



A STUDY ON MATERNAL AND PERINATAL OUTCOME IN PREMATURE RUPTURE OF MEMBRANES

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Abstract

Background: The present study was conducted for assessing maternal and perinatal outcome in premature rupture of membranes

Materials & Methods: A total of 200 patients with confirmed diagnosis of premature rupture of membrane at or more than thirty-seven weeks of gestation were enrolled. Complete demographic and clinical details of all subjects was obtained. Only those subjects were enrolled which had cervical dilatation of more than 3 cm and which lacked uterine contraction for at least 1 hour of PROM. The results of a thorough "per vaginal examination" were recorded, including the cervix's consistency, effacement, dilatation, position, presence or absence of membrane, vertex station and position, caput presence, molding, and pelvic assessment. Both the maternal and foetal outcomes were seen. SPSS software was used to record and interpret each outcome.

Results: Puerperal sepsis, wound infection site and hemorrhage was seen in 13 percent, 8 percent and 5 percent of the patients respectively. Neonatal outcome was alive in 75 percent of the patients while alive with complications was seen in 22 percent of the patients. Still birth was seen in 3 percent of the patients. 21 percent of the Fetus were admitted to NICU.

Conclusion: Timely diagnosis and management of preterm PROM will allow obstetric care providers to optimize perinatal outcome and minimize neonatal morbidity.

Key words: Premature, Rupture, Perinatal, Maternal

Introduction

The normal development, structural integrity and function of the foetal membranes are essential for the normal progress and outcome of pregnancy.¹ One of the most important functions of the membranes is to remain intact until the onset of labour at term in order to maintain the protective intrauterine fluid environment; the amniotic fluid upon which foetus depends for its survival in utero.² Indeed in most pregnancies labour begins at term in the presence of intact foetal membranes. Without interventions their spontaneous rupture usually occurs near the end of the first stage of labour. The onset of labour following PROM is directly related to gestational age at the time of rupture: after 36 weeks more than 80% of patients will be in labour within 24 hours; before 28 weeks only 48% will be in labour within 3 days of rupture.^{3,4} Definition Premature rupture of membranes (PROM) is defined as the spontaneous rupture of amniotic membrane with a release of amniotic fluid at least one hour before the onset of labour. If the membranes rupture after 37 weeks of gestation it is called term PROM. If the rupture of membranes (ROM) occur after 28 weeks but before 37 weeks of gestation is termed as the preterm premature 1 rupture of membrane (PPROM).⁵ PROM occurs in approximately 10% of all pregnancies and in 70% of the cases at term. Although there is some morbidity when PROM occurs in term pregnancies, the fundamental clinical problem is preterm PROM, a condition that occurs in 3% of all pregnancies and is responsible for approximately 30% of all preterm 1 deliveries.^{6,7} Preterm PROM complicates 3-8% of pregnancies and leads to one third of 2 preterm deliveries. It increases the risk of prematurity and leads to other perinatal and neonatal complications with 1-2% risk of foetal death. PROM is associated with increased risk of chorioamnionitis, dysfunctional labour, increased caesarean rates, postpartum haemorrhage and endometritis in the mother. In the foetus, there is increased occurrence of hyaline membrane disease, intraventricular haemorrhage, sepsis, cord prolapse, foetal distress and increased foetal wastage.⁸⁻¹⁰ Hence; the present study was conducted for assessing maternal and perinatal outcome in premature rupture of membranes.

Material and methods

The present study was conducted for assessing maternal and perinatal outcome in premature rupture of membranes. A total of 200 patients with confirmed diagnosis of premature rupture of membrane at or more than thirty-seven weeks of gestation were enrolled. Complete

demographic and clinical details of all subjects was obtained. Only those subjects were enrolled which had cervical dilatation of more than 3 cm and which lacked uterine contraction for at least 1 hour of PROM. Subjects within presence of uterine contraction within 1 hour of PROM and having multiple pregnancies were excluded. Detailed history was obtained. Obstetrical examination was done. Under strict aseptic precaution, a thorough pelvic examination was performed. The results of a thorough "per vaginal examination" were recorded, including the cervix's consistency, effacement, dilatation, position, presence or absence of membrane, vertex station and position, caput presence, molding, and pelvic assessment. Both the maternal and foetal outcomes were seen. SPSS software was used to record and interpret each outcome.

