International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Dudhrajia K et al. Int J Reprod Contracept Obstet Gynecol. 2023 Jun;12(6):1820-1823
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20231562

Original Research Article

A Study on fetomaternal outcome in prelabour rupture of membrane conducted at tertiary health care centre at Rajkot, Gujarat, India

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Received: 18 April 2023
Revised: 12 May 2023
Accepted: 15 May 2023

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ABSTRACT

Background: Prelabour rupture of membrane is defined as a rupture of membrane before onset of labour and in the absence of uterine contraction. When it occurs before 37weeks it defined as a preterm PROM. One of the most common complication is preterm delivery approximately 7-10% and account for 1-2% of foetal death. Most commonly associated with subclinical UTI.
Methods: A prospective study was conducted from (June 2021-June 2022) at a tertiary health care hospital. All female with spontaneous rupture of membrane after 28weeks of gestation.
Results: In present study total 200 cases taken and incidence of department was 6.76%,varies between 2% to18% commonly involved age groups belongs to 20-24 years, at 35 -36 weeks (52%) and with high vaginal delivery rate (approximately) with average baby weight between 2.1-2.5 kg with more than 7 APGAR score, more in multigravida.
Conclusions: Incidence of prelabour rupture of membrane can be reduced by early diagnosis of subclinical UTI in antenatal visits.

Keywords: Prelabour rupture of membrane, Preterm delivery, Subclinical UTI

INTRODUCTION

Premature rupture of membranes (premature rupture of membrane) is the rupture of the fetal membranes in the absence of uterine contraction or before the onset of.[1] This occurs near term in most cases and in multigravida.[2] But when membrane rupture occurs before 37 weeks gestation, it is known as preterm premature rupture of membrane.[3] Most of the Indian study reports incidence of preterm premature rupture of membrane approximately between 7% to 10% and complicates in about 3% of pregnancies and leads to one third of preterm births and has major impact on foetal and maternal outcome.[4] It increases the risk of prematurity and leads to a number of other perinatal and neonatal complications and infection, including a 1 to 2 percent risk of foetal death.[5,6] One of the most common complications of preterm premature rupture of membrane is preterm delivery. A low molecular substances present in cervical mucus plug may prevent ascending infection which lost in PROM.[7] Chances of ascending infection is more if labour fails to start within 24 hour.[8] About 30-40% of women with premature rupture of membrane deliver within 48 hours and 56-63% deliver within one week of membrane rupture. The latent period, which is the time from membrane rupture until delivery, generally is inversely proportional to the gestational age at which premature rupture of membrane occurs. Infant mortality and morbidity inversely proportional to latent period.[9] PROM is multifactorial but most commonly associated with subclinical UTI.[2] The maternal complications associated with premature rupture of membrane include chorioamnionitis, placental abruption, umbilical cord accidents, postpartum hemorrhage and endometritis.[10] Surviving foetus will suffer from prematurity and its

complications mainly, also pulmonary hypoplasia due to severe oligohydroamnios, skeletal and joint deformities of the fetus due to compression, increased risk of neurodevelopmental impairment and neonatal white matter damage.[10] No direct caesarean in PPROM taken as it cause morbidity to fetus.[11] Current evidence suggests aggressive adjunctive antibiotics therapy to reduce gestational age-dependent and infectious infant morbidity.[12] In management and future plan of prelabour rupture of membrane still there is a dilemma apart from diagnosis and is still remaining controversial and challenging. The decision for appropriate management depends upon the assessment of gestational age, the likelihood of infection and availability of neonatal intensive care unit. The aim of modern obstetrics is to give best quality of life for the child to be born.

METHODS

This is prospective observational study was conducted during June 2021-June 2022 in obstetrics and gynaecology department at Tertiary care hospital (PDU Medical College and Hospital, Rajkot).Total 200 antenatal women of gestation after 28week of gestation with spontaneous rupture of membrane but before onset of labour were enrolled with prior consent.

All women with prelabour rupture of membrane before onset of labour were examined primarily per speculum to see leakage and diagnosed.

Exclusion criteria

Exclusion criteria were patient with meconium-stained liquor, cord prolapse, antepartum haemorrhage, active infection and active liver disease.

RESULTS

After formulation of the aim of the study, a clinical data sheet was made for recording all information of the pregnant women suggestive of from total 68% were unbooked and 78% are from lower socioeconomic class.

Table 1: Age distribution of patients with premature rupter of membrane.

Age	No. of patients	Percentage
<25	116	58
25-30	60	30
>30	24	12

Table 1 shows that most of the affected women belonged to below 25 years of age 58%. Thirty women belong to the age group of 25-30 years 30% and only 12% women belong to age more than 30 years. In study of Kalkins and Mary most commonly affected age group age 25 to 35.

Table 2: Gestational age in weeks distribution in patients with premature rupture of membrane.

Gestational age	No of patient	Percentage
<32	12	5.4
33-34	50	25.3
35-36	104	52
>37	34	17.3

Table 2 shows maximum no of patients were of 35-36 weeks of gestation 104 (52%), 50 (25.3%) were of 33-34 weeks of gestation, only 12 (5.4%) were of 37 weeks of gestational age. In Allen study approximately 60-80% PROM seen in 36-37 weeks.

Table 3: Mode of delivery in premature rupture of membrane.

Type of delivery	No. of delivery	Percentage
Vaginal	156	78
Caesarean	44	22

According to study by Balkins, Donnelle, John I. Biskind and Dyer, suggestive of incidence of PROM is more in multigravida then primigravida. Table 3 shows most of the patients 156 (78%) were delivered by normal vaginal birth. Whereas 44 (22%) were delivered by caesarean section.

Most patient present with subclinical UTI infection with PROM.

Table 4: Complications of premature rupture of membrane.

