



A CLINICAL STUDY OF MATERNAL AND FETAL OUTCOME IN PREMATURE RUPTURE OF MEMBRANES

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ABSTRACT **Objective:** The aim of the study was to see the maternal and fetal outcome of preterm pre labour rupture membrane and to identify the risk factors for preterm pre labour rupture membrane.

Methods and material: This was a comparative study between the study (PROM) and control group conducted in M.R. Medical College, Gulbarga in the department of OBG. 100 pregnant women with preterm premature rupture of the membrane (gestational age 28-0 to 36-6 weeks) were included in this study and 100 pregnant women as controls.

Results: 13% were malpresentations and 10% had h/o recent coitus, were the major risk factors. 64% had spontaneous, 73% percent patient delivered by vaginal route and 27% patients underwent LSCS. 11% patients had puerperal fever and 3% chorioamnionitis. 26% newborn suffered from RDS and 14% of neonatal sepsis.

Conclusion: Antenatal diagnosis to prevent PROM by identifying the risk factors is an important tool in management.

KEYWORDS : Premature rupture of the membrane; Maternal and neonatal outcome.

INTRODUCTION:

Premature rupture of membrane (PROM) is common occurrence with an incidence of 10%. It is significant event as it causes maternal complications, increased operative procedures, neonatal morbidity and mortality. The management of a case of PROM has remained as one of the most difficult and controversial problems in obstetrics over the past several decades. The management of PROM has gone through various cycles of obstetric activity there have been varying degrees of concern responsible for large number of neonatal mortality. The preventive treatment awaits further elucidation of the etiology, not yet fully understood. For this study it has been defined as spontaneous rupture of membranes during pregnancy beyond 28 weeks and before 37 weeks. The time from the rupture of membranes to the onset of contraction is defined as the latent period. The key to the management is an accurate assessment of gestational age and the presence or absence of sepsis. However the management is specially difficult in preterm patient in whom the risk of fetal and maternal infection that can accompany expectant treatment has to be weighed against potential improvement in neonatal outcome that comes with greater maturity of fetal lungs. Currently most authorities accept a plan of active management which includes prevention of infection, delay of delivery until fetal maturity is achieved and active intervention by induction if labour is no longer preventable or if early infection is suspected. The present study is undertaken to identify risk factors causing PROM and study labour outcome, maternal morbidity and perinatal morbidity and mortality associated with PROM.

OBJECTIVES:

1. To study risk factors causing PROM
2. To study labour outcomes in PROM
3. To study maternal and perinatal morbidity and mortality associated with PROM

MATERIALS AND METHODS:

This is a prospective study carried at Basaveshwar Teaching and General Hospital and Sangameshwar Hospital, Gulbarga attached to M. R. Medical college, Gulbarga over a period from June 2017 to June 2018. 100 cases were in study group and 100 as controls. Cases selected in the study had to fulfill the following inclusion criteria. Inclusion criteria: Gestational age beyond 28 and <37 weeks, primi gravida/multi gravida, singleton/twin pregnancy, malpresentations, polyhydramnios, mother with diabetes mellitus, PIH/preeclampsia, confirmation of PROM by a speculum examination.

Exclusion criteria:

PROM more than 37 weeks, congenital anomalies/IUD.

Methodology:

Hundred patients with history of PROM before onset of labour pains were admitted to labour room. A detailed history was taken age, parity,

