked and 18% patients were unbooked. Whereas, in the study done by Vaishnav et al[20] 27.27% patients were booked in actively managed group and 72.72% were unbooked and in expectantly managed group total booked and unbooked patients were 33.33% and 66.66% respectively.

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

In the present study, the PROM to delivery interval in the actively managed group was14.0700± 4.3328 hours and in the expectant group it was 17.8800± 5.2748 hours. It was similar to study conducted by Umairah et al[18] it was 17.4+-2.0 and 22.2+-2.0 hours respectively.

In the present study the percentage of normal delivery was 78% in expectantly managed and 70% in actively managed group, thus no significant difference was found in the two groups. It was similar to other studies like Vaishanav et al[20] and Janhavi M et al[16] where the percentage of spontaneous vaginal delivery were 74% and 71% in expectantly managed group respectively and 78.78% and 63% in actively managed group, thus no significant difference was found in the above studies.

In the present study caesarean section rate was 19% in the expectant group and 26% in the induction group in this study. The rate of caesarean in the present study was comparable to rate of caesarean section in Janhavi M[16] et al study where 28% in expectantly managed patient and 34% in actively managed patients. Though the rate is slightly higher in actively managed group but there is no significant difference in view of caesarean section rate. But in studies done by Chaudhuri S et al[19] and Graca Krupa[17] et al the rate of caesarean section was significantly higher in expectantly managed patient.

In the present study 36.8% (7 out of 19) patients underwent caesarean section with indication of fetal distress in expectant group whereas in the induction group 46.1% (12 out of 26) underwent caesarean section with the indication of fetal distress.

Fetal distress was the most common indication of caesarean in both the groups which was comparable to the study done by Janhavi M et al[16] where 72.72% (24 of 33) patients underwent caesarean section with indication of fetal distress in expectant group whereas in active group only 41.37% (12 out of 29) of underwent caesarean section with the indication of fetal distress.

In the present study 8% neonates in expectant group and 7% neonates in the induced group were screened positive for neonatal sepsis. It is comparable to the study of Umairah et al[18] 6.25% neonates in expectant group and 4.69% neonates in induced group were screened positive for neonatal sepsis. In Janhavi M et al[16] study in 4% neonates in expectant group and 2% neonates in the induced group were screened positive for infection. In another study of Chaudhuri S et al[19] 3.5% neonates in expectant group and 2.7% neonates in actively managed group were screened positive for infection.

In the present study total NICU admissions were 9% in expectant group and 16% in induced group. On applying chi square no significant difference was found among both the group. In Janhavi M et al[16] study total NICU admissions were 11% in expectant group and 15% in active group. Similarly, the study is comparable to other studies done by Chaudhuri S et al[19] and Vaishanav et al[20].

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

In the present study in expectantly managed group 3% neonates had meconium stained liquor at birth, 9 % neonates had birth asphyxia and in actively managed group 5% neonates had meconium stained liquor at birth and 11% neonates had birth asphyxia. On applying chi square there was no significant difference in neonatal outcome at birth in both the groups. In study done by Janhavi M et al[16] in expectantly managed group 4% neonates had meconium stained liquor at birth, 11% neonates had birth asphyxia and in actively managed group 6% neonates had meconium stained liquor at birth, 10% neonates had birth asphyxia. Other studies like Shanthi et al[21] in expectantly managed group 8% neonates had meconium stained liquor at birth, 6% neonates had birth asphyxia whereas in actively managed group 7.5% neonates had meconium stained liquor at birth and 9.4% neonates had birth asphyxia. And in Chaudhari S[19] study in expectant group 4.4% neonates had birth asphyxia whereas in actively managed group 5.4% neonates had birth asphyxia at birth.

In the present study in the induced group only 7% neonates had APGAR <7 at 1 minute of birth whereas in the expectantly managed group 9% neonates had APGAR <7 at 1 minute of birth. On application of Chi square there was no significant difference found in both the groups. In the study done by Gracakrupa et al1[7], 8% neonates had an APGAR score of <7 in the induced group and 5.3% neonates had a APGAR score of <7 in the expectantly managed group. In the study done by Chaudhuri S et al[19], 7.1% neonates and 5.4% neonates had an APGAR score of <7 in the expectant group and induction group respectively.

In the present study only 2% neonates in the induced group had APGAR score <7 after 5 minutes of birth whereas only 1% in the expectant managed group. There was no significant difference found on applying Chi square. Thus the present study is comparable to the study done by Chaudhuri S et al[19] where the APGAR score at 5 mins was <7 in 5.4% and 7.1% in the expectant and induced group respectively.

In the present study in expectantly managed group10 % patients had febrile episode and 4% patients had wound infection whereas in actively managed group 6 % patients had febrile episodes and 2% patient had wound infection. On applying Chi-square test no significant difference was found among the both groups. In study done by Janhavi M et al[16] in expectantly managed group 18% patients had febrile episode and 3% patients had wound infection whereas in induced group 12% patients had febrile episodes and 1% patient had wound infection. In the study done by Vaishanav et al[20] in expectantly managed group 7.5% patients had febrile episodes and 4.5% patients had wound infection whereas in actively managed group 3% patients had febrile episodes and 1.5% patients had wound infection. Whereas in the study done by Chaudhuri S et al[19] in actively managed group 1.8% patients had febrile episodes whereas in expectant group 0.8% had febrile episodes.