Indication	No. of patient	Percentage
Subclinical UTI	108	54
Oligohydroamnios	67	33.5
Chorioamnionitis	25	12.5

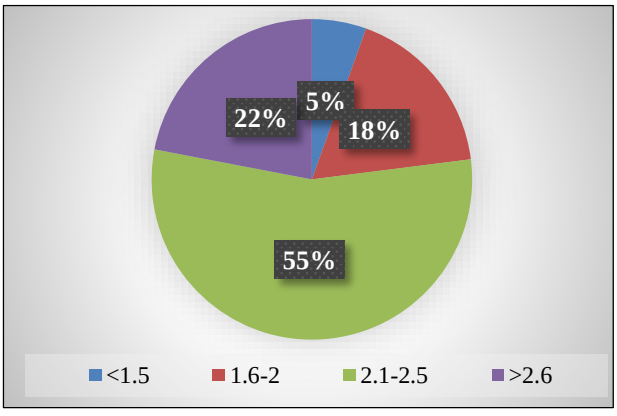

Figure 1: Fetal birth weight in premature rupture of membrane.

Figure 1 shows that most of the babies 110 (55%) had birth weight between 2.1-2.5 kg. 11 (5.5%) babies had birth weight less than 1.5 kg. The 35 (17.5%) babies were born

between 1.6 to 2 kg body weight. The 44 babies (22%) had birth weight of more than 2.6 kg. These results comparable with study by Mohokar et al where 26% baby birth more than 2.5 kg.

Table 5: APGAR Score for babies.

APGAR score	No. of babies	Percentage
>7	156	78
4-6	43	22
<3	0	0
0	0	0

Table 5 shows that immediately after birth 156 (78%) babies were born with Apgar score >7, 43 babies (16%) had Apgar score between 4-6. During these study approximately 48 babies were admitted to NICU. According to study done by Patil et al, NICU Admission approximately 24%.

Table 6: Parity distribution in prelabour rupture of membrane.

Parity	No. of babies	Percentage
PRIMIPARA	87	43.5
MULTIPARA	113	56.5

According to study by Balkins, Donnelle, John I. Biskind and Dyer, suggestive of incidence of PROM is more in multigravida then primigravida (Table 6).

DISCUSSION

This study conducted at a tertiary care centre, shows the incidence of PROM in hospital was 6.76%. A study undertaken at Dhaka Medical College Hospital (DMCH) showed the incidence of 8.12%.

Another study at Rangpur Medical College Hospital reported an incidence of 9.05%.and in study by Bhalerao and Desai and Bhinde showed an incidence between 7-12%. Study shows 68% patients were Unbooked. And 32% were booked, as this was due to increase in awareness for ANC visit and various health program. This study is comparable by Begum, which shows 50% were having no ANC visit or irregular visit.

During the study period, 34 (17.3%) patients were admitted at term (>37 weeks) and 104 (52%) patients came before 37 completed weeks of gestation, according to Allen study approximately 60-80% seen between 36-37 week. Most of the affected patients belongs to 20-24 years of age which is similar to study by Yeasmin et al in 2020 which shows 57.4%.[13] In present study, maximum women were multigravida (57%) coming from low socioeconomic families. Low socio-economic status is an important risk factor for both PROM and PTLP. Associated factors such as malnutrition, overexertion, poor hygiene, stress, recurrent genitourinary infections and anaemia considerably increase the risk. During this study period, most of the babies 114 (57%) had birth weight between 2.1-2.5 kg, 11 (5.5%) babies had birth weight less than 1.5kg and 46 (23%) babies were born between 1.6 to 2 kg body weights. This study is comparable with study by Mohokar et al where 26% baby birth more than 2.5 kg.[14] Several studies have concluded that hyaline membrane disease is the greatest threat to the newborn when premature rupture of membrane occurs before term. Lower gestational age the risk of respiratory distress is greater than the risk of infection. At 24 weeks 100% of the newborns develop respiratory distress syndrome, at 32 weeks 25% and at 34 weeks close to 10%. The risk of sepsis at these gestational ages was 40, 32, 4.5 and 3%, respectively. Maximum no of patients were of 35-36 weeks of gestation 104 (52%), 50 (25.3%) were of 33-34 weeks of gestation, only 12 (5.4%) were of 37 weeks of gestational age. Out of 200 cases of PROM, 156 (78%) were delivered by normal vaginal birth. Whereas 44 (22%) were delivered by cesarean section. From total vaginal birth, 108 (70.12%) were spontaneous and 46 (29.88%) were induced. In cesarean section, most common indication were fetal distress and failed induction. Common complication was subclinical urogenital infection 108 (54%) whereas 67 women had oligohydramnios (33.5%) and 25 women (12.5%) women presented with chorioamnionitis. Duration of PROM increased maternal morbidity, no maternal mortality noted in present study, as all women acquired early and proper intervention. The common complication observed in neonates were RDS, LBW, TTN, NEC, sepsis. Present study shows that interval of 24 hours is relatively safe and infection rate in mother less and time provision for steroid injection for lung maturity.

CONCLUSION

In my study, incidence of PROM of institute is 6.76%, with commonly involved age groups belongs to 20-24 years, at 36-37 week, with high vaginal delivery rate with average baby weight 2.1-2.5 kg with more than 7 APGAR, more in multigravida and who are unbooked or taking irregular ANC visit. Incidence of PROM can be reduced by regular ANC visits and identification of subclinical UTI. As study of PROM and dental infection limited due to COVID infection.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Dudhrajia K, Chauhan T. A Study on fetomaternal outcome in prelabour rupture of membrane conducted at tertiary health care centre at Rajkot, Gujarat, India. Int J Reprod Contracept Obstet Gynecol 2023;12:1820-3.