menstrual and obstetric history with emphasis on exact time of rupture, duration, amount of leaking and association of pain, history of previous similar episodes in other pregnancies and history suggestive of incompetent os were evaluated. Detailed history regarding recent coitus, severe physical exertion and examinations if any before admissions was noted. In general examination pulse, BP and temperature were noted followed by systematic examination. In obstetric uterine height, presentation, position, lie of fetus and amount of liquor were noted. All parameters of maternal and fetal well being were recorded. A sterile speculum examination was conducted to visualize the gross pooling of liquor amni in vagina. When frank leaking was present the liquor was sent for culture and sensitivity. When no amniotic fluid was seen in the vagina, patient was asked to cough and per speculum done to see the drainage of amniotic fluid. In case of doubt, fluid from vagina was collected on slide and examined under microscope for ferning. A single pelvic examination was done to note the Bishop's score presence or absence of membranes, presenting part and its station and to rule out cord prolapse and also pelvic assessment. All patients with leaking received prophylactic antibiotics in the form of 500 mg Ampicillin 6th hourly. Thereafter the patient was monitored 4th hourly for signs of infections. A 4th hourly monitoring of pulse, BP, temperature and presence and absence of contractions was done. Fetal heart sounds were recorded every 1/2 hourly initially.

RESULTS:

Majority belong to 21-25 with mean age of 23.0±3.5 and 23.4±2.9 in PROM patients and control groups. P-values statistically not significant. The study shows that no significant correlation between antenatal care and incidence of PROM. It also shows that PROM occurs more frequently in primigravida compared to that of multigravida.

The table no-1, shows risk factors in relation to PROM. It is evident that malpresentation 13% and history of recent coitus 10%, Urinary tract infection and previous history of PROM constitute to 6%. P-value is highly significant.

RISK FACTORS	STUDY	CONTROL
Unknown	59	00
Breech	13	4
History of recent coitus	10	0
Previous history of PROM	6	1
Polyhydramnios	4	1
Twins	2	4
UTI	6	2

Out of 100 cases, percentage of PROM with gestational age <32 weeks corresponds to 7% and those near term corresponds to 75%. Incidence of LSCS and instrumental deliveries were found higher in PROM than in controls. Out of all vaginal deliveries, percentage of patients who

had spontaneous labour were 82.19%. while 17.8% were induced. In this study the main indication for LSCS was non reassuring fetal heart rate, which constitute to 51.85%. The second most common indication was breech i.e., 22.22%. Other indications include previous LSCS in 11.11% and CPD in 14.8%.

The table no-2, shows that as compared to control group which showed 2% had pyrexial fever, 11% had puerperal pyrexia with PROM, 3% chorioamnionitis and 3% wound infection and 2% accounted to UTI.

	STUDY	CONTROL	Z	P
Chorioamnionitis	3	--	5.26	<0.05 HS
Puerperal pyrexia	11	2		
Wound infection	3	--		
Urinary tract infection	2	--		

From the table no-3, it can be observed that 26% accounted for respiratory distress syndrome in study group, while 12% in control group. 14% had septicemia in study group. This proved to have a highly significant value, while conjunctivitis, neonatal jaundice (hyperbilirubinemia) and intraventricular hemorrhage accounted for 3%, 3% and 4% each.

	STUDY	CONTROL	X2	P
Respiratory disease syndrome	26	12	6.37	<0.05
Septicemia	14	--	12.98	>0.001
Jaundice	3	3	0.172	>0.05
Conjunctivitis	3	--	1.35	>0.05
Intraventricular hemorrhage	4	2	0.12	>0.05

The study shows that out of 100 cases each in the present study and control group, 36% in the study group and 18% of controls had NICU admission which is almost double and in between gestational age group of 35-36+6 gestation, it had highly significant value. According to the study, 28.8% of neonatal death in between the gestational age 28-31+6, while 20% in control group. In the gestational period of 32-34+6, the neonatal death is 1.33%. The study also shows that there was no significant difference between study and control groups with respect to birth weight. The study also shows that, significant number deaths were observed in babies with birth weight less than 1.5.

DISCUSSION:

Premature rupture of membranes is fairly a common complication of pregnancy and can lead to increased maternal complications, operative procedures, neonatal morbidity and mortality. The present study was undertaken to identify risk factors causing PROM and to study labour outcome maternal morbidity and perinatal morbidity and mortality associated with PROM. Age of patient: For this study the cases were selected from all age groups. Maternal group between 21-26 years was the most common age group. These findings correlated with the study of Aktar et al who found that 40.33% of 300 cases of PROM belong to age group between 21-25 years. In our study 49% of cases were grouped to 21-25 years.