In the present study in the induced group mean hospital stay was 5.8200± 2.6719 and in the expectant group was 7.5300± 2.7541. Mean hospital stay was significantly more in the expectant

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

group as compared to the actively managed group. The present study was comparable to the similar studies done by Janhavi M et[16] al and Vaishanav et al[20].

CONCLUSIONS

PROM is an enigmatic condition associated with high risk of maternal morbidity, perinatal morbidity and mortality. It complicates 5-10% of all pregnancies. Complications increase with decrease in gestational age and increase in latency period.

In the present study, we conclude that in comparative study of expectant versus active management of premature rupture of membranes at term, the PROM to delivery interval between the two study groups was higher in the expectant group than in the induced group and statistically significant. There was no significant difference was found in the rate of caesarean section and instrumental delivery. There was no statistically significant difference in the maternal and perinatal complications between the expectant and induction groups.

Hence both methods of management can be used in premature rupture of membranes at term. However, the patients in expectant management group were in labor for many hours thus increasing the anxiety of mother and clinician. Active management is responsible for shortening the total time between pre labour rupture of membranes and delivery and the total maternal hospital stay without compromising on the maternal or foetal outcome**.**

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References :

1. Cunningham FG, Leveno K, Bloom S, Spong C, Dashe J, Hoffman B, et al. Williams Obstetrics. 21st Edition. Texas: McGraw-Hill Education / Medical; 2001. p. 754-6.
2. Arikat S, Novince RW, Mercer BM, Kumar D, Fox JM, Mansour JM, et al. Separation of amnion from choriodecidua is an integral event to the rupture of normal term fetal membranes and constitutes a significant component of the work required. American Journal of Obstetrics and Gynecology. 2006;194:211-217.
3. Cammu H, Verlaenen H, Derde M. Premature rupture of membranes at term in nulliparous women: a hazard? Obstetrics & Gynecology. 1990;76:671–74.
4. Kunt C, Pektas M and Cakir A. Randomised trial of vaginal prostaglandin E2 versus oxytocin for labour induction in term premature rupture of the membrane. Taiwan J obstetric gynaecology; 2010:49(1):57-59.
5. Caughey A et al. Contemporary diagnosis and management of preterm premature rupture of membranes. Rev Obstet Gynecol. 2008;1(1):11–22.

ISSN: 0975-3583,0976-2833 VOL13,ISSUE08,2022

6. Pandey S, Dave A, Bandi S. Maternal and foetal outcome in cases of PROM. Journal of Obstet and Gynaecology of India 2000;50:63.
7. Natale R et al. Management of premature rupture of membranes at term randomised trial. Am J of Obstret and Gynaecol 1994;171(4):936-39.
8. Hannah M et al. Induction of labor compared with expectant management for prelabor rupture of the membranes at term. TERMPROM Study Group. The New England journal of medicine. 1996; 334(16):1005-10.
9. Rouse D et al. The Maternal-Fetal Medicine Units cesarean registry:chorioamnionitis at term and its duration-relationship to outcomes. Am J Obstet Gynecol. 2004;191:211.
10. Mark S et al. Chorioamnionitis and uterine function. Obstet Gynecol. 2000;95:909.
11. Hannah M, Hodrett E and William A. Prelabour rupture of the membranes at term, expectant management at the home or in the hospital, obstet Gynecol J; 2002;96(4):533-38.
12. Rouse D et al. The Maternal-Fetal Medicine Units cesarean registry:chorioamnionitis at term and its duration-relationship to outcomes. Am J Obstet Gynecol. 2004;191:211.
13. Mark S et al. Chorioamnionitis and uterine function. Obstet Gynecol. 2000; 95:909.
14. Kodkany et al. Premature rupture of membranes, a study of 100 cases. Journal of Obstet and Gynecol of India 1991;41:492.
15. Gungorduk K, Aasicioglu O, Basimoglu B, Gungorduk OC, Yildirm G, Ark C, Sahbaz A. Labour induction in term prelabour rupture of membranes; comparison between oxytocin and dinoprostone followed 6 hours later by oxytocin. Am J Obstet Gynecol. 2012;206:60.
16. Mukharya J, Mukharya S. Comparative study of fetal and maternal outcomes of prelabour rupture of membranes at term. Int J Reprod Contracept Obstet Gynecol 2017;6:149-63.
17. da Graça Krupa F, Cecatti JG, de Castro Surita FG, Milanez HMBP, Parpinelli MA. Misoprostol versus expectant management in premature rupture of membranes at term. BJOG Int J Obstet Gynaecol. 2005;112(9):1284-90..
18. Umairah Yaqub RM, Mushtaq M. Obstetric and perinatal outcome in induction of laborcompared with expectant management for prelabor rupture of the membranes at term.Pakistan Armed Forces Medical Journal. 2015;65(2):179-83.
19. Chaudhuri S, Kumar BP, Bhattacharyya S, Nath M. Premature rupture of membranes at term : immediate induction with PGE2 gel compared with delayed induction with oxytocin. J Obstet Gynecol India. 2006;56(3).
20. J V, G V. A Study of feto-maternal outcome in patients with prelabour rupture of membranes at term and gt;37 Weeks. Med Sci Int Med J. 2012;1(2):118.
21. Shanthi K, Devi PG, Bharathi T, Chandrasekharan PA. Comparative study of active versus expectant management and maternal and neonatal outcome in premature rupture of the membranes (PROM) in Tertiary Care Hospital, Tirupathi. IOSR-JDMS. 2015;14(4):34-9.