Results

Mean maternal age of the patients was 34.3 years. 59 percent of the patients were of rural residence. 62 percent of the patients were of Primigravida. In 69 percent of the patients, duration of PROM was less than 12 hours. Puerperal sepsis, wound infection site and hemorrhage was seen in 13 percent, 8 percent and 5 percent of the patients respectively. Neonatal outcome was alive in 75 percent of the patients while alive with complications was seen in 22 percent of the patients. Still birth was seen in 3 percent of the patients. 21 percent of the Fetus were admitted to NICU.

Table 1: Demographic and clinical variables

Variable		Number	Percentage
Age (years)	Less than 20	10	10
	20 to 35	71	71
	More than 35	19	19
Residence	Rural	59	59
	Urban	41	41
Gravida	Primi	62	62
	Multi	38	38
Duration of PROM	Less than 12 hours	69	69
	≥ 12 hours	31	31
Mean duration of hospital (days)		3.1 days	

Table 2: Maternal and fetal outcome of pregnancy complicated by term PROM

Variables		Number	Percentage
Maternal	Puerperal sepsis	13	13
	Wound infection site	8	8
	Hemorrhage	5	5
	Others	2	2
Neonatal outcome	Alive	75	75
	Alive with complications	22	22
	Still birth	3	3
Fetus need ICU	Yes	21	21
	No	79	79

Discussion

Premature rupture of membrane is associated with a high risk of maternal morbidity and mortality. It is characterized by spontaneous rupture of chorioamnion before the onset of uterine contractions which leads to progressive cervical dilatation. It occurs in approximately 8% of all pregnancies. In developing countries, the incidence of premature rupture of membrane is about 18-20%. Maternal morbidities are found in terms of chorioamnionitis which leads to endometritis, puerperal pyrexia, wound infection and placental abruption.⁷⁻⁹Hence; the present study was conducted for assessing maternal and perinatal outcome in premature rupture of membranes.

Mean maternal age of the patients was 34.3 years. 59 percent of the patients were of rural residence. 62 percent of the patients were of Primigravida. In 69 percent of the patients, duration of PROM was less than 12 hours. Puerperal sepsis, wound infection site and hemorrhage was seen in 13 percent, 8 percent and 5 percent of the patients respectively. Endale, T et al assessed the maternal and fetal outcomes and associated factors in term PROM. They examined records of 4 525 women who gave birth in the hospital; out of these women, 185 were diagnosed with term PROM and all of them were included in the study. Of the 4525 women who gave birth in the hospital, 202 were complicated by term PROM. About 22.2% of the women showed unfavorable maternal outcomes. The most common cause of maternal morbidity and mortality was puerperal sepsis. About 33.5% of neonates experienced unfavorable outcomes. The duration of PROM >12 hours latency >24 hours, residing in rural

areas and birth weight less than 2 500 g were associated with unfavorable outcomes. Women residing in rural areas, long latency, and neonates with birth weight less 2 500 g may have unfavorable outcomes.¹⁰

Neonatal outcome was alive in 75 percent of the patients while alive with complications was seen in 22 percent of the patients. Still birth was seen in 3 percent of the patients. 21 percent of the Fetus were admitted to NICU. Dars S et al assessed the maternal morbidity and perinatal outcome in pre-term pre mature rupture of membranes between 24 to 37 weeks gestation. All patients had laboratory investigations. Inclusion criteria were all patients gestational age between 24 to 37 weeks with preterm premature rupture of membrane (PPROM) confirmed by ultrasound and clinical examination regardless of their age. Out of 100 patients included in this study Primigravida were 17% and multigravida 83%. There was wide variation of age ranging from a minimum of 20to >40 years. The mean age was 30+ 3.1 years. Mostly patients belonged to the poor class in 72% cases followed by middle class in 21% and upper class 7%. Analysis shows that out of 100 mothers 26% had PROM of <24 hrs duration and 74% had >24 hrs of duration. Maternal outcome in 16 cases of Preterm Premature Rupture of Membrane findings revealed septicemia in 12% cases and Chorioamnionitis in 12% cases. Fetal outcome in 27 cases of preterm premature rupture of membrane revealed prematurity in 5% cases, fetal distress in 4% cases, cord compression in 5% cases, necrotizing enterocolitis in 2% cases, hypoxia in 9% cases and pulmonary hypoplasia in 2% cases. Low socioeconomic status is associated with increased neonatal morbidity due to fetal distress, cord compression, necrotizing enterocolitis, hypoxia and pulmonary hypoplasia at the time of delivery.¹¹

Conclusion

Timely diagnosis and management of preterm PROM will allow obstetric care providers to optimize perinatal outcome and minimize neonatal morbidity.

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