69% of cases with PROM are booked compared to 80% in control group. There was no significant correlation between the antenatal care and incidence of PROM. Parity: According to Aktar et al chances of increased sexual activity and increased genital infection are most common among primigravida. In this study 53% were primigravida compared to control group. Risk factors in relation to PROM: In the current study most common known risk factors present in this study group were malpresentations (13%) and h/o recent coitus (10%) and previous h/o PROM and UTI accounts for 6% each. In this study by Newton ER, 8% of patients gave h/o PROM during their previous pregnancy. They stated that genetic factors as well as possible vaginal cervical infection could be contributory factor. Increased incidence of PROM in breech presentation has been noted according to Gunn et al study. Gestational age wise distribution: Out of 100 cases studied the percentage of PROM 28-31+6 weeks accounts to 7%. That between 32-36+6 accounts for 18% and 75% between 35-36+6 gestational age. Latent period: In the present study of gestational age with respect to latent period shows that, as gestational age increases, latent period shortens. Out of 100 cases with spontaneous rupture of membranes 64% cases went into labour within 24 hours, while 30% cases went into labour after 25-72 hours. 6% of cases had prolonged rupture of membranes i.e., more than 72 hours. According to Russel's study 80% established in 24 hours. Mode of delivery: Out of 100 cases 73% had vaginal deliveries 27% patients had LSCS. Incidence of instrumental and LSCS is higher in study group than controls. 27% of patients underwent LSCS because various indications mainly being fetal distress (51.85%) and second most common indication is

breech(22.22%). Number of induced cases in this study was 17.8% while 82.19% went into spontaneous labour. Out of 13 patients induced with cerviprime, 1 was failed induction. Rate of caesarean among patients with failed induction 11.8% according to Snehama et al while in the study group failed induction 7.69%. Maternal morbidity: In our study 11% had puerperal fever in study group in comparison to control group which is 2% and incidence of chorioamnionitis is 3% in study group. Burchell study found that 1.7% of patients developed fever within 24 hours of PROM, 18.6% after 48 hours. In our study incidence of puerperal fever within 24 hours is 3.125% and 24-27 hours is 3.33% and 33.33% after 72 hours. Risk of chorioamnionitis is 20% between 28-34 weeks. Neonatal morbidity: In our study of 100 cases, 26% of babies suffered from respiratory distress syndrome, 14% from septicemia and 3% from neonatal jaundice and conjunctivitis and 4% from intraventricular haemorrhage. Hauback (1948) found that latent period is more important factor than gestational age for the risk of neonatal infection, similarly gestational age is more important factor for risk of RDS than latent period, in relation to latent period. In our case, there was one baby suffered from pneumonia in the mother who crossed the latent period of 72 hours. NICU admission: In our study 36% of babies were admitted to NICU following PROM, out of this admission, <35 weeks of gestation were 64%. In the gestational age <32 weeks it was 85.7% and >35 weeks it was 25.5%. Neonatal death: Severe asphyxia and sepsis and intraventricular haemorrhage were major cause of death in our infants. Neonatal death with respect to birth weight, 33.33% of neonatal was attributed to birth weight <1.5 kg. 6.25% of death neonatal (1.5-2)kg and 2.7% between b. wt (2-2.5)kg.

Neonatal death in relation to latent period: In the latent period of more than 24 hours the studies are comparable.

CONCLUSION:

Premature rupture of membranes is common cause of preterm delivery. Thus, it is responsible for increased perinatal morbidity and mortality. Through excellent advances in care of preterm babies may reduce the perinatal morbidity and mortality following PROM, the ultimate solution lies in accurate determination of etiological factors and prevention of rupture of membranes before term. Antenatal diagnosis of preterm PROM by identifying risk factors is an important tool in the management of preterm PROM. In managing PROM, timely use of proper antibiotics, steroids and induction or augmentation of labour, reduce hospital stay and ultimately reduce perinatal and maternal complications